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Abstract:

This synthesised report aims at providing a comparative view of agricultural sectors and policies in the MPC, based on the individual country reports and expanding the gathered information. It offers an overall depiction of the whole MPC region under investigation and a comparative perspective, along with a summary of the key country characteristics. More in-depth, country-specific information should be sought within the country reports.

In this sense, this report should be examined together with the individual country reports from which, country-related information have been extracted. References to the country reports are omitted for simplicity reasons, as it is defined that they constitute the basis of this report. In addition, and for the same reason, all references made within the country reports have been also omitted. Detailed reference sources can be found within the country reports. Any reference to additional sources, not referred to in the country reports, is explicitly mentioned.

In Annex II, following the Mediterranean Partner Countries' reports, a report entitled "Euro-

Mediterranean policy and other ongoing processes and their main impact on Mediterranean Partner Countries” is given, in which the relations between the EU and the MPC under the framework of the Euro-Mediterranean partnership (i.e. Barcelona process) are analysed.

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Preface

This report entitled “*Review of the national and international agro-food policies and institutions in the Mediterranean Region*” (**WP2T2**) is part of Deliverable **D09** “*Report on global and sectorial policies in the MPCs and in the EU*” for the **SUSTAINMED** project “**Sustainable agri-food systems and rural development in the Mediterranean Partner Countries**” (KBBE-2009-1-4-05) funded by the European Commission under contract reference no. 245233.

Under WP2T2 involved partners prepared country analytical reports for each of the Mediterranean Partner Countries (MPC) included in the project. These reports, prepared by experts that have established experience in agricultural matters in the related countries, were produced following a predetermined set of common guidelines so as to maintain a uniform presentation that would facilitate comparative views. Still, due to different levels of access to data and detailed information in various countries, especially in those countries that were under considerable turmoil in the period of research, the uniformity of reports and information contained was not always possible to maintain.

This synthesised report aims at providing a comparative view of agricultural sectors and policies in the MPC, based on the individual country reports and expanding the gathered information. It offers an overall depiction of the whole MPC region under investigation and a comparative perspective, along with a *summary* of the key country characteristics. More in-depth, country-specific information should be sought within the country reports.

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The country reports and the corresponding authors are shown in the following table:

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Libya	Boubaker Thabet	National Agronomic Institute of Tunisia
Morocco	Akka Ait El Mekki	National School of Agriculture, Meknes, Morocco
Syria	Atieh El Hindi, Haitham Al Ashkar	National Agriculture Policy Center of Syrian Arab Republic
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1. Description of agro-food sector

1.1 Importance and role of agro-food sector

Agriculture is a significant contributor to the national economies of Mediterranean Partner Countries (MPC). In particular regarding the employment rates, agriculture constitutes the main force for absorbing considerable amounts of workforce in these countries. Given the high rate of rural population in these countries, the generally low economic development and the low incomes, agriculture is a significant contributor also to social cohesion. One should also bear in mind that almost all MPC are net food importers and that the global food prices crisis in 2007/2008 that resulted in escalating food prices, gave also rise to social unrest, riots and in some cases, rebellions (e.g. Tunisia, Egypt, Libya, Syria).

The value-added contribution of agriculture to GDP ranges from around 15-20% for Syria and Morocco to a low of less than 3% for Jordan and Libya (**Table 1.1**). **Morocco, Egypt** and **Algeria** exhibit figures well-above 10%, while all countries, with the exception of **Algeria, Morocco** and **Syria** have experienced a considerable downsizing of their agricultural sectors' contribution to the GDP since the 1960s and 1980s so that today agriculture's contribution is about 50% less than two decades ago.

Nevertheless, the importance of agriculture for MPC is more noticeable when considering its contribution to employment. Almost all MPC suffer from very high unemployment rates (the average being just less than 10%), despite the fact that unemployment rates have shown a decreasing trend during the last decade (**Table 1.2**). **Tunisia** and **Turkey** had the highest unemployment rates in 2008 followed by **Jordan** and **Algeria**. Noticeably, of all the studied MPC, only **Lebanon** and **Syria** have unemployment rates below 10%¹.

The agricultural sector is the major source of employment for most MPC countries; on average, 23% of total employment is in the agricultural sector regarding all MPC countries (**Table 1.3**). Out of the studied countries, **Morocco** exhibits the highest figure: more than 40% of the labour workforce is employed in agriculture, followed by **Egypt** and **Turkey** with over 30% and 20%, respectively. Only in **Jordan** are agricultural employment levels around 3%.

Rural population is high in almost all MPC countries, predominantly **Egypt** where it accounts for more than 55% of the total population (**Table 1.4**). For the rest MENA countries it ranges from around 30% (**Turkey**) to 44% (**Syria**). The countries with the lowest rural population are Lebanon (12%), **Jordan** and **Libya** (both at around 22%). Consequently, **Egypt** also exhibits the highest percentage of agricultural population (27%) while in **Lebanon** and **Libya** it is less than 3%. When it comes to the economically active population in agriculture, **Turkey** exhibits the highest rate (10.8%), with no other country over 10%. **Morocco** has 9.2, followed by **Algeria** and **Egypt** (8-9%), whereas in **Lebanon, Libya** and **Jordan** the economically active population in agriculture accounts for less than 2% of the total population.

The relatively limited contribution of agriculture to national GDPs, despite both the significant percentage of employment as well as the high levels of agricultural protection², could be attributed - at least to a certain extent - to the low productivity of the sector. Low productivity in agriculture results also to a relatively large share of poverty in rural areas (IFAD 2003). This in turn, has an adverse impact on the countries' ability to modernise their agricultural sectors and boost the sector's ability to provide employment opportunities (that are needed in countries with low

¹ Data for Libya are not available.

² Egypt, Morocco, and Tunisia are among the 15 most protected economies in the world. (Minot *et al.* 2010).

per capita incomes and scarce job opportunities) and reduce imports of agricultural products (that do not only pose a severe fiscal budget, but expose MPC countries in price fluctuations similar to the food price crisis in 2007/08).

One key reason for MPC's low productivity is the fact that they are faced with adverse climatic and soil conditions (low and highly variable annual rainfall patterns, severe limitations in water resources, as well as soil erosion, desertification etc) (Minot *et al.* 2010).

The MENA (Middle East & North Africa) region (in which all studied MPC belong) is the most food import-dependent region in the world, as food imports accounted for 25–50% of national consumption and they are projected to rise even further in the future, primarily because of the exponential population growth in the region on the one hand and the limited potential for land expansion and scarce availability of valuable resources such as water and land on the other (Breisiger *et al.* 2010). In this sense, food security is matter of great concern in the MENA region; the escalating food prices worldwide and they worrying FAO projections for the next decades, further stress the importance of agricultural and food production in the region.

Agricultural sector is a major sector in **Egypt's** national economy. It is responsible for achieving food security, by using human and natural resources with technology and capital in intensive way. The annual average of the period (1995-2007) showed that agricultural sector provided about 31% employment opportunities of the total workforce, contributed approximately by 16% of GDP, and by nearly 9% of total exports. The agricultural sector has achieved a steady increase in the volume of investments directed to such sector. Agricultural investments reached about 1.13 billion US\$ in 2005/2006 and rose to approximately 1.5 billion US\$ in 2006/2007 even though it had not passed 6.3% of total public investment. While 35% of the economically active population was employed in agriculture in 1995, the agricultural share in total Egyptian GDP was only 17%, the same year.

In other words, there was a low growth rate of the Egyptian agricultural production, over the last decade, associated with imbalance between a low share of this sector in GDP and relatively higher share in total employment. Such imbalance implied lower productivity, in terms of average value of agricultural output per agricultural worker, compared with the national level, where the agricultural labour productivity reached only 50% of the national one. Egypt has remained a net importer of agricultural products, although its agricultural trade deficit has decreased in recent years.

Agriculture in **Jordan** contributed substantially to the economy at the time of Jordan's independence, but it subsequently suffered a decades-long steady decline. In the early 1950s, agriculture constituted almost 40 percent of GNP; on the eve of the June 1967 War, it was 17 percent. By the mid-1980s, agriculture's share of GNP in Jordan was only about 6 percent. Several factors contributed to this downward trend. With the Israeli occupation of the West Bank, Jordan lost prime farmland. Starting in the mid-1970s, Jordanian labour emigration also hastened the decline of agriculture. Many Jordanian peasants abandoned farming to seek for lucrative jobs abroad. Others migrated to cities where labour shortages had led to higher wages for manual workers. Deserted farms were built over as urban areas expanded. Agriculture's direct contribution to GDP has been around 5 percent since 1995, about 2-3 points less than its contribution in 1992. It is estimated, however, that 25-30 percent of economic activity depends on agriculture.

Lebanon has the ideal climatic, soil, and water resources – the highest proportion of cultivable land and the most reliable rainfall and river assets in the Arab world – to be one of the most productive agricultural countries in the Middle East region. Nevertheless, the agricultural sector and mainly the agro-food sector have been confronting many obstacles and barriers: civil war which corrupted many farms, lack of Government support (i.e. only 1 per cent of the budget is

allocated to agricultural sector) such as poor agricultural research and extension, and unclear agricultural policies. Agriculture is in many ways at a crossroads in Lebanon, seemingly able to gradually extinguish itself or instead, revive and take shape as a vibrant sector of the economy, providing economic opportunities and contributing to food security.

Agriculture in Lebanon is characterized by the prevalence of traditional cropping. Urbanization is rapidly encroaching on rural areas including fertile land, even though substantial areas are unused or abandoned. Although the role of agriculture in the country's economy is declining, it still occupies an important place, generating 6.7% of Lebanon's Gross Domestic Product in 2004 and employing roughly 9% of the labour force in 2003. Agriculture plays a significant role in Lebanon's national economy, since agricultural products provide a good deal of the raw materials for the industrial sector. Agriculture contributes about 12 per cent of the GDP and employs 9 per cent of the total workforce. Nevertheless, and despite the importance of the agricultural sector, Lebanon has a widening agricultural deficit and growing food dependence.

Libya is the fourth largest country in Africa by area. Typically, agricultural activities are limited to the northern strip bordering the coast, plus a number of cultivated spots in hilly areas and oases. Libyan agriculture is confronted with a highly variable rainfall, which is very concentrated in the winter season, thus constituting a severely limiting factor on the growth of plants and therefore on agricultural production. Libya is considered a quite arid country as most parts of the country are either semi-arid or arid. Only about two percent of the country's arable lands; i.e., 36000 Km² (or 3.6 million hectares), receive enough rain to envisage cultivation.

Libya has sought to expand its agriculture since the early 1970s; following the 1969 revolution. Its success in this regard has rather been limited despite the heavy public investments that equalled 30 percent of government expenditures in the 1970's. For example, production of cereals in 1998 (207,000 metric tons) met only 15% of the country's needs. Therefore, Libya has been all along dependent on large food imports, estimated at about 75 percent or more of its annual needs.

The fate of Libya's agricultural economy has been inversely related to the discovery, extraction, and exportation of petroleum. After the discovery of oil in the late nineteen fifties, agricultural production declined sharply as migration into cities began in earnest. In 1958, just before the beginning of the oil wealth, agriculture contributed over 26 percent of the GDP and Libya actually exported food. This amount tumbled to just 2% by 1978, and fluctuated since to remain presently at about 5%. Libyan agriculture is a small contributor to GDP. The primary reason is the predominance of increasing oil revenues. In addition to that, major barriers limit its growth. The very limiting nature of arable land (2% of Libya's area), the scarcity of water resources, the over-use of arable and grazing land and fertilizers, along with the shortage of labour are among the typical explanatory variables for the sluggish agricultural growth in Libya.

Despite these limitations the current value of agriculture output has grown over the years, as did the general GDP of Libya. This growth has been accompanied though by a continuous depreciation of the currency of the country (dinar) along with a moderate rate of controlled inflation. In constant monetary and/or real terms, however, the registered nominal growth would be obviously much less impressive.

Agriculture is considered one of the main pillars of the **Moroccan** economy. Its contribution to the GDP lies between 12 to 17% (14.5% in 2009) and can grasp almost 40% of the workforce for employment. The total agricultural area is about 9 million hectares of which nearly 85% are cultivated in rained production system. Irrigated agriculture is practiced in about 1.4 million hectares and in average contributes to 45% of the value added of the agricultural sector.

Arable land in **Syria** represents 32% of the total area, non-arable land 20%, meadows and pastures 44.5%, and forests 3%. In 2009, the total actual cultivated land was about 4.34 million hectares, 70% of which is rain-fed and 30% irrigated. The percentages of urban and of rural population are 53% and 47%, respectively. Agro-food is a leading economic sector of the Syrian economy, its contribution to employment and income generation ranges between 20-25 percent depending on the rainfalls. Agro-food sector plays crucial functions in raising food security, enhancing inflows of hard currency through export, stimulating economic activities in marketing, transport, and processing as it supply agro-food industry with raw materials. In addition, it plays an important role in protecting environment, reducing pollution, and enhancing the beauty of the nature.

Generally, the contribution of agriculture sector ranges between 20% and 25% of the total GDP depending on rainfall rates in different years. The agro-food sector offers employment for roughly 20% of the workforce. However, the draught swept the region forced many farmers mainly in the northeast Syria to abandon farming to work in other governorates. It is estimated that the total workforce in 2009 (more than 15 year-old) amounted about 5 million, of which agricultural sector employed 758,286 worker representing 15% of the total work force (31% in 2000 and 26% in 2003), and ranking fifth in its contribution to employment.

In **Tunisia**, agriculture provides a minimum of 16% of the employment, which is also a major decline from the sixties when major employment (about 30%) used to be generated by rural activities and the agricultural sector in particular. While this is an indication that other sectors of the economy have been contributing more and more to employment, and to general economic growth for that matter, agriculture is still contributing adequately as (1) its share in total investment does not exceed 10% and (2) its economic growth is lagging behind that of the overall economy. This suggests that on a 1% basis of investment, agriculture is still contributing to employment than other sectors.

In **Turkey**, the agricultural sector has always been a major contributor to GDP and exports; in addition it has been the largest employer sector in the economy. Although the sector losses its importance in overall GDP and exports in the last decade, it still absorbs significant amount of unemployed people. For instance while the agricultural sector's share in the economy has fallen down from about 20% in the 1980s to 8.3% in 2009, it has been employing almost about 50% of total employment in the late 1980s whereas it is about 25% of total employment and 63% of rural employment in 2009. Obviously, the contraction in agricultural GDP is expected as the urbanization increases with the economic development but surprisingly agricultural employment does not adjust to development that fast. Still, it is the only sector that provides employment opportunities for female population in the rural areas. The importance of agriculture in Turkey is further enhanced when the whole agro-food chain is considered. The food industry particularly is one of the major manufacturing sectors that play an important role in the economic growth of the Turkish economy and rural development, plus it contributes to exports significantly. Agriculture supplied 11% of total exports and accounted for 7% of total imports in 2008.

1.2. Main Agricultural Commodities

The main agricultural commodities in *all* the studied MPC are fruit and vegetables and meat products. Citrus fruit, melons, dates, grapes, olives and apples are the most important fruits and potatoes, tomatoes and onions regarding vegetables. Cereals (predominantly wheat as well as rice in **Egypt**), sugar crops (sugarcane in **Egypt**, sugarbeets in **Morocco** and **Syria**) and cotton (in **Egypt**, **Syria** and **Turkey**) are the most important other crops. Olive oil is also produced in most MENA countries but its production is mainly concentrated in **Tunisia**, **Syria**, **Turkey** and **Morocco**. Regarding livestock production, milk and chicken/turkey production are the main products in most MPC (see also **Figures 1-9**).

The countries with the largest agricultural sectors in terms of value of agricultural production are by far **Turkey** and **Egypt**, with 35 and 23 billion int. \$ respectively; their sectors are around three to four times larger than the following country, namely **Morocco** (**Table 1.5a**). No other country has a value of agricultural production greater than 6.5 billion int \$, while for **Jordan**, **Lebanon** and **Libya** it is below 2 billion. **Algeria**, **Jordan** and **Morocco** have increased their value of agricultural output by over 50% in the period 2001-2009, followed by **Tunisia** and Egypt (30-40%). The remaining countries exhibit a much less lower growth pattern that ranges from 15-20%.

It is worth noting that for all countries but **Algeria**, **Jordan** and **Libya**, the value of non-food products has dropped in the last decade; in Egypt it fell by more than 65%, in **Turkey**, **Syria** and **Lebanon** by around 20%, while in **Libya** and **Tunisia** it fell by merely 2-3%.

The rather uniform structure of the agricultural sectors of the MPC under study is further evidenced in **Table 1.5b**. Crop production constitutes by far the most important element of agriculture, accounting from 60% (**Libya**) to 76% (**Egypt**) of the value of agricultural production. Livestock production on the other hand, represents the remaining, lesser portion. Still, the share of livestock production has been steadily rising in all MPC countries, excluding Turkey which the only country where the share of livestock production in 2009 is lower than in the 1960s.

Cereals are a major product for the majority of the MPC countries; in fact a clear cluster formation can be observed: One cluster includes **Egypt**, **Turkey** and **Morocco** accounting for a 14-19% of the total value of agricultural production, another **Algeria**, **Syria**, **Tunisia** (around 10%) and the final one includes the remaining countries (**Lebanon**, **Libya**, Jordan) where cereal production constitutes a lesser part of the total value (0.6-2.6%). Interestingly, the share of cereals in the period 1961-2009 shows a slow downward trend in all countries, with the exception of **Jordan**, where the drop has been more dramatic: cereals in the 1960s accounted for a little less than 10%, only to drop to less than 1% in 2009.

Finally, regarding non-food products, for all countries this category represents a little less or a little more of 1% of the total value of agricultural production. The exceptions are **Syria** and **Turkey** where the corresponding figures are higher: 6.9% and 4.6% respectively. In **Egypt** the steady and rapid decline of the share of non-food products is impressive after the 1960s and the 1970s; it has fallen from more than 13% to around 0.7%.

1.2.1 Crops

Apart from the noticeable pattern of main commodities grown (due to the rather similar climatic conditions in the region), another clear common characteristic is the low productivity observed in most MPC when compared with international standards.

Agricultural land comprises a large part of the country's area in Syria (75%) as well as Lebanon, Morocco and Tunisia (60-65%). In Turkey it is around 50%, while in the remaining countries Algeria 17%, Jordan 11%, Libya 8%, Egypt 3.6%.

Organic agricultural areas are very scarce in all MPC countries: In Tunisia organic agriculture covers around 1.8% of the total agricultural area, while in all the rest it is well below 1%.

Algeria and Turkey have the largest agricultural areas, while Jordan and Lebanon the smallest (**Table 1.6**). Nevertheless, in Algeria the highest percentage of the area is actually permanent meadows and pastures (around 80%). Similar is the case in Libya, Jordan and Morocco. Excluding Egypt that has no pastures, Turkey is the only other country where pastures represent less than 50% of the total agricultural area.

The most important crop commodities in each country in terms of harvested areas, production volumes and value of production are depicted in **Tables 1.7-1.9**. Average yield in cereals and oilcrops is below the world's average in all MPC countries, but **Egypt** (**Table 1.10**). Regarding fibre crops, only **Syria, Turkey** and **Egypt** surpass the world's average, but on the other hand the majority of the MPC exhibit a much higher productivity rate in fruits and vegetables. The value of agricultural production per agricultural worker reveals that the overall productivity of the agricultural sectors in the MPC is higher than the world average, but it is still Algeria is the only country that has a ratio lower than the world's average quite low when compared to the European average (**Table 1.11**). Algeria appears to have the lowest output per worker, followed by **Morocco** and **Egypt**. All countries exhibit a productivity ratio 3-4 times lower than the European average, excluding Jordan (2 times), **Libya** and **Lebanon** which is the only MPC with a higher ratio. In fact, **Lebanon** is the country that exhibits an impressive increase of the productivity per worker ratio in the period 1980-2009 (more than 5 times). **Egypt, Jordan, Libya** and **Morocco** also appear to have a significant increase as well, whereas **Tunisia** and **Turkey** exhibit a more modest increase (60-80%). On the other hand, **Algeria's** productivity increase is below the world average (33%) and **Syria** exhibits a significantly low increase of productivity which barely exceeds 10%, although it had in the 1980s the second highest output value per worker among the MPC.

The total agricultural area in **Egypt** was around 3,689 million hectares in 2009. The major component of the agricultural land is the Nile delta and its valley until the Sothern border of Egypt, which is called the old land. It represents 70% of the total. The rest is reclaimed desert land called new land. Most of agricultural land (97.6%) is surface irrigated by Nile water. The rest is 2% underground water and 0.4% rain fed, concentrated at the north west of Mediterranean shore. More than 80% of water resources in Egypt are utilized for agriculture. The permanent crops share was 22% of the agricultural area.

Fruits are not only the main permanent crop, but they have also a significant share in Egyptian agricultural exports, 583 thousand tons of fruits, i.e. 6% of production, were exported in 2009. Citrus (Lemon, Limes, Mandarin and Oranges) are the main producing fruits in Egypt. Citrus, also, represent one-half of the exported quantity of fruits in the same year, where the bulk was oranges. Citrus represent one third of fruits consumption. However, the share of fruits in daily calories intake is around 5% and 2% of protein intake. Date palm as the second category among permanent crops in Egypt, occupying 20% of the permanent crops area, provides about 1.3 million tons of production. However, dates almost recognize self-sufficiency in Egypt. Only 5,000 tons are exported and one ton of special quality is imported from Saudi Arabia. Dates yield per hectare in Egypt is one of the highest levels in the world, around 15 tons per hectare, while the world average is around 5.75 tons per hectare.

The main crops in winter are wheat and clover (Berseem). The later is the main fodder crop in Egypt. They occupy 6 month (Oct. – May). The first occupies about 55% of winter and the second

occupies around 26% of winter area. Since the last decade, within the economic reform era, the government has provided a guarantee wheat price higher than the international price of wheat. This policy instrument encouraged farmers to deliver their wheat for being processed as subsidized common bread and to raise the wheat self-sufficiency as basic strategic crop. Such incentive p has lead to decrease the Berseem area, as competitive crop, from one third to less than one-fifth of agricultural area in Egypt. The area taken from under berseem allocated mainly for wheat and opened, relatively, a place for sugar beat area to expand. The changes in price policies would explain to some extent such changes in cropping pattern.

Wheat production reached about 7.4 million tons in 2009. Even though, it hardly covered 56% of consumption in that year. Egypt is the first importer of wheat in the world market, where. Wheat imports surpassed 5.9 million tons in 2009. The shortage of wheat production to cover consumption is not due to low productivity, as the Egyptian wheat yield reached 2.2 folds the world average in 2009, which put Egypt at the top of the world's countries in wheat productivity. However, as Egyptian Agriculture is fully surface irrigated with suitable weather and intensive fertilization the potential wheat productivity is at least 50% higher than the existing level. It seems that, limits of available agricultural land in winter are the constraint, which is also associated with water limitation.

The summer season crops are numerous but, the two most important ones are maize and rice, which represent about 40% and 32% of the aggregate total summer cropped area, respectively. They are concentrated in old land. In general, the summer crops are concentrated in old land region, because in summer, weather is hot and new land usually is much poorer land, close to sandy. Therefore, cultivating such crops in new land consumes more water and more fertilizers. Water charge is more costly in new land; due to not only more quantity, but also it is of the higher cost of irrigation network, using electricity power, sprinkle, and/or drip irrigation.

Egyptian rice is a main exportable agro-food commodity. The exported quantity surpassed 27% of production in 2009. The average yield per hectare of maize and rice was in 2009 more than two times higher than the world average. Even though there is a probability to expand area and production of both crops, the limited water resource in Egypt is a constraint to expand rice area. Rice and maize are the second important food items in the Egyptian diet after wheat. Together they provide 28% of calories and 23% of protein in the daily food intake.

Egyptian cotton, historically, was the main crop in the cropping pattern. However, empirically, cotton now is occupying not more than 6.5% of summer-cropped area. Dramatic changes of Egyptian economy and contradicted Policies as well as lack of proper management of related institutional framework in Egyptian economy has lead to rapid deterioration in the area, yield, and associated domestic industry of cotton. Even though, cotton is still occupying almost, value-wise, the front of agro-food exports bill. The Egyptian cotton still has a higher yield per hectare than the world average, and has unique quality of extra-long staple at the highest price in the international market.

The most important vegetable crops are Tomatoes, Potatoes, Onion, and Green beans, in winter season. They occupy 32%, 19%15% and 8% of winter vegetable cropped area, respectively. Water melon for seeds, Strawberry, Tomatoes and Potatoes,, occupy 19%, 19%13% and 11% of summer vegetable cropped area, respectively. During Nili Season Tomatoes, Potatoes, Egg plant and Green pepper occupy 29%, 26%, 8% and 7% of vegetable cropped area, respectively.

Fruits and vegetables in **Jordan** are the main crops either measured as the share in the area or as income generated. Area under fruits decreased from around 858 thousand hectares in 2003 to more than 827 thousand hectares in 2010. However, the share of irrigated area of fruits increased from about 39% in 2003 to more than 54% in 2010, associated with shrink in rain-fed fruits. The

irrigated area has increased annually, at approximately, 4.3%, while the rain-fed fruits area decreased faster at 4.6% a year along the last decade. In contrast, vegetable area had increased from 344 thousand hectares in 2003 to more about 481 thousand hectares in 2010, where most of it was irrigated, i.e. around 95%. The expansion in vegetables area included both irrigated and rain-fed at an average annual growth rate of 4.7% and 6.5%, respectively. The Seasonal field crops have shown high rate of expansion of about 11.6% a year, in the area under irrigated system, which doubled the share of irrigated field crops in the total area of such set of crops from only 5% in 2003 to 10% in the year 2010.

The major vegetable crops in Jordan are Tomatoes, Potatoes, and Watermelon. There was an apparent expansion in tomatoes area after 2005 which made such crop occupied more than 100 thousands hectare in recent years, associated with a similar increase in production of tomatoes from 324 thousand hectares in 1999 to almost 610 thousand tons in 2009. Potatoes area had moved over cycle alike. It decreased from 40 thousand tons in 1999 to a minimum of 35 thousand hectares in 2004, and then started an increase up to 53 thousand hectares in 2009. Production of potatoes has passed a similar trend over the period 1999-2009. Potatoes produce was about 95 thousand tons in 1999 raised to 172 thousand tons in 2007 and then dropped to 99 thousand tons in 2009.

The three major fruit trees in Jordan are oranges (citrus), olive, and apple. While olive reached around 6.8 million trees, the citrus trees reached about 1.9 million trees and the apple trees number was about 1.5 million trees, in 2009. Production of the three major fruit trees fluctuated almost at the same pattern of the area along the period 1999-2009. The production of Jordan reached around 125 thousand tons, 90 thousand tons and 31 thousand tons, of olives, citrus and apples, respectively, in the year 2009.

The total cultivated area in **Lebanon** in 2006 was about 279 thousand hectare. Many crops are grown in Lebanon; they can be classified to the following categories: Cereals, Legumes, vegetables, industrial crops, fruitful trees, and other trees. Lebanon is seeking to diversify and produce more unusual fruit varieties, such as kiwi fruit, pomegranate, custard apple and even truffles. But it largely produces standard crops like apples, pears, potatoes, onions, grapes and citrus fruit. The olive oil industry is ancient and produces extremely high quality oil, some of which is sold by specialist distributors in the UK. Another major growth sector is the wine industry which is now well represented in Europe and wins many awards. The banana industry is also expanding fast, with a 100% increase in exports in 2006 compared to 2003. All of these exports have the potential to do better in the EU as tariffs disappear over the next few years. Tastes in dairy products are also changing, with consumption of fresh milk and cheese increasing at a rapid pace as more dairy farming is introduced. Standards though will remain a problem for the foreseeable future.

In **Libya**, typically, agricultural activities are limited to the northern strip bordering the coast, plus a number of cultivated spots in hilly areas and oases. Based on soil and climate, one can distinguish four major agro-ecological regions in Libya:

- The costal belt, a narrow plain along the Mediterranean coast with a width of 5-25 Km, extending to about 100 Km on the western side at the Jefara plain, and with an average annual rainfall of up to 200-250 mm,
- Hilly areas, flanking the coastal belt from the south and cover the Jabal Al Gharbi (western mountain) to the west and the Jabal Al Akhdhar (green mountain) to the East, with an average yearly rainfall of 200-300 mm and 250-600, respectively,
- Pre-desert areas, neighboring the hilly areas from the south, and receiving up to 50-150 mm of rain/year

- Desert areas, except for the scattered oases, they are barren desert lands with no potential for agricultural activity with no irrigation

The climatic conditions limit Libya's grain production to two main cereal crops: wheat and barley. Furthermore these crops are restricted to just a narrow, rain-brushed ribbon of land (and its adjacent highlands) along the coast, and a few irrigated areas in isolated oases. Cultivation of autumn-sown wheat and barley is made possible because there are two main water sources. First, there are important reserves of shallow groundwater in Tripolitana, along Libya's northwest coast. This source permits significant irrigation. Second, the scant coastal precipitation that does occur fortuitously falls during the winter grain growing season (November through April). While wheat is the generally preferred food grain by farmers as it is typically grown on better quality land and produces typically about 125,000 tons per year, whereas barley yields just 80,000 tons barley is grown increasingly on larger areas as it is more adaptable to the marginal climate and soils, so it is a popular choice for the Libyan farmer located in the drier agro-climatic zones. The country's cereal yields are generally paltry due to moisture scarcity and marginal soils. Wheat averages just 0.8 tons per hectare and barley averages around 0.5 tons per hectare. Other grains produced include less than 10,000 tons of millet yearly, and 2,000 tons of irrigated corn.

Other crops are also grown in Libya mainly potatoes (210,000 MT), watermelons, (210,000), olives (190,000), onions (180,000), tomatoes (158,000), dates (130,000). These crops make up about 80% of annual Libyan agricultural production.

In **Morocco**, the most important areas of rainfed agriculture represented by the plains of Sais, Chaouia, Haouz, Doukkala and Tadla. Cereals are the major crops of the production system in the country. They annually cover nearly 60% of the total acreage, an area of about 5 million hectares. Barley remains the most widely grown cereal with nearly 42% of cereal area, followed by soft wheat (38%) and durum wheat (18%). The level of grain production is strongly linked to the climatic conditions, especially rainfall. Yields per hectare are relatively low with an average of 15 quintals for soft wheat, 13 quintals for durum wheat and 10 quintals for barley. For the agricultural campaign of 2008-09, which has been marked by optimal rainfall, the production of the three cereal species reached 4.5 million tons, 2 million tons and 3.7 million quintals respectively.

As for pulses, their acreage has reached 380,100 hectares in 2008-09. The bean is ranked first with 46% followed by chickpea (20.2%), lentils (13.5%) and peas (9.6%). Total production is estimated at 310,000 tons. It should be noted that the production of pulses has remained relatively stable over the past 10 years around 250,000 T but with higher levels during the years of good rainfall.

For sugar crops, the cultivation of sugar beet covers around 60,000 ha in the last ten years. In 2008-09, the area was relatively limited and the main reason was the bad weather that occurred early in the season. Indeed, the abundance of rain that fell in planting season especially in the Gharb region was reflected in a negative way about the possibilities of access to land. Unlike the fall of the area (55,000 ha), yields have increased by almost 8% to 55 T/ha. With this performance, total production reached 2.8 million tons against almost 3 million tons in 2007-08, down by nearly 7.7%. As for sugar cane, its total area averaged 18,000 hectares annually. But, it fell 7% to 15,700 ha in 2009. The average yield amounted to 69.5 t/ha that allowed to harvest close to 920,000 T.

For oil crops, we have to distinguish between olive oil production and that of oilseeds. Since 1995, the area covered by the olive tree has grown by an average of 10,000 ha to 680,000 ha during the 2008-09 campaign. This extension is mainly due to the intervention of the Agricultural Development Fund (ADF) grant for olive plants of different varieties at a rate of 80% of the

purchase price. Production is estimated at 850,000 t which allowed processing nearly 85,000 t of olive oil and 100,000 t of preserved olives.

On the other hand, the achievement of sunflower area record depends on the weather and especially the spring rainfall. During the past decade, it peaked at 118,000 ha in 1997 allowing the collection of 85,000 T. In 2008-09, the weather conditions for the installation of fall crops (cereals in particular) early in the season contributed greatly to the increase in area of spring crops including sunflower which registered 63,750 ha acreage. Average yields are generally low and rarely exceed 1.5 tons/ ha. In 2008-09, yields were 1.33 T/ha and lead to harvest nearly 60,400 tons.

The average area reserved to vegetable crops is nearly 250,000 ha in the last ten years. It reached 267,000 ha in 2008-09, representing an increase of 5% compared to 2007-08. The potato, onion and tomato are the main species with respectively about 60,000 ha, 30,000 ha and 17,000 ha. Total vegetable production, taking advantage of good rainfall year, reached nearly 7.3 million tons in 2009, an increase of 6% over the previous year. Nearly 76.5% of this production corresponds to the season crops while the rest is for early crops (20%) and for agro-industry crops (3.5%).

Season crops have covered almost 229,000 ha against 217,200 ha the year before. They concern a wide range of vegetable species dominated by potatoes with 25.7% of total production followed by melon and watermelon (23.5%), onions (15.5%), carrot and turnip (7.7%), tomato (6%) and green beans (5%).

Early crops are mainly represented by the tomato with 20% of the total area and 48% of the harvested production. Area and production of other export-oriented crops are increasing, namely the green beans, peppers and zucchini. Agro-industry crops are dominated by tomato and sweet pepper (*Niara*) with a production share of 88% and 11.7% respectively.

The tree crops area covers nearly 1.1 million hectares or just over 11% of the total UAA. It has increased in average by nearly 20,000 ha each year between 1995 and 2009. The olive tree is by far the most dominant species as it covers almost 65% of the area tree (680,000 ha). The area occupied by the almond tree is second with 146,000 ha followed by that of citrus with nearly 92,000 ha. The viticulture sector covers nearly 50,000 hectares while the area occupied by the Rosaceae crops (other than the almond) and seed amounts to 60,000 ha.

With regard to vine, the harvested tonnage amounted to 288,000 t of which 73% of table grapes and 27% of wine grapes. While weather conditions have contributed to the increase in production recorded over the past years (2004-08), we note also the improvement of the production process adopted by growers. Indeed, most of the growers have made great efforts in conducting this crop using drip irrigation and proper reasoning fertilization and phytosanitary treatments.

Syria is characterized by high diversity of agricultural production, including large variety of fruits, vegetables, and grains, in addition to livestock products such as dairy products, meat, fish, eggs, leather, honey, etc. Since the beginning of nineties, the agricultural production, plant and livestock, has witnessed considerable development. This can be explained by the expansion in the cultivated area mainly under irrigation, improved seeds, fertilization, and applying modern agricultural techniques. The livestock sector has also achieved remarkable development due to the supportive governmental policies such as providing feed and other inputs at subsidized price, and veterinary medicines free of charge, and the adoption of high productivity spices.

Crops grown in Syria can be divided to several groups: Cereals, legumes, Grazing Crops, industrial crops, vegetables, and fruit tree Crops. Main Cereals are wheat and barley, followed by maize and sorghum; main legumes are lentil and chickpeas; main grazing crop is barley, main industrial crop

is cotton and sugar beet, tobacco; main vegetables tomato and potato, and main fruit tree Crops are olives, citrus, and apples.

The major crops grown in **Tunisia** are cereals, food legumes, cash crops, forages and tree crops. Cereals are made up of durum, soft wheat, and barley and with an increasing share of triticale. Food legumes include beans (mainly of the type faba) and chick beans. Cash crops are much diversified and are usually grown on irrigated lands which amount to about 460000 Ha; i.e. about 8% of total arable land. Tree crops constitute a large component of the agricultural activity of farmers as they cover over 2 million Ha, with the dominating activity being olive production.

Turkey is ranked among the largest countries in the world in terms of the covered agricultural land area. In 2009, the utilized agricultural area was 38 935 000 hectare but since 1998 this land has decreased by around 3 million hectares (an annual average rate of 0.3%). According to the 2006 Agricultural Holdings Structure Survey results, 6% of the land is operated by holdings engaged in both crop production and animal husbandry; the share of land operated by holdings engaged only in crop production and animal husbandry is 34% and 0.5% respectively.

In world markets Turkey has a significant place with respect to production of several commodities. For example Turkey is ranked as the biggest in hazelnuts, apricots and cherries production; as the second-largest producer of cucumber, pistachios, watermelons, figs, lentils and chestnuts; and the third most important producer of chickpeas, onions, apples, walnuts, olives. Fruit and vegetable production together accounted for 55% of total production value in 2009 and it is mainly composed of apples, tomatoes, grapes, watermelon, citrus, apricots, cherries, hazelnuts, chestnuts, figs, pistachios and cucumbers. Wheat is followed by barley and then by industrial crops and oilseeds. In terms of production value, wheat constitutes the largest share in cereals (63%), followed by barley and maize (18% and 12% respectively). While sugar beet, cotton and tobacco constitute almost all the produced value of industrial crops (49%, 35%, 17% respectively), chickpeas, dry-beans and lentils are the important pulses, while sunflower and potato are the two important oil and tuber crops, respectively.

1.2.2 Livestock

Livestock production is an important element of the agricultural sectors of the MPC; livestock products constitute a significant part of the traditional diets in these countries and livestock breeding has a long standing tradition that dates back to the ancient times. **Turkey** and **Egypt** are the countries with the highest value of livestock production (**Table 1.12**). **Morocco, Syria** and **Algeria** that follow, produce only half the value of **Egypt**. The value of livestock production in the remaining countries is much lower, with the smallest figures exhibited by **Jordan** and **Lebanon**.

For all countries but **Syria**, poultry meat is the most important meat product produced in terms of output volumes (**Table 1.13**). The share of poultry meat ranges from 41% in **Syria** to as much as 81% in **Jordan**. Beef & buffalo and sheep & goat meat are the other two major meat products and in all countries their share are rather similar. The only exceptions are **Syria**, where beef meat production is quite low and **Egypt** and **Lebanon** where sheep and goat production represents only a small fraction of total meat production.

Milk production is by far the highest in **Turkey** and **Egypt**, whereas **Jordan, Lebanon** and **Libya** have quite low production volumes. **Egypt** produces almost 70% of the total cheese production in the MPC included in the study, while roughly similar is the situation regarding egg production and milk production: **Turkey** produces around 55% and 62% of the total output volumes, respectively.

The major livestock production system in **Egypt** is the traditional mixed agriculture farming system (buffaloes and native cows) which is characterized by very small herd size -typically just one or two

animals. Traditional mixed farms produce crops and livestock for both home consumption and sales. Livestock, under this system, is relatively intensive and concentrated on smaller, subsistence-oriented farms in the irrigated cropping region. This intensive village-based system predominates for cattle, buffalo, and small ruminants and produce 80 % of all beef, 90% of all milk and dairy products, and 70% of all mutton. Then, the success or failure of Egypt's livestock development program depends upon their ability to influence traditional smaller farmer's decisions on investment in livestock. The traditional system still accounts for an estimated 75 percent of total milk production.

The other principal production system is the commercial buffalo dairy herd. These units, up to mid of eighties were known commonly as "Zaraba herds" or "flying herds". They are located on the outskirts of major urban centers, such as Cairo and Alexandria. Normally, there is no breeding or production of replacement animals from within these herds themselves. Rather, lactating buffalo cows are purchased from outlying rural villages, and these animals are sold for slaughter once they have completed lactation.

Recently, another transaction system has been raised. The dairy buffalo operator replaces his buffalo cow during the year, through agents, in order to keep his milk supply stable over the entire year. The culled buffalo usually returns to traditional herd, where the breeding system is found. This system composes of, relatively, small commercial dairy herds. Herds of 15 to 30 animals are common, while somewhat larger herds also exist. Most feeds are purchased and consist of clover, crop residues from nearby farms as well as food processing wastes and feed concentrates purchased through private and government channels. These herds account for an estimated 11 percent of milk animals and 13 percent of milk production.

The extensive Bedouin system provides 30% of all mutton, which is destined primarily for export. The intensive commercial dairy system operates large and medium scale farms that, with 30,000 to 40,000 Holstein cattle in production, contribute 10% of all milk and dairy products.

Livestock production in **Jordan** was limited in the late 1980s. Jordan had about 35,000 head of cattle but more than 1 million sheep and 500,000 goats, and the government planned to increase their numbers. The annual production of red meat ranged between 10,000 and 15,000 metric tons, which covered less than 33 percent of domestic consumption. A major impediment to increase livestock production was the high cost of imported feed. Jordan imported cereals at high cost for human consumption, but imported animal feed was a much lower priority. Likewise, the arid, rain-fed land that could have been used for grazing or for fodder production was set aside for wheat production. Jordan was self-sufficient, however, in poultry meat production (about 35,000 metric tons) and egg production (about 400,000 eggs), and exported these products to neighbouring countries, up to late 1980's.

Sheep and goats are the main livestock types in Jordan. It should be mentioned that a specific phenomenon is characterizing the sheep and goats flocks in Jordan, Iraq, and Saudi Arabia. The three countries have joint adjacent borders. The Nomadic and semi-nomadic Arabic Tribes living in these areas move from one country to another searching for either water points, and/or green range area. When one of these three countries was providing a program of concentrate feed supplements while the other two had drought or poor range areas. Those tribes do not hold well-defined identity, as they are nomadic. Rainfall in these concerned regions is low (below 150mm³) which fluctuates between poor years to moderate years. Such fluctuation affects much the feed supply in terms of range areas. When the rainfall is good, ranges grow moderately, thereof, shepherd men keep ewes for rebuilding the herds, leading to decrease in the off-take rate to its minimum. During poor years, the shepherd men get rid of large proportion of their herds, including ewes, to get a balanced carrying capacity of the herds on range acreage. Accordingly, the

off-take rate may surpass 70% in sheep herds. Goats are more resistant to drought conditions. Therefore, the off-take rate would stay within norms, i.e. up to 45%.

Broiler production and commercial laying hens performance in Jordan is another livestock activity in Jordan. There was a trend of declining in both broiler and table eggs productivity over the last decade, which made the dressing weight per broiler around 1 Kg, while this industry standard surpassed 1.5 kg. In addition, table eggs yield per hen decreases from 245 pieces to around 190, while the modern industry performs an average of 250 per laying hen.

Libya's animal husbandry which includes mainly sheep and goats and to a smaller degree cattle and camels, has suffered from the international sanctions that were imposed on the past Libyan Government during the nineties, thus limiting imports of animal feed on which local livestock activities depend heavily. For example, the production of beef and veal dropped from 22,100 metric tons in 1994 to 2,100 metric tons in 1998. Apart from these imports, the main source of feed is rangeland which amounts to two and a half times the arable land (5%) but provide a quite variable supply of feedstuffs.

Concerning sea food production, one notices the low annual catch (34,500 metric tons in 1997) despite the richness of its waters in exportable fish (e.g., tuna and sardines). For comparison purposes, neighbouring Tunisia which has a Mediterranean coast of a similar length produces about 3 times more sea food commodities. Low investments in fishing boats, ports, and processing facilities are major obstacles to the growth of sea food production. The country has 1 major fishing port (Zlitan), 1 tuna plant, and 2 sardine factories with small processing capacities (1,000 metric tons per year each).

To some extent, these trends of low agricultural performance in Libya are not surprising. The advent of oil wealth provided many Libyan peasants with opportunities to engage in less exacting and more remunerative work in the urban areas, resulting in a huge rural migration to the cities. The large number of people that used to be engaged in agriculture prior to 1960 reflected, therefore, not a thriving agricultural economy but merely the absence of attractive alternatives, particularly in comparison with the oil sector.

In **Morocco**, in 2009, the red meat production totalled 425,000, thus registering an increase of 6% over 2008. This increase is due to livestock restocking following good weather conditions that prevailed during 2008-09 campaign and that would have led many breeders to limit their sales. For the period 2005-09, beef takes an average of 44% against 30% and 5% respectively for sheep and goat meat. The rest is compound of offal and camel and equine meat.

Poultry meat production registered a steady increase since the early 1990s because of the rapid development of the poultry industry. In 2009, production increased to 490,000 T or 363% and 136% over 1985 and 2005 yield respectively. Poultry farming has also produced nearly 3.9 billion eggs. This quantity is relatively stagnant since 2007, probably because of saturation of the market demand.

Milk production is estimated at nearly 1.96 billion litres produced mainly in irrigated areas of the country. It recorded a relative increase compared to 2008 but very significant compared to 1985 (359%) and 1995 (236%). This performance is largely due to efforts that have been made to improve milk production within the Dairy Plan launched by the Ministry of Agriculture in 1975. It should however be noted that despite these efforts, the level of production initially projected 2 billion litres in 2000 was not met at this year. The poor performance of livestock, erratic weather conditions and problems of professional organization are the main problems identified in this regard.

Livestock and animal production in **Syria**, make up a very important component of the agricultural output. It offers a vital nutritional source, employment opportunities, and contributes as well to improving farming efficiency when optimal integration between plant and animal production is achieved. Furthermore, livestock represents a form of saving for rural households. Sheep breeding plays a central role in the subsistence and social organization of the Bedouin population.

The Syrian main livestock is represented by sheep, goats, cattle and poultry. The numbers of livestock grew positively between 1999 and 2008. The average annual growth rate for cattle, sheep, goat, and poultry were respectively 4%, 9.8%, 8.2%, and 4.7%.

In 2007, the value of animal production in **Lebanon** represented 27% of the total agricultural production; plant and animal. In 2007, animal production witnessed remarkable increase amounting LL789 billion, increasing from LL608 billion in 2006.

Animal production consists of red meat of different kinds, poultry, fish, milk and dairy products, eggs, and honey. Local production of animal products satisfies only a fraction of domestic consumption, which is covered by imports. Furthermore, domestic animal production faces fierce competition from imported products.

Broad categories of livestock activities are quite universal in **Tunisia**. The structure of the activities and herds are however specific. One notices, for example, the almost even breakdown in terms of cattle stocks between pure breeds and cross breeds, in spite of the limited adaptation of imported pure breeds to most of the production zones of the country which are typically characterized by weak and variable feedstuff supplies. Past policies consisting of subsidizing feed inputs explain the relative overdevelopment of livestock production based on imported certain pure breeds with limited adaption to the conditions of the country. One also notices the development of the white meat industry which took place over recent decades, thus splitting the present meat supply mix for the Tunisians between 40% red and 60% white. Just like cereals crops, livestock activities exhibit low physical productivities, both in terms of meat and milk, to withstand increasing international competition.

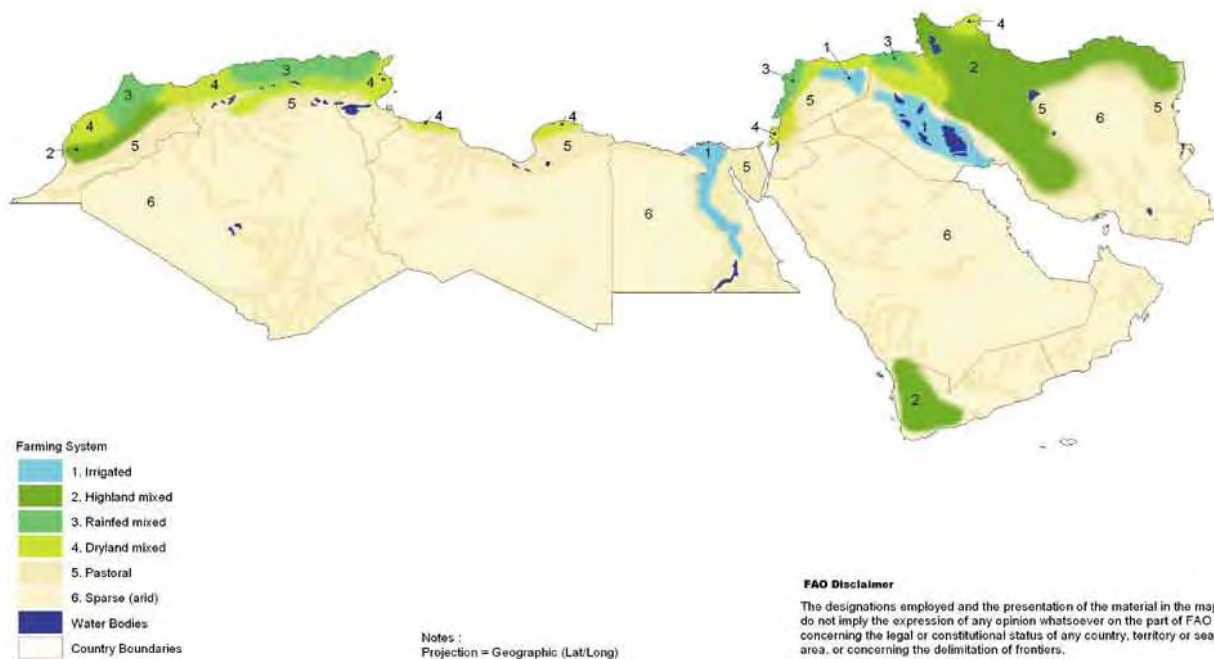
Animal husbandry has a significant role in **Turkey's** agricultural sector. The country provides larger areas for grazing animals. The number of cattle totals approximately 11 million; sheep around 24 million; and goats about 6 million. However, due to small herd sizes and unfavourable domestic agricultural policies, animal numbers went down over time. In addition, foot and mouth disease, socio-economic factors, such as the rapid migration of young farmers to cities and the increasing age of livestock farmers played an important role in the decrease as well however an improvement in animal numbers has been experienced since 2002. Poultry and beef is the most important meat product in Turkey in terms of production quantity and value. With the surge in domestic demand for poultry meat at the beginning of the 1990s, Turkey has now become the world's 11th largest poultry producer. Over the same period egg production reached about 60 million. This expansion was related both to the shortfall in red meat supplies and to a rising population with increasing incomes coupled with the affordability of poultry meat. The great bulk of the poultry output is (95%) is chicken meat and the rest is turkey meat. Sheep and goat meat is less important, though sheep and goat production is important on subsistence and semi-subsistence farms as well.

Turkey is among the largest milk producers of the world with her annual output of about 12.2 million tons (2008) and with a world share of around 1.7% of total production. The distribution of this milk into animal types is such that respectively (92%), (6%) and (2%) are obtained from cows, sheep and goats. As it is with the meat production, the trend in milk production started to incline again in 2002.

1.3 Agricultural sector structure

A study by FAO³ identified eight major farming systems in the MENA region as depicted in the following map:

Map 1: Major Farming Systems in the MENA region



Source: FAO (http://www.fao.org/DOCREP/003/Y1860E/y1860e05.htm#P3_31)

Irrigated Farming System

The system contains both large and small-scale irrigation schemes. The large-scale subsystem contains a total population of 80m and an agricultural population of 16m. It encompasses 8.1m ha of cultivated land that is almost totally irrigated and schemes are found across all zones. They include high-value cash and export cropping and intensive vegetable and fruit cropping. The small-scale irrigation subsystem also occurs widely across the region and although not as important in terms of population, it is a significant element in the survival of many people in arid and remote mountain areas. Owner-occupiers or tenants typically farm very small units – from 0.02 to 1ha – often within an area of larger, rainfed systems. Major crops are mixed cereals, fodder and vegetables. The prevalence of poverty within both subsystems is moderate.

Highland Mixed Farming System

This system is the most important in the region in terms of population – with 27m engaged in agriculture – but contains only 7 percent of the land area. Out of a total area of 74m ha, cultivated area covers 22m ha, with nearly 5m ha irrigated. There are two subsystems; one dominated by rainfed cereal and legumes plus tree crops (fruits and olives) on terraces, while the second is based on livestock (mostly sheep) on communally managed lands. Poverty is extensive, as markets are often distant, infrastructure is poorly developed and the degradation of natural resources is a serious problem.

³ Dixon *et al.* (2001). Farming Systems and Poverty. Improving Farmers' Livelihoods In a Changing World, FAO and World Bank, Rome and Washington D.C. 2001.

Rainfed Mixed Farming System

The system has an agricultural population of 16m, but occupies only two percent of the regional land area, resulting in high population densities. Cultivated area is 14m ha, including tree crops and vines, with 8m cattle. Supplementary winter irrigation is now used on 0.6m ha of wheat and on summer cash crops. More humid areas are characterized by tree crops (olives and fruit), melons and grapes. There is some dry-season grazing of sheep migrating from the steppe areas. Poverty is moderate, but would be higher without extensive off-farm income from seasonal labour migration.

Dryland Mixed Farming System

The system is found in dry sub-humid areas and contains an agricultural population of 13m people with 17m ha of cultivated land. Population density tends to be lower than in the other main cultivated systems and average farm sizes are larger. The main rainfed cereals are barley and wheat, grown in a rotation involving an annual or two-year fallow. The risk of drought is high and considerable food insecurity exists. Livestock, including 6m cattle and a greater number of small ruminants, interact strongly with the cropping and fodder system. Poverty is extensive among small farmers

Pastoral Farming System

The Pastoral Farming System, mainly involving sheep and goats but also with some cattle and camels, is found across almost a quarter of the land area of the region - equivalent to around 250 million ha. It includes large areas of semiarid steppe lands, and is characterised by low population densities, with more densely populated areas around irrigated settlements. There are some 2.9 million ha of irrigated cropland scattered throughout the system, thus boosting the agricultural population - which is around eight million people - and helping to support a cattle population of 2.5 million. Strong linkages exist to other farming systems through the movement of stock, both through seasonal grazing of herds in more humid areas and through the sale of animals to large feedlots located in urban areas. Seasonal migration, which is particularly important as a risk minimisation measure, depends on the availability of grass, water and crop residues in neighbouring arable systems. Nowadays, pastoral herds are often partially controlled and financed by urban capital. Where water is available, small areas of crop production have been developed to supplement the diets and income of pastoral families. However, such sites are few and poverty within the system is extensive.

Sparse (Arid) Farming System

The Sparse (Arid) Farming System covers more than 60 percent of the region and includes vast desert zones. Approximately four million people (about five percent of the region's agricultural population) live within the system, and are concentrated in oases and a number of irrigation schemes (notably in Tunisia, Algeria, Morocco and Libya). About 1.2 million ha of irrigated cropland are utilised for the production of dates, other palms, fodder and vegetables. In addition, an estimated 2.7 million cattle, pastoralists within this system also raise camels, sheep and goats. The system provides opportunistic grazing for the herds of pastoralists, following scattered storms and in good seasons. The boundary between pastoral grazing and sparse agriculture systems is indistinct and depends on climatic conditions. Poverty within this system is generally low as population pressure is limited.

Coastal Artisanal Fishing System

Small-scale artisanal fishermen have lived along the coasts of the Mediterranean and the Atlantic Ocean for thousands of years, supplementing income from the sale of fish with small-scale crop and livestock production. There are an estimated one million people living in this system, which has an area of around 11 million ha. As modern

technology and capital have been injected into the offshore fishing industry, the artisanal fishing system has contracted.

Urban Based Farming System

Throughout the region a small population of urban residents, estimated to be less than 6 million people, engage in small-scale production of horticultural and livestock products - notably fruit, vegetables and poultry. The contribution of this system to GADP is small at present, but the growth in livestock feedlots, fruit, and intensive vegetable production in urban areas may become increasingly important in the coming decades. This system sometimes has important linkages with peri-urban and rural production systems. *(Extracted from CEDARE 2009 and Dixon et al. 2001).*

1.3.1 Farm Structure

In general, the ***Egyptian*** farming system has two major features. It is so intensive in production and too fragmented in farm size pattern. The first Egyptian law of land reform was released in September 1953. It limited the land holding by 84 hectares for a family (parents and children less than 21 years old) and by 41 hectares for a single person. The second law was in 1969, which reallocated the land holding size to be one-half of the first law limits, i.e. 40 hectares per family holder and 20 hectares per a single holder. Between the two law eras there were other presidential decrees package named nationalization decrees in 1961 that put all companies and firms under the state management including the agricultural sector. The land market was completely liberalized in 1997 when the land reform law was cancelled, which had dramatic impacts on the land holding pattern.

In 1983, the average farm size in ***Jordan*** was 6.3 hectares; Data from the 1997 Agriculture Census suggests that the average size has fallen to 4.2 hectares. Jordan's farm sector is composed primarily of farms of less than 30 dunum (3 hectares). The smallest farms are often found in the highlands where inheritance customs result in smaller and smaller holdings. Larger farms are located in the dry plains bordering the desert that occupies the eastern two-thirds of the country. Neither of these farms—the very smallest or the larger farms—are likely to be highly profitable unless water is available from ground or other sources.

Cash crop farms dominate in the valleys along the western border. These farms produce vegetables, citrus fruits, or bananas under irrigation and sell the bulk of their products. They tend to be the more profitable than farms in other areas of the country and therefore they also tend to be early adopters in terms of technological advances. In irrigated areas of the highlands, farmers typically produce vegetables, fruits, and olives while some farmers are experimenting with cut flowers and other non-traditional agricultural products. Farmers in the irrigated highlands also sell the bulk of their output. In rainfed areas of the highlands (the area between the Jordan Valley and the plains bordering the desert), farmers typically produce cereals, olives, tobacco, grapes, apples, and nuts. Subsistence farms are usually the smallest holdings and are located in rain fed areas with few alternative employment opportunities. Most subsistence farmers produce both livestock and crops but primarily for family consumption.

Agricultural land in ***Lebanon*** comprises around 25% of the country's total area. Most of the farmland holdings in Lebanon are small-sized. It is currently estimated that about 35% of land owners have less than one-half hectare of farmland and that their total holdings amount to only 4% of the total agricultural land. About 45% of farmland owners own less than a hectare each; this accounts for about 9% of the total agricultural area. The FAO estimates that renting, share cropping and mixed forms of land management currently cover about one-half of total agricultural

land holdings in Lebanon and that these contracts are predominantly on a seasonal or annual basis. These figures indicate a major change from the pattern that existed in the past.

Moroccan agriculture is practiced by 1,496,349 farms covering a total Utile Agricultural Area (UAA) of 8.7 million hectares. Units of less than 5 ha represent 71% of the total number and occupy only about 24% of the total UAA. Those who occupy the largest part of the area (43.2%) have a size laying between 5 and 20 ha and account for 25% of the total. The large estates (> 100 ha) cumulate 8.7% of the UAA even if their number is limited to 3,182 farms, an average of 238.65 ha UAA per unit. This imbalance in the structure of agricultural land Moroccan is a serious handicap to development of effective land tenure. To overcome such constraints, successive governments have responded by implementing sector programs that aim to improve the performance of farms, particularly through the launch in 2000 of the Rural Development Strategy 2020.

Besides, land tenure in Morocco shows that the property status is for 76% of the total UAA. The remaining area is allocated to the collective land (17.7%), *Guich* land ceded to the tribes who used to fight in the favor of Moroccan Sultans (2.8%), *Habous* which is the land of religious brotherhoods (0.6%) and land that belongs to the state (3.1%). Except the property status, the common factor in other statutes is that the beneficiaries are just profiting from the usufruct right. Therefore, those land statutes rise serious problems that limit the investment incentives to improve production systems within farms that are mostly of small acreage because of heritage considerations.

Since 2005, the authorities have continued to encourage the appropriation of usufruct land. Thus, for the collective land and *Guich* located in irrigated areas, land policy continues to encourage the ownership by the beneficiaries. For the state lands, the commitment of public authorities is even more explicit for the acquisition of farms that were under cooperative agrarian reform status. Indeed, with the publication of laws and decrees concerning the consolidation of ownership in the Official Gazette, the liberalization of land reform is being completed. For beneficiaries, it is now conditioned by the payment of the purchase price of the lots and the removal of the mortgage to the State.

An important feature of the structural change in **Syrian** agriculture is the disappearance of traditional large-scale farms and the decreasing average farm size, which is mainly due to the agrarian reforms and the inheritance system. Nevertheless, agricultural income per capita has kept the pace of general economic growth, remaining at the same levels as in other sectors, which is due to the increasing intensification of agriculture. In addition, it is clear that land fragmentation had not negatively affected the agricultural GDP, though it surely affected the efficient utilization of land. It should be noted that the last census carried out in 2004 did not provide data on the average area of holding, but only on the number of holders, showing that there was a considerable increase (36%) in the total number of holders (farmers) in that period (485,691 in 1981 to 660,371 in 2004). However, given that the total invested land has not changed significantly in the period, it can be concluded that there has been considerable fragmentation and subdivision of farms.

Tenure in the cultivated areas is characterized by the important role played by holders whose main occupation is not farming. This group includes absentee owners as well as part-time farmers who have an off-farming occupation. Census data indicate that in 1981 only 63.8% of all farm owners were full-time farmers, while in 1994 that proportion increased to 71.4%. Due to a growth in the total number of farms, the actual number of holders who were full-time farmers increased from 261,000 to 409,000. The number of owners who had off farming jobs also increased from 148,000 in 1981 to 164,000 in 1994. Mostly absentee owners make up this group.

While the total number of farm holders with and without land is known, there are many categories within these broad groups. It is possible to group households partaking in farm

operations, and agricultural production in general, into many overlapping functional categories. These are:

- (a) landed holders whose main occupation is not farming (mainly absentees);
- (b) landed holders with farming as a main occupation, i.e. owner-operators;
- (c) landless holders whose main occupation is not farming (mainly absentees);
- (d) landless holders with farming as a main occupation, i.e. owner-operators without land;
- (e) sharecroppers and tenants on private land having a written or oral agreement with the owner of the land;
- (f) land reform beneficiaries and state land distribution beneficiaries that do not yet fully own their land. These are owner-like possessors of holdings assigned to them, for which they pay a yearly fee up to concurrence of one-fourth of the value of the assigned land;
- (g) tenants on public land, renting on lands belonging to the old state land establishment or to the expropriated land reform areas not distributed to beneficiaries;
- (h) squatters on public land - a category of workers aiming at becoming legal tenants and for which regularization is on-going;
- (i) squatters on private land, who are mainly sharecroppers whose contract has expired and whose rights are awaiting arbitration;
- (j) Laborers on state farms, joint ventures or larger private farms with a permanent contract, which is a very small category as most contracts are for short-term casual labor;
- (k) landless and near landless labourers, mainly descending from small owner or sharecropping households with inadequate land base to redistribute to children;
- (l) agricultural entrepreneurs, these operators rent or own large areas of land, especially in the northeast part of the country.

As in many developing countries, **Tunisian** farm structures are characterized primarily by their skewed distribution nature between the small and the large categories. Over the approximately half a million of farm operators; i.e., one sixth of the active part of the population, almost all of them (95%) are owners of their land, suggesting a strong attachment to land, but with a property status that is always clearly documented and registered (about 20%).

As an illustration, farm sizes of less than 5 hectares are predominant in numbers, increasing from 41% in 1970 to 53% according to the last survey available which was conducted during the campaign year 2004/05, but do not represent more than 9% of the total area. Conversely, those holding 50 hectares and more do not represent more than 3% of farm operators but cultivate as much as 26 % of the total arable area. Consequently, small farmers are increasing in relative numbers while large ones are diminishing. During the same period, the number of farms of sizes greater than 100 hectares declined by half. However, their share in total arable land declined by much less, only 24%; thus suggesting a relative increase in their farm sizes.

On the other hand, what is generally considered as medium size farms in Tunisia; i.e., with sizes going from 10 to 50 ha, seems to have been rather stable over time, both in terms of percentage of total area as well as in percentage of total holdings, with of the exception of what revealed the 2004/05 survey which suggests a major drop in that category from over 30% to about 24%. Most of the drop reflected a move towards the lower size category of 10 ha and less which increased in proportion from 64%, in 1980, to 73% in 2004/05. This is another indication of the increasing agricultural land fragmentation process that is taking place in the country. Obviously, this is

posing a major constraint to the agricultural development in the country as investment in the sector is severely handicapped by adequate and sufficient collaterals and economic viability of farms.

In **Turkey**, most farms are typically family-owned, small and fragmented, although relatively high numbers of larger and more specialized farms do exist in the Aegean and Mediterranean regions. There are 3.1 million agricultural holdings on a total of 23 million ha of land and the average cultivated area per holding is about 6 ha and this figure remained almost unchanged between 1991 and 2006. The 2006 Agricultural Holding Structure Survey results show most agricultural holdings to be concentrated in the 2-5 ha holding size group (33%), while land operated by agricultural holdings is concentrated in the 20-50 ha holding size group (24%). More than 90% of farm households have no more than 20 hectares (ha) of land, and 66% of all landholdings are less than 5 ha in size, which are mainly oriented towards self sufficiency and have lower than average income. About 79% of agricultural holdings occupying 34% of the land are less than 10 ha in size. Around 21% of agricultural holdings are of 10 ha or more in size; these agricultural holdings operate 66% of the total land.

A major structural problem in Turkish agriculture is that a typical farm is fragmented in parcels. Over 80.5% of farms are divided into more than 3 parcels. This level of fragmentation limits the opportunities for efficient mechanization and the adoption of intensive grazing systems, and involves increased losses and higher production costs. In 1980, less than 10% of the total number of farms was situated on single plots and approximately 64% were highly fragmented, consisting of four or more plots. The 1991 census showed a rise in the share of single-plot holdings (up to 15%), and a fall in the share of holdings with four or more plots (down to 57%).

According to the 2006 Agricultural Holding Structure Survey, when land tenure type of agricultural land is examined, the rate of agricultural holdings operating only their own land in total agricultural holdings was 85% and the rate of land operated by them in total agricultural land was 71%. Of total agricultural holdings, 13% operated both their own and other's land; 2% operated rented or shared land only; and 0.2% operated land on the basis of more than one type of tenure. In OECD (2011) it is reported that number of parcels of land belonging to agricultural holdings are most frequently composed of 4-5 parcels and the land operated by the agricultural holdings in this group constitutes 16% of total agricultural land.

1.3.2 Agricultural Labour

It was noted above that agriculture consists a major pillar for employment in the MPC. Nevertheless, the number of people employed in agriculture has been dropping steadily the last three decades in most countries, especially in **Lebanon** and **Libya** (**Table 1.14**). In **Egypt**, **Morocco** and **Turkey** the drop of agricultural labour is more modest, while in **Jordan**, **Syria** and especially **Algeria** there has been a significant increase of people employed in agriculture. The breakdown of economically active population in agriculture reveals some interesting points: Although the total number of agricultural labour has been falling in most MPC, this is largely due to the drop of male agricultural labour; in all countries but **Lebanon** and **Libya** the number of female workers in agriculture has been increasing the last thirty years.

In fact, agriculture represents the most important employment opportunity for women in the MPC. Although women's access to jobs in the overall economy is very low in the MPC, as it does not exceed 30% (**Algeria**) and can be as low as 17% (**Jordan**), women are the majority in agricultural labour in **Algeria**, **Jordan**, **Libya**, **Syria** and **Turkey**. Only in **Lebanon** and **Tunisia** is women's percentage below 40% of the total population employed in agriculture.

68% of the employed women in **Turkey** are working in agriculture and similar figures are noticed in **Syria** (57%), **Morocco** (50%) and **Egypt** (41%). As before, only in **Lebanon** and **Libya** does agriculture constitute a fraction of total female employment (2.7 and 9.7% respectively).

In essence, agriculture is very important to MPC's economies because of the large number of rural population and the high levels of poverty. Taking also into consideration the high share of young population and the steady high population growth, along with the fact that most MPC are net food-importing countries and thus highly exposed to external shocks such as the 2007–2008 food crisis and the global recession, it becomes apparent that agricultural growth could contribute to improving employment levels, reducing poverty levels and ultimately achieving food security through incomes, domestic provision of food, and export earnings (Breisinger *et al.* 2010).

The total population of **Egypt** surpassed 82 million inhabitants in 2009 of which about 27 millions are economically active, i.e. around one third. While the agricultural male labour was round 10% of the labour force the non-agricultural male labour was 59% in 2009. In addition, the share of female agricultural labour was 10% of the total labour force. The non-agricultural female share in labour force was 15%. The major reasons behind such shrinkage in agricultural labour share in the economically active population are the decrease in the agricultural male labour by 0.4% a year over the period of Economic reform Era (1986-2009) while the non-agricultural male labour increased over the same period by 3.4%. Even though the female labour's share increased at a positive annual rate of 0.6%, the non-agricultural female labour expanded fast at annual growth rate of 6%. The expansion in mechanization system in agricultural production of Egypt over the last three decades was a main reason. In addition, the market cannot afford a satisfactory opportunity income from agricultural labour to rural population. Finally, the deepness of the poverty gap between rural and urban has been enlarged over the last three decades as was shown under the previous section on socioeconomic aspects of the agro-food system.

In **Jordan**, although rural population represents around 22% of total population, the agricultural community is less than one-third of the rural population. Agricultural labour has not passed 7% of the total economically active population and around one-fourth of the Jordanian agricultural community. The labour force currently consists of an estimated 1.667 million workers. Of those, 77.4% are occupied in the services sector, 20% in the industrial sector, and 2% in agriculture. Unemployment currently stands at 13%, down from the 14.% figure in 2009 and the 14% - 15% that was common in the previous decade This figure is expected to improve slightly to the 12% - 11%.

In **Lebanon**, the figures demonstrate that the percentage of the total workforce involved in agriculture has continually decreased since 1960. It is currently estimated that the percentage share has stabilized between 8 and 10%. Due to the high cost of domestic labour, labour from neighbouring countries is often rented.

In **Syria**, employment in agriculture is important for many categories of workers, such as investor owners, permanent labourers, and occasional farm workers, but also for landless agricultural workers. Agricultural labour in Syria consists of permanent, seasonal, and family labour. The contribution of each kind of labour differs according to agricultural activity; plant, or animal; the crop; and the availability of hired labour. Female and unskilled labour is in important component of seasonal labour. In fact, estimates of labour employed in agriculture are difficult in Syria due to lack of appropriate consistent data. However, according to the Central Bureau of Statistics (SBS), the number of permanent agricultural workers in 2009 was 758,286 (83% male). The total work force was 4,999,229 which means that agricultural labour contributed to 15% of total workforce, declining from 31% in 2000 to 26% in 2003. Agricultural labour ranked fifth in its contribution to employment in 2009, while in 2002 it ranked the first. This can be attributed to the following

reasons: the consequent drought waves that swept the region that badly affected agricultural production and thus reduced the demand for agricultural labour, the low wages for agricultural activities compared to other activities, and the increasing job opportunities in other growing sectors. Syrian agricultural labour is characterized by the dominance of family labour and high contribution of female. Agricultural labour decreased in 2002-09 in its absolute values, as well in its contribution to total workforce. Furthermore, the contribution of female agricultural labour in total agricultural labour decreased from 35.28% in 2002, to 16.11% in 2009, which is due to the reasons mentioned above (draught waves, etc) and to the high dependence on family labour. The amount of hired labour increases with the size of holdings; however, the amount of both family and hired labour per ha of cultivated land decreases as farm size increases. This suggests that larger farms are more capital intensive than smaller ones, and that labour productivity is much higher on larger size farms. Availability of employment opportunities either for full-time workers or in terms of occasional labour varies throughout the country and is affected by seasonality factors. In many parts of Syria, in the Hama countryside for example, a situation of labour shortage during harvests co-exists with relative labour abundance throughout the year. The number of landless labourers in that Governorate is said not to exceed 10%, but is constantly increasing because of population growth, insufficient development of non agricultural employment opportunities, and continuing fragmentation of holdings through inheritance. However, in view of the active labour demand during the peak agricultural seasons, open unemployment of agricultural labour exists mainly for only about two months in the slack season.

While declining in contribution to the overall employment of the country, agriculture in **Tunisia** is still providing an important and significant share, from 16 to 18%, according to different estimations. The major portion of this employment is however of a family nature; i.e., farm operators and their family relatives. This situation, which was estimated at about 87%, four decades ago, increased even further to 93%, two decades ago, but declined a bit to 90%, as revealed by the 204/05 survey. While the sector is employing significantly, the relative demand it expresses on the labour market is not increasing, it is rather declining. The percentage of farm operators is clearly on the upward trend. This however is not an indication of economies of scale or size. It is rather a consequence of the legal and social inheritance process characterizing the country, implying gradual and continuous cutting down in land holdings. Other statistical indicators of the agricultural land tenure system in Tunisia reveal that full time operators do not exceed 39% of all farmers, only 11% of farmers have an age below 40 and about half (46%) are above 60 years of age.

With respect to the employment generated by the different agricultural activities, there is the livestock subsector which generates about 43% of labour demand. Tree crops are on the top of agricultural activities, as far as derived labour demand is concerned, followed by cash crops with about 17%. In terms of employment duration, livestock activities stand by far ahead of other agricultural activities with near 60% of permanent demand for family labour and even in the case of occasional wage earners, with near 38%. Seasonal demand for labour is typical of tree crop activities, particularly during olive harvests. Cash crops came next with about 49%.

It may be worth noting also that the cereals sector, which uses about a third of the arable land of the country, provides a limited amount of employment, in view of its increasingly mechanized nature. Food legumes provide less employment in total than cereals, obviously, but, on a hectare basis, they provide much more. The overall picture of the employment breakdown is shown below.

There has been a significant decrease in employment level in overall **Turkey** and this is mainly caused by the decrease in rural areas (%8) in urban areas the fall is only about %1,5 since year 2000. In general, while there is a fall in labour participation rate in Turkey, it is observed that there

has been almost no change in female labour participation whereas a %3 fall has been experienced in male participation rate. In urban areas, there has been a slight fall in male participation rate but an increase was observed during the decade in female participation rate of about %5. In rural areas labour participation rates for both male and female labour force falls about %5-6 since the beginning of the period. In general participation rate in rural areas seem to be higher than urban areas and this difference is bigger in female participation. The family workers in rural areas might explain this divergence. Unemployment rate is calculated for total economic sectors and for non-agricultural sectors. As expected, non-agricultural unemployment is higher in Turkey both in male and female labour force during the whole decade. In urban areas this gap closes both for males and females but in rural areas the gap is quite wide especially for females. In general non-agricultural unemployment for both genders in rural areas is higher compared to urban areas and unemployment figures are lower. This is expected as well due to lack of non-agricultural job opportunities in rural areas.

Although the number of employed in agriculture decreases for female population this sector is still the main economic activity. The highest agricultural employment is seen to be in Western Blacksea, Mediterranean and Aegean regions. However, in these regions services and manufacturing also provides relatively large alternative job opportunities. In Northeastern, Central and Central-eastern Anatolia and Eastern Blacksea regions agriculture is the main economic activity. In Istanbul, Eastern Marmara and Western Anatolia regions agriculture's share in total employment is relatively small. In the agricultural sector self-employed and unpaid family labour constitutes the two main types of employment, each making up to approximately 45% in 2009. Hired labour in agriculture made up about only 9% of total agricultural employment. Unpaid family labour in agriculture is more dominant among female workers, with as much as 76% (1.9 million) working as unpaid labour in 2009. Illiteracy rates in the agricultural workforce are significantly higher than in the rest of the economy. Despite a significant improvement over the last two decades, illiteracy among agricultural workers remains as high as 15%, compared to less than 2% for those employed outside agriculture. The major contributors to this high rate of illiteracy is the female sector of the agricultural workforce (with an illiteracy rate of 25%), who represent 60% of the total agricultural workforce. In rural areas, where the agricultural population dominates, only 2% of the village (rural) population has university or other higher educational institution education.

1.3.3 Input Usage & Machinery

It is true that the rapid expansion of mechanisation in the agricultural sectors of the MPC has decreased the demand for labour and is one key reason for the diminishing figures in agricultural employment referred to in the previous section. The decline in numbers of agricultural labour in turn, pressures the farming systems to increase capital-intensive production techniques that require considerable investments for both horizontal and vertical agricultural expansion (CEDARE 2009). The main indicators of invested capital and input usage in agriculture are machinery (i.e. tractors, harvesters, etc), fertilisers and pesticides usage and capital stock formation.

Tractor use intensity is depicted in **Table 1.15**. This indicator is based on the number of tractors per cropland and is a good representation of the degree of the mechanisation achieved in agriculture. **Turkey** has the highest tractor use intensity among all the MPC with almost 430 tractors per 100 km² of arable land. The next two countries, **Jordan** and **Egypt** have an intensity of around 350 tractors. All the other countries exhibit much lower tractor intensities, with the lowest

figures observed in **Tunisia** and **Algeria** (around 130 tractors)⁴. These figures are for most countries (excluding **Morocco**, **Algeria** and **Tunisia** higher than the world average, but considerably lower than the EU average, thereby indicating a sizeable gap with the advanced agricultural economies in the world. Still, the degree of accelerating mechanisation is evidenced by the fact that tractor use intensity has increased more than ten times since the 1960s in **Libya**, **Syria** and **Turkey**, five times in **Egypt** and four times in **Jordan**; no MPC has an increase lower than the EU average. It is interesting to note that while **Turkey** lagged behind all but three MPC in this indicator, today it has become by far the most mechanised agricultural economy of the region. **Table 1.15b** provides some additional insights, regarding the total number of tractors in used, as well as the number of combine harvesters & threshers.

Average annual fertiliser use in tons of the nutrients nitrogen (N), potash (K₂O), and phosphate (P₂O₅) is depicted in **Table 1.16**. Fertiliser intensity (calculated on the basis of per 1000 ha of cropland, i.e. arable land and permanent crops) shows that **Egypt** is the country that uses the most quantities of fertilisers; in fact fertilisers consumption in **Egypt** is around four times than that of the second-ranking country, i.e. **Turkey**. This extraordinary consumption level is attributed to the High Aswan Dam that might have prevented the country from droughts and ebbs, but not without a cost: it also restricted amounts of organic nutrients from the river Nile that used to enrich the Egyptian soil. Consequently, in order to compensate for the degrading fertility of the soil, farmers resorted to fertilizers (CEDARE 2009).

A concise comparative presentation of pesticides use (i.e. quantities of pesticides - insecticides, mineral oils, herbicides, fungicides and bactericides, seed treatment fungicides and insecticides, plant growth regulators, and rodenticides - applied to crops and seeds in the agriculture sector) in the MPC is not feasible because of the differences in reporting practices among countries. As indicated by FAOSTAT, although this measure is expressed in metric tons of active ingredients, several countries report consumption in formulated product; sales; distribution or imports for use in the agricultural sector, while data availability is limited in other countries. For illustrational purposes, the relevant data for the MPC is presented in **Table 1.17**.

Finally, another indicator of input usage and capital investments is capital stock in agriculture. This concept, measured by FAO, refers to the activity of crop and animal husbandry⁵. The physical assets include assets used in the production process covering land development, irrigation works, structures, machinery and livestock. Gross capital stock in agriculture is the highest in Turkey (around 130,000 million USD). Egypt, Morocco and Syria have significantly lower value of capital stock (ranging from 25 to 35,000 million USD). No other MPC country exceeds a value of 10,000 million USD, while the smallest capital stock value is observed in Jordan and Lebanon (1,500 and 2,800 million USD, respectively) (**Table 1.18**).

In **Egypt**, evidence of agricultural human labour substitution for machinery labour is apparent. The density of human labour decreased from 3325 hours per hectare in 1986 to 3018 hours per hectare in 2008. Associated with human labour's density decrease the density of machinery labour increased from one tractor serving 49 hectares in 1986 to one tractor serving 34 hectares in 2008. In fact, the mechanical harvesting system in Egypt has shifted from three equipments (harvester, threshing machine and tractor) to only a one combine doing harvesting threshing and even transporting the yield to the farmer's storage (silo) by his house. Thereof, since mid of nineties the

⁴ Data for Morocco for the last period 2000-08 are not available, but based on the ones from the previous decades it is evident that Morocco has the lowest tractor intensity among all included countries, well below the world average.

⁵ Forestry and fishery sub-sectors or greenhouse production structures are not included. For a more detailed presentation of the index formulation, see FAOSTAT webpage (<http://faostat.fao.org>)

efficiency of harvesting farm operation has been drastically raised, as one combine becomes able to serve larger area of wheat and rice per day.

Beyond, human labour and machinery, farming system use intensively fertilizers, particularly in an intensive agricultural system as the Egyptian pattern. Even though the common three types of fertilizers Nitrogen, Phosphorus, and Potassium nutrients are used in the Egyptian soli, the most important one is nitrogen fertilizers, followed by phosphorus fertilizers. The importance of the three types is concluded from comparing the density of use of each of them as effective nutrient. While nitrogen fertilizers density ranged between 222-486 kilograms per hectare per year, the phosphorus ones ranged between 39-75 kilograms per hectare per year and the potash 9-20 kilos. There was high fluctuation in the applied quantity per hectare over the period (19986-2008). Such fluctuation reflects, probably, changes in the price policies due to changes in the economic regime. In addition the intensification in cropping pattern and deterioration soil fertility due to not only, intensive cultivation but also due to raising of water table associated with poor drainage have played roles in this concern. Such issue needs a further extensive study of the input-output relations with price policy analysis.

The input usage in *Jordan's* agricultural system has adjusted a wrong policy of intensifying chemical fertilizers, since 2001. The density of nitrogen fertilizers per hectare of agricultural land in Jordan was 83 kg of nitrogen in 2000, which was far beyond the world average of only 18Kg. Such large density of nitrogen fertilizers (as nutrients) has gradually declined over time to reach only 5 Kg in 2007. This policy seems, at least apparently, rational because most of Jordanian agricultural production is under a high risky model due to rainfall fluctuation and even unsecured ground water supply. Therefore, minimization of capital inputs density such as mineral fertilizers is a rational risk aversion policy, where the producers work on base of a model of minimization losses rather than maximization of profits. In case of poor years of rainfall there would be at least some low yield but with minimum cost, which is better than to face in such poor years high costs per hectare associated with low level of yield.

Regarding agricultural machinery, however, the trend is somewhat different: An increase in the density of agricultural tractors from 186 hectares served by 1-tractor in 2000 to 174 hectares served by one agricultural tractor in 2004 is evidenced. The reason of more intensive machinery use is the probably the scarcity of agricultural labour leading to the high wage rate in farming operations due also to the high rate and level of education Jordanian population.

The level of mechanization achieved in each farming sector in *Lebanon* is summarised below:

- Rain-fed agriculture is largely confined to the Bekaa Valley where wheat, barley, lentils, and beans are grown as winter crops. Preparation of the land takes place by means of share ploughs and spring time cultivators, used to a limited extent in secondary cultivation. Seed is spread with spinner broadcasters or by hand.
- Sugar beets and potatoes are grown mainly in the Bekaa Valley where the traditional system of basin irrigation and the generally small size of the plots have provided serious constraints on mechanization to date.
- Orchards and vineyards are cultivated on level or gently sloping areas of the Bekaa Valley. Extensive mechanization includes soil tillage, weed control, complete spray programs and crop transport.
- Deciduous fruit trees are mainly cultivated on narrow terraces in the mountains. Only light garden tractors and portable spray machines have been utilized.
- Citrus and banana cultivation utilizes limited mechanization, largely confined to spraying operations.
- Cultivation of olives includes some use of tractors; spraying is largely mechanized.

- Cultivation of mixed crops (tomatoes, potatoes, winter cereals, tobacco, and groundnuts) employs tractors for soil preparation; use of ploughs and/or rotary cultivators is common. Tractors with trailer transport are often used for crop collection and transport to market.

Securing agricultural production inputs is a main objective of the agricultural policies in **Syria**. The implementation tools of this policy has gradually moved from direct involvement - of public organizations in providing these inputs at subsidized prices - towards reducing or replacing some input subsidy by direct payment from the newly established “Agricultural Support Fund”, while giving more role to the private sector in production, importation, and exportation, which applies on seeds, seedlings, agro-chemicals, feed, etc.

Seeds of strategic crops (wheat, barley, sugar beet, tobacco), is largely provided by the General Establishment of Seed Multiplication GESM, who supply also limited quantities of seeds of some basic crops such as lentil, chickpeas, bean, maize, potato. The contribution of the GESM in securing improved seeds ranges from 35-50% for wheat seed to 1% in barley seed, in addition to limited quantities seed of lentil, chick pea, bean, maize, and potato. The remaining seed requirement of strategic crops is supplied either by the private sector or by farmers themselves.

Seeds of other crops and vegetables are supplied by the private sector either by import, or by local production. Some seeds are completely imported, others are locally produced, while other seeds are obtained from both sources.

The possibility of increasing agricultural production by increasing the cropped area has become very limited. Therefore, the government focused on vertical expansion, i.e. increasing the output per unit of land. In fact, chemical fertilizers played a major role in achieving this objective. In the last three decades, the government played a prominent role in supplying fertilizers through the Agricultural Cooperative Bank, ACB. However recently, agricultural policies focused more on the rationalization of the usage of chemical fertilizers. Consequently, the ministry of agriculture reduced the distributed quantities of fertilizers supplied according to the agriculture license, and induced farmers to conduct soil test in order to determine soil nutrient content. In 2008, in line with its new policy to reallocate agricultural subsidy more efficiently, the government eliminated subsidy on chemical fertilizers. The decision also aimed at rationalizing fertilizers usage for the conservation of land and water resources.

The government’ role in *pesticide* sector is restricted to supplying mandatory pesticides, while the agricultural pesticides is imported or manufactured by the private sector. The government is giving attention to rationalizing the usage of the pesticides. There is no available data on pesticides quantities used in Syria.

Agricultural Machinery includes water-raising pumps, seeders, modern ploughs, threshers, and tractor, harvesters, etc. Agricultural machinery is mainly owned and operated by the private sector. Agricultural machineries increased between 1999 and 2008, which is due to the expansion of agricultural production. However, generally speaking small farms do not own machinery for efficiency reasons; they rather hire machinery from big farmers. In addition, many agricultural activities are still carried out by human such as weeding, hewing, picking, because of the prominent small farms and relatively cheap labour.

Agriculture in **Tunisia** has moved into the mechanization intensive mood since the sixties. As a result, animal traction has, to a large extent, disappeared from the country along with the animals that used to serve that purpose. Camels and camel raising activities have become hardly visible, except for tourist entertainment. This was encouraged initially by inexpensive world energy prices during the sixties and early seventies as well as other by public incentives that were put into place to cope with increases in those same prices, following the energy crisis that occurred later on

during the seventies. Apart from the increasing costs of energy sources, excessive use of mechanization in cultivation practices has proven to be detrimental to soil both quantitatively (erosion) and qualitatively (fertility). An apparent return to traditional techniques of soil cultivation by using animal traction in view of its suitability, particularly to small scale farming conditions, along with a drive into other resource conservation techniques using limited or no tillage is increasingly observed in the country.

It is very common to use farm manure, fertilizer, crop chemicals and pesticide in agricultural production in **Turkey**. It is observed that more than 90% of the settlements are using fertilizer in their production. In the NUTS regions, Western Anatolia, Eastern Marmara, Western Marmara and Aegean regions are leading the usage of crop chemicals and pesticides, whereas, the less usage of crop chemicals and pesticides is observed in the Northeastern Anatolia region. A good proportion of agricultural holdings have agricultural machinery and equipment and only a little rate of them are shared. Larger scale agricultural holdings, between 10 to 50 hectares, have the largest proportion of the agricultural machinery and equipment. Moreover, less than %10 of the agricultural holdings have the agricultural machinery and equipment and they do not even share those (share-use). In the NUTS regions, most of the agricultural machinery and equipment is situated in the Aegean region and usage is not common in Eastern Blacksea region. It is important to note that a significant part of tractor usage depends on rental, nevertheless a big portion of the agricultural holdings have their own tractor. Moreover, majority of the holdings (more than 90%) use rented combine harvester.

1.4 Agro-food industry

The agro-food industry is the most important sub-sector industry in most MPC. Its contribution to the national economies is remarkably high, considering its share in total manufacture output, value of exports and employment rates. Perhaps the only MPC that does not fit into this is **Libya**, where the importance of food processing is negligible (Galanopoulos *et al.* 2007). Despite the growth of the agro-food industry in the countries studied during the last decades, several obstacles still impede its further growth and competitiveness, so that the agro-food sector still cannot meet domestic demand and the MPC countries remain dependent on imports.

The agro-food industry has increased in importance in almost all MPC in the last three decades, due to demographic changes (i.e. growing populations, rising incomes, changes in lifestyles) and the expansion of European and American food-manufacturers since the 1980s. Since the early 90s, the increased agricultural output stimulated an increase in fruit and vegetable canning as well as juice, beverage, and oil processing in countries like **Egypt, Syria, Morocco, Tunisia** and **Lebanon**. Given that the demand for processed food in MENA countries is likely to increase in the future due to population growth and income increases and bearing in mind the gradual liberalisation of the local economies due to trade agreements with the EU, there appears to be ample potential for further growth (Middle East Food 2006).

A typical common characteristic of the MPC's agro-food sectors is that they are comprised of small or medium sized companies, often family-owned, few R&D resources, relatively low productivity and low levels of novelty, innovation and competitiveness. In some MPC (e.g. Algeria), the competitiveness of food industries is hindered by several factors, such as lack of investment, lack of focus and unimaginative public policies (Nouad 2010).

The industrial agro-food sector is one of the major contributors to most MPC and in particular, the **Egyptian, Turkish, Jordanian, Lebanese**, and **Moroccan** GDP. In **Lebanon**, investments in the food and beverage industries represent more than 40% of the investments targeting the industrial sector, as this is the most important sub-sector of domestic industry, accounting for 26% of domestic industrial output, 23% of industrial workers and being the largest industrial contributor to national GDP. **Lebanese** food industries provide a diversity of national foods and beverages including traditional products such as alcoholic beverages (mainly wine and arak), confectionery, fresh and canned fruits and vegetables, bakery products and olive oil. Many new factories have been established in recent years to accommodate changing dietary requirements for convenience foods, meat and dairy products and recreational/tourist interests. This has included potato chips and similar snacks, milk, yoghurts and ice creams, frozen foods, processed vegetables, ready-to-eat meals, specialized breads, pastas and white meats. (Eid 2010).

In **Jordan**, around 300 food manufacturing industries worth US\$350 million have been established recently, some joint ventures between Jordanian and foreign companies (Middle East Food 2006). The **Jordanian** food industry is the second most important sector in the country on the basis of FDI and national investment, representing 15.4% of the industrial sector's output and 13% of total industrial exports, ultimately accounting for a 4% of national GDP. There are 3,366 agro-industrial enterprises (9% of the number of industrial businesses) employing more than 27,000 workers (or 10% of labour in the manufacturing sector). Agro-food exports represent the third most important manufactured goods after textiles and pharmaceuticals. The most important agro-industrial sub-sectors are bakery products, vegetable oils, animal fats and milling products. 79% of agro-food industries are SMEs and practically all (97%) are privately owned. (Al-Mahasneh, 2010).

In **Egypt**, more than 87% of food processing industries are either small-scale or medium-scale, typically traditional in outlook, with few R&D resources. Most domestic products sell to consumers

who do not have sufficient income to purchase higher quality (mostly imported) goods. (Labib and Tantawi, 2010).

In **Morocco**, the agro-industry sector generated in 2007 an added value that represented roughly 34% of industrial GDP. There are 2,954 agro-industrial units (37% of total industrial units), mainly SMEs, with a work force of 135,000 (26% of industrial labour). Investments in the sector remain weak, however, at US\$370M in 2007 (19% of total industrial investment). The sector is dominated by grain and flour processing with 1,282 industrial units or 44 percent of the total, and mostly made up of bakeries and cake-makers. There are 193 fish industry processing units employing an estimated 35,900 workers and fish is the main exporting commodity of the country's sector. (Saidi 2010).

1.4.1 Description, importance

Food processed products and chemical fertilizers are among the most important outputs of industrial sector in **Egypt**. The agro-food industries in Egypt accounted for around 20% of GDP. On the other hand, agro-food enterprises employed a workforce of 500,000 people, i.e. 22.8% of the workforce of the Egyptian industry.

The **Jordanian** food industry is the second most important sector in the country on the basis of FDI and national investment according to the Jordanian Investment Board. The agro-food industrial sub-sector represented 15.4 percent of the national industrial sector in 2008, and the sub-sector enjoyed exports of US\$ 497 million or 13% of total industrial exports. This represented a direct contribution of 4% to national GDP. The total number of registered agro-industrial enterprises was 3,366, i.e. 9% of total industrial enterprises and employed more than 27,000 workers, i.e. 10% of total industrial workers. 79 % of agro-industries in Jordan can best be defined as small and medium enterprises (SMEs), and have been established close to Amman – as a source of workers and of markets. Estimated 97% are privately owned. Access to information, training, extension services and R&D for agro-industries is provided by a number of private, quazi-public or public sector agencies, some of which are in the form of agribusiness incubators – providing services linked to funding, technical assistance and supervision.

Although the food processing industry in terms of strength and potential is stronger than the agricultural sector in Jordan, because of the lack of raw materials, dependency on imports (in terms of raw materials) is likely to increase. Raw materials are imported from Syria and Lebanon (fruit and vegetables), USA, Europe and Australia (grain and wheat).

The agro-food industry is the most important sector of the **Lebanese** industry accounting for 20% of industrial enterprises and contributing with 26% to GDP. The Lebanese Food industry sub-sector includes the traditional products such as alcoholic products (wine and Arak), confectionery, canned fruit and vegetables, bakery products and olive oil. New plants have been recorded in recent years in potato chips and snacks, dairy products, frozen food, vegetables, feed mill and poultry breeding centres. According to the General Directorate of Industry, 824 new factories were established in 2002 (against 599 in 2001), employing 6 721 persons (4 425 in 2001) and necessitating the investment of LBP 179 billion (LBP 105.1 billion in 2001).

This is more importantly to benefit of the EU market opportunities opened to Lebanon through the EU association agreement. However, to many industrialist of this sector, the industry face policy related problems and lack of financing, low technologies and high taxes on raw materials, where around 80% of raw materials used by food industry are imported.

The manufacturing sector has a great importance in the **Moroccan** economic structure. In 2009, industry accounted for nearly 31.5% of GDP while business services and primary sectors accounted for 50% and 18.5 % respectively. Small and medium industries (SMIs) represent 93% of the total

workforce and achieve 36% of the total industrial output. They are involved in nearly 26% of exports and employ 45% of the overall industry.

During the year 2008-09, the agro-food industry (AFI) was ranked at the second range in terms of its contribution to industrial GDP, reinforcing the country's agricultural vocation. Indeed, the share of AFI in total industrial value added varies between 30% and 35% (Table 4). Together, the AFI and the chemistry and special chemicals sector annually account for two-thirds of this value.

The AFI sector focuses mainly on the domestic market with the flow of nearly 80% of total production, the rest is exported. The products that supply the domestic market are import substitution, such as flour, oil seeds, sugar and milk while fish products and canned vegetables and fruits are export oriented.

In **Syria**, agro-food sector plays a vital role in generating many agro-food industries as it supplies these industries with the raw material. For example, wheat for flour, and bread, sugar beet for sugar industry, cotton for ginnery and textile industry. In fact, Syria enjoys ample and diverse agricultural production, both plant and animal, which enhance its competitiveness position of the Syrian agro-food industry. Therefore, the agro-food sector has received much attention from the government. It offered private agro-food businesses with many advantages and removed obstacles confronting this sector.

During the 90s, the expansion of public sector processing capacity was accompanied by the promotion of private-sector participation, especially through investment Law no. 10/1991, so that the public sector had to face private competition in an increasing number of sub-sectors with positive effect on the overall efficiency of the food processing industry. Over the last three decades, the agro-food industry has achieved remarkable development. It became a strong pillar of the national economy and a major contributor to the GDP. The agro-food industry in Syria plays an essential role in achieving socioeconomic development and poverty reduction as it plays a fundamental role in employment creation and income generation. In addition, it helps stabilize crops prices and prevent sharp prices falls especially in production peaks.

Food industry contributes in many ways to the development of a modern agro-food sector. It enhances incomes by adding value to raw agricultural products. It promotes modernization of the farming systems in terms of technological innovation (crop produced and cropping technologies) as well as in terms of relations with the market (coordination and integration among the farmers and between farmers and other agents). Moreover, it responds to consumers' demands for variety in type and quality of food and contributes to smooth out seasonal variability of food supply, reducing its negative price effects on consumers and farmers. Furthermore, food-processing activities curb migration from rural areas if they are located close to agricultural production areas. Finally yet importantly, agro-food industry contributes in raising food security.

In **Tunisia**, the agro-food industry is increasingly perceived by farm operators as a safe way to enhance the sustainability of agricultural activities. Most agricultural produce, being perishable in its raw form, creates the need for, and relevance of, its transformation and marketing in various ways. In addition to generating additional income sources, product transformation constitutes a hedging strategy for farmers against risk and uncertainty.

Production in the food and beverage sector in **Turkey** reached TRY 8,852 million in 2009, which constitutes 18-20% of the country's production as a whole. Significant sub-sectors within the Turkish food and beverage industry include meat and meat products, baked products, dairy products, fruits and vegetables, oils, confectionery, alcoholic and non-alcoholic drinks, soft drinks, ready-made food and baby food. The proportion of Turkish household expenditure allocated to food, beverages and tobacco, which was around 26% and rose to about 27-27.5% in 2009-10. The

total consumer spending on food, beverages and tobacco, which is estimated at around USD 130 billion in 2008, was around USD 120 billion in 2007.

According to the data issued by the Industry Database of Union of Chambers and Commodity Exchanges of Turkey (TOBB), the number of active companies in the food and beverage industry decreased from 23,276 in 2007 to 22,092 by the end of 2008. The majority of the Turkish food and beverage sector is formed of SMEs, which are mostly privately held. The capacity utilization rate is around 70 percent for the food and beverage sector.

1.4.2 Main products

The main sub- sectors in **Egypt**, classified by value added, are sugar, oil and fats and mill products, accounting for around 86% of the total value added of the agro-food industry (African Development Bank, 2007). The food processing subsector has experienced significant growth (around 20% per year on average), fuelled by both a growing domestic (and tourism) consumer market and exports. The subsector's main activities are basically fruit processing (juices, jams, marmalades, confectioneries), frozen vegetables, cereals and biscuits for both domestic and export markets. Other products such as oil, flour, sugar, non-alcoholic and alcoholic beverages, dairy products and ice cream are more focused on the domestic markets.

The most important agro-industrial sub-sectors in **Jordan** are bakery products, vegetable oils, animal fats and milling products. The meat processing industry is active and it has specialized in frozen processed meat products, these products are exported to the neighbouring countries. The major vegetables grown locally are tomatoes (representing about 31% of total production), potatoes (about 10%) and cucumber (about 9%). Among the fruit tree products olives represent the most important production. Vegetables sub-sector covers the industry, which processes fruits and vegetables, namely tomatoes. Companies mainly produce processed tomatoes and cooked vegetable products. Processed tomato is a large component of Jordan's agro-food sector. The industry produces a wide range of products coming from the local tomato crops (peeled tomatoes in cans, tomatoes cubes in cans, tomatoes concentrate, triple concentrate, ketchup, etc.). There are also other companies which use Jordanian raw materials in the processing of ready cooked meals. There is scope for producing freeze and de-hydrated dried fruits and vegetables, right now most of the freeze products are imported from Central and Eastern Europe.

Jordan produces 35 litre of milk per capita while the domestic milk consumption is equivalent to 50 litres per capita. The country imports about 8000 tons of powder milk each year. Dairy products are generally yogurt and cheese (Halloumi type). Milk in bottles or pack is available on the local market but highly priced as it is pasteurised milk.

Bakery includes mills, cereals and breads, is very dynamic and scattered, in fact it accounts for the greatest number of companies in the local food production. Statistics from Jordan Investment Board indicate that the grain milling firms represent 20 – 40% of total investments in the food sector.

Cocoa, chocolate, and sugar product are traditional ones in the Arab world, in addition to the ethnic production (Halawa). The companies export to their traditional Arab and Gulf countries' market and even to the US, for an amount of 2.184 million JD (15% of domestic production).

The size of the market of the soft drinks, including fruit juice, and supply of mineral water are close to 80,000 tonnes of which 65,000 ton locally produced and 12,000-15,000 imported. In fact the sector is ready to receive new investments; recently a big multinational enterprise has entered the mineral water market to satisfy the local demand.

Food and beverages products are considered as an important sector in the **Lebanese** economy. The industry represents 4,2% of the total exports (US \$ 64,7 million). However, there is a continued need to focus on standards and technical specifications. This can only be through investing on technological innovation, automation and quality control of processing plant. Fruits and beverages processing and preservation sub sector comprise around 4% of the total food and beverage sector (160 establishments), while bakeries represent 48% of the total and sweets industries 22.5%. Some 150 companies have a production capacity that enables them to export.

The most important areas of production are for processed foods, such as pickles, jam and packed foods, with 132 companies operating in that sector. Another 35 companies, mostly in the Bekaa valley, are in dairy products. Fruits and vegetable sector for example, the success this sector is highly connected with the agricultural sector that is most important source of raw materials, increased mechanization in agricultural production is needed, consequently financing and contract growing needs to be organized. On the other hand the need to achieve and maintain levels of quality that satisfy international standards can be important catalyst for the agro-food business. For example, wine production contributes little to exports (5% of the total export value). Nevertheless, high quality Lebanese wine still maintains a strong reputation.

In **Morocco**, the grain processing sector is the most important food industry sub-sector, representing around 54% of the total. Their contribution to the added value of the AFI remains low and does not exceed 4.5% in 2009. The tobacco industry, which is a monopoly, emerges as the largest contributor to the AFI value added with a share of 34.6%, or about 8.1 billion dirham. The beverage industry, dairy and fish industries have a contribution to the value of between 10% and 16.5%. The other branches such as fats, fruits and vegetables and the meat industry show smaller shares not exceeding 9% each.

The **Syrian** agro-food processing sector is characterized by high diversity of its products which exceeds 24 processed foodstuffs. Both private and state-owned companies operate in agro-processing activities. The private sector processes very wide varieties of agro-food products such as, olive oil manufacturing, dairy processing, in addition to the traditional industries like bakery, sweets, and beverages. Recently the private sector entered new domains such as frozen products, fruit juices, snacks and pickles, and nuts and modern olive oil processing. Currently, the private sector processed food accounts for a major share of agro-food industries. The agro-food processing in public sector deals with processed fruit and vegetables, oil, dairy products, biscuits, pasta, dried onions, sugar and sweets, water, beer, and spirits.

In **Tunisia**, agro-food products use most of the agricultural produce either in a blended or packaged form or by way of transformation. While sea food, oranges, dates, other fruits and vegetables belong to the first category, olive oil and part of the tomato production that goes to transformation belong to the second; i.e. are processed and then internally commercialized or exported.

Turkey's processed food sector has many world leading products. The sugar and chocolate confectionary industry has increased its product variety and volume in the past few years. Turkey is self sufficient in the production of sugar which has led to sugar confectionary having a great role in Turkish traditions. Confectionaries are widely exchanged as gifts during religious festivals, wedding ceremonies and celebrations. Although the sugar and chocolate confectionary sector in Turkey is historically based on the production of traditional Turkish confectionary products such as Turkish delight and halva, other confectionary products such as chocolate confectionary and chewing gum are growing rapidly. The Turkish gum sector is very competitive due to the presence of powerful local and multinational companies hence production of gum has steadily increased production of sugared gum, sugar-free gum, and bubble gum since 2000.

The pasta industry in Turkey is one of the biggest in the world. Semolina and macaroni factories were among the first branches of the food industry to be established in Turkey. Today, annual production of pasta in Turkey is over 600,000 thousand tons and is exported to over 100 countries. Turkey exports mainly uncooked pasta without egg, constituting up to 80-90% of the total Turkish pasta exports so far.

Turkey is a major producer of olive oil as well. Turkey holds the second place in table olive production and fourth in olive oil production in the world. Turkish olive oil is an important ingredient in many Turkish dishes and is well known throughout the world. Turkish olive oil is in demand in every part of the world and is exported to over 90 countries. With its highly diversified production base, Turkey offers a wide range of agricultural products to the world at notably competitive prices.

Turkey has traditional eating habits that remain stable in the majority of the population. However, the Turkish food sector is becoming more elaborated as retailers require higher standards from food manufacturers, and investments accompanied by improvements in the sector take place. Through the widespread presence of modern MGR outlets and rising disposable incomes, consumption patterns have been shifting to packaged and processed foods, such as ready-to-eat meals and frozen foods. Additionally, the increases in the number of females in full-time employment have supported the trend towards packaged, frozen and ready food. Therefore, considering that Turkey still has the lowest per capita consumption of packaged food in Europe, there is considerable potential in the aforementioned sub-sectors. Globally, Turkey is one of the largest markets for baked goods, since such goods have a significant share in the diets of the Turkish population. With rising incomes, packaged bread consumption presents an increase and at the same time, demand for different bread varieties, such as high-fibre and speciality artisan breads offer an opportunity for this higher profit market compared with traditional baked products.

1.4.3 Structure and typology of the food industry

The structure and typology of agro-food industry in **Egypt** can be assessed based upon the processed proportion versus non-processed of each food item. The proportion of each food item utilized in processing industries as well as the proportion utilized under other industries. Obviously, the rest is devoted for non-processing use (say fresh or raw). The highest proportion processed was from sugar crops under refining industry and oil crops for food oil and meal extraction. Barley comes at the third rank as a raw material for beer processing. Examples of other industries is more than 10% of maize supply is used for starch and glucose sugar extracted from maize.

The food industry products in **Jordan** are either, entirely, from domestic production, partially from domestic production, or completely from imports. Rice, Cassava, sesame oil and sesame meal, palm oil, other oil crops and butter and ghee are totally from imports, where there is no domestic production. Except sesame oil, which is imported as seeds and then totally processed at home, the rest are imported as oils and are packed locally in commercial packages. Wheat, barley, maize, pulses, and animal fats are domestically produced at a limited level. Therefore, the bulk of processed products relays mainly on imports. The food industries of these products are milling in domestic plants, oil extraction plants and then they are packed.

Only fruits and vegetables that include other types of industries, such as making juices, marmalades, James, and peeled fruits, frozen and preserved fruits and vegetables. Jordan produces, relatively a considerable volume of alcoholic beverages, particularly beer and non-food alcohol products. The produce is from either domestic produced barley or grapes, while the non-food alcohol products are entirely from imported raw materials.

In **Morocco**, in 2009, the AFI accounted nearly 2013 companies that have contributed 30.2% of total value added of industry and nearly 5% of GDP, with 95,257 employees. In the same year, investments in this sector are estimated at over than 3.7 billion dirhams, or about 15.4% of total industrial investment. The share of the AFI production reached 32.9% of the total industrial production. It meets the needs of the country in processed food products at annual rates ranging between 70% and 100%. The value of food exports reached 17.2% of the industrial exports. Thus, in spite of the informal sector, also of significant importance, the agro-food industry plays a leading role in promoting the activity of transformation and the valuation of agricultural products in Morocco. The analysis of the overall structure of the AFI shows the large share of small and medium industries (SMIs) which account for up to 95% of total agri-food companies but for only 28% of the value added of the sector. Nevertheless, the analysis of the evolution patterns shows relatively better performance for the AFI structure relative to the manufacturing industry as a whole especially in terms of added value.

Syrian agro-food industry is composed of three sub-sectors according to their different ownership: the State-controlled, the private sector, and the joint-venture companies. In the 70s, the Syrian government encouraged both the agricultural sector and the food industry to cover the increased demand for food. In that period, the main purpose of public sector companies was to complement the small private sector in transforming the surplus of agricultural production into processed products, and to establish the infrastructure required for the industry.

During the 90s, the expansion of public sector processing capacity was accompanied by the promotion of private-sector participation, especially through investment Law no. 10/1991, so that the public sector had to face private competition in an increasing number of sub-sectors with positive effect on the overall efficiency of the food processing industry.

The General Establishment for Food Industries (GEFI), part of the Ministry of Industry, affiliates 19 companies operating factories in several food chains. It deals with processed fruit and vegetables, oil, dairy products, biscuits, pasta, dried onions, sugar and sweets, water, beer, and spirits. All these companies were established or nationalized during the 60s and 70s, and most of them operated as state monopolies in the relevant market segments until 1991. The public food industry strictly applies the Syrian specification of food products. In the past, the main customer for public food industry was the public marketing outlets thus; there was no consideration to produce new products, promote, and reduce cost uncured by over-staffing. Recently however, the government gave more authorities and marketing flexibility for public sector companies. Consequently, public agro-food companies improved its production and services, and became an active player in the processed agro-food market.

Comparing the average value of processed agro-food in private and public sector between 2007-2009 and 2001-2003, we notice a remarkable development achieved by private sector (68.5%), compared to modest development (13.4%) for the public sector. The overall value increase for all the agro-food processing sector was 39%.

The average capacity utilization rate in **Turkish** food industry, as calculated by the Turkish Statistics Institute is around 70%. However, in the sub-industries of meat and dairy processing, flour, olive oil and other vegetable oils this rate falls down to % 50 mostly due to the large number of firms operating in these sub-sectors. The lack of coordination in the vertical relationships in the food chain, lack of contracts, unstable raw material supply and unregistered production are argued to be the main factors behind excess capacity.

According to the Deloitte report entitled "Global Powers of the Consumer Products Industry 2010", during the global financial crises consumers were attracted to discounted products with lower prices and avoided private labels although the food and beverage industry managed to

perform well during the crisis. In other words the crisis environment made consumers more cautious and keen to seek quality in their purchases. Manufacturers are taking these changes into consideration. Together with the recovery from the crisis, mergers and acquisitions are anticipated to increase globally in the coming years. This also heightens attention to food safety, with the focus on growth in emerging markets. According to BMI, the Turkish Government has announced the Ministry of Agriculture and Food will be re-established taking into consideration food safety as one of its main concerns and enhancing the relationship between the Turkish food and agriculture industries.

1.4.4. Investments

Number of Companies involved in Food Processing Industry in **Egypt** surpassed 84. While the initial issued capital has reached 2806 million Egyptian pounds, the aggregate investments have reached around 5026 million Egyptian pounds. Whereas, the Egyptian investors share in such investments reached 72%, the partners from Arab countries share has approached 25%. The rest, i.e. around 3% was from the rest of the world.

About US\$747 million was invested in agro-food industries in **Jordan**. Growth areas already identified for investment include packaging, freezing and de-hydration, and the production of fruit and vegetable juices and pastes. A recent initiative of the Jordanian Ministry of Trade and Industry aims to promote and develop national agro-food industries during the period 2009-2011 as a platform for regional expansion. Agro-industrialization is not without challenges, however, and the country faces climate change (with decreased rainfall and risk of further desertification), shortages of fresh water, instability of energy supplies and prices. Moreover, the reality of geo-position, that leads to the instability of neighbouring territories may have negative impacts on the national economy.

In **Syria**, both public and private sector have large investments in the agro-food industry. There are 19 public agro-food factories run by the General Establishment of Food industries, 32 mills run by the General Company for Mills, and 175 bakeries run by General Company for Baking. These factories are characterized by large production, over-staffing, and old machinery.

Turkey was ranked the 5th according to the CEE Business Environment Ratings prepared by BMI. The analysis emphasizes the food and beverage industry's attractiveness to investors by taking into consideration the market size, current consumption levels, future potential growth and the legislative and political environment. Additionally, as a major agricultural producer with an increasingly positive food and beverage trade balance, Turkey offers easy access to raw materials. The food and beverage sector, which is largely dependent on the agricultural sector in Turkey, has an important share in the country's production i.e. a share ranging between 18-20%. The number of foreign companies operating in Turkey's food and beverage sector increased from 376 in 2008 to 421 in 2009; it was only 8 in 2000. Foreign direct investment reached a peak of USD 1.2 billion in 2008 which was about USD 14 million in 2002. Due to the effects of the global financial crisis, FDI in the manufacturing sector registered a shrinkage of 58% in 2009 and of 83% in the food and beverage sector.

It is observed that foreign companies mostly prefer to establish joint ventures in agro-food sector in Turkey. The share of joint ventures in the sector is about 65%. The share of foreign agro-food companies which own the whole shares (100%) is only about 36%. In about 31% of all agro-food sectors the share of foreign capital is less than 50% and in about 19% their share is more than 50%. In about 74% of all joint ventures the foreign partner is only one firm. The main factors behind foreign companies' investing in agro-food sector of Turkey are: protecting their technology,

quality assurance, risk sharing, fast access to markets, the reputation of the domestic firm, and the experience and information that the domestic firm has. The foreign investors' origin is mainly in Europe and mostly in Germany. Near and Middle East countries follow Europe. About 57% of all foreign investments are in the Marmara region, followed by the Aegean region with 17%. Black sea and Southeastern Anatolia regions are the ones which attract minimum foreign investment with 1.7% and 2.9% respectively.

2. Current agricultural and food policies

2.1 Short retrospective view of agricultural policies (historic overview)

The period 1965-1986 was the Era of the *Egyptian* Government interventions in the agricultural sector. The control of crop area and install of the producers' price and compulsory purchase of the major crops were the policy instruments used. Thereafter, Egypt has practiced a package of economic policies, known as structural adjustment program (SAP). The program has applied earlier on the agricultural sector, since 1986/1987, compared with other sectors in Egyptian economy, when the Ministry of Agriculture and Land Reclamation (MALR) started to eliminate taxes and subsidies in agriculture products and selling the public agricultural companies. Structural adjustment program, started, empirically, 1990/1991, a financial year, aimed to improve the conditions of the supply structure on base of the comparative advantage principles, to correct distortions in economic policies, development of the local resources, and promote institutional transformation to reduce vulnerability to external shocks in the future.

Since 1991/1992, the Government of Egypt (GOVEG) has applied the reform policies on all sectors in the Egyptian Economy. The main structural changes were liberalization of both monetary and financial markets. Therefore, it liberated both interest and exchange rates. Investment structure has shifted to the private sector. Currently, the private sector share in Egyptian investment surpassed 70%. Those policy instruments were associated with privatization mechanisms of public firms. All those amendments have impacts on the resources use, the food supply, and unemployment and not only income growth, but also on its distribution.

The SAP application in the agricultural sector is composed of five instruments. These are:

- (1) Remove the farm price control,
- (2) Eliminating restrictions on crop area,
- (3) Cancellation of Government control in purchasing crops,
- (4) Phasing out the subsidies on agricultural production inputs,
- (5) Cancelling the Government deregulation, this prevented the entry of private sector in processing and marketing of agricultural products and agricultural production inputs.

The agricultural policy amendments can be classified under two dimensions. First, the policies geared to supply-side. Second, the policies directed to the demand-side.

The first package of reforms concerning the Policies Geared to agricultural supply was implemented during the period (1987-1994). Headed the State has oriented the application of the policy of economic liberalization to transition from central planning to indicative planning based on incentives. In this context, the ministry of agriculture developed so-called benchmark-cropping pattern, as a main production-policy, which take into account to secure the national needs of strategic crops, achieve market stability, water conservation, and limiting the expansion in water-consuming crops (rice and sugar cane). Such policy made agricultural land use (cropping pattern) and agricultural rotation to be determined by farmers' decisions, except rice area, which has limited by a border of 1.2 million acres. The farmer who cultivates rice in a region not allowed for such crop pays a heavy fine. Whereas, other cereals, legumes, vegetables, fruits and fodders; area stayed unrestricted, barriers were induced to shrink the area under Egyptian cotton.

Up to 1986, there were two exchange rates for the local currency (Egyptian Pound, EGP). First official exchange rate equalled 1.43 USD/EGP and a free market exchange rate, which equaled US \$ 0.47/EGP. The official exchange rate applied on all exports of cotton and rice, but did not apply

to other crops. While half exports of crops, rather than cotton and rice, applied the official price, the other half applied the free market price. This excessive exchange rate levels resulted in low producer prices. Accordingly, there were indirect taxes on agricultural exports, which was equivalent to a taxed export price policy. In 1990, the official exchange rate was reduced to US\$ 0.5/EGP, while the exchange rate fell in the free market to US\$ 0.34 /EGP. In 1991, there was a common exchange rate and the market exchange rate was US\$ 0.30 /EGP (The World Bank, 2010). However, GOVEG has continued subsidizing the various food products, most notably bread, sugar, and oil, for low-income groups.

Agricultural development efforts have experienced major changes since 1980 in the different fields of agricultural production, due to expansion of agricultural areas, and improving productivity. These efforts have led to the increase of the agricultural land from 2.5 million hectares in 1980 to approximately 3.7 million Hectares in 2007, as well as increasing cropped area from some 4.4 million Hectares in 1980 to 6.4 million Hectares in 2007. The horizontal and vertical improvement in cultivated area and crop productivity, achieved an average annual growth rate in agriculture of 3-4%. However, such achievements faced notable increase in population associated with expansion in their needs due to economic growth.

In the past, subsidies were widely used to support the rural sector in *Jordan*. However, under Jordan's agricultural sector restructuring program, subsidies have been abolished and support is now provided through other, non-market distorting means. In November 1996, the legislature enacted the "Agricultural Policy Charter", called simply the Charter, which institutionalizes the policy reform undertaken as part of the restructuring program and establishes long term goals and objectives for the Kingdom's agricultural sector and agricultural policies. The Charter is developed on the premise that rural areas in Jordan and the holding of farmland links current generations to a "homeland and natural and cultural habitat". In addition, because of the fragility of the environment in much of the country, rural peoples can play important roles in protecting the environment and managing natural resources efficiently. Agricultural policy therefore, aims to promote efficient and sustainable use of rural resources while increasing economic opportunities in rural areas so that farm incomes are more equitably distributed within the sector and are closer to urban incomes.

The Government of Jordan also faces the absolute necessity of ensuring that the population has access to basic foodstuffs at stable prices that preserve the living standards of limited opportunity and the lowest-income groups. As a result, policies also are directed at increasing Jordan's food self-sufficiency through export of high-value agricultural products and import of lower value goods. To support a growing horticultural export economy, the government is promoting production of quality products at internationally competitive prices. This is being implemented through provision of more water for irrigation, an enhanced research and extension program, and expanded marketing services such as grading and residue testing using internationally accepted measures of quality assurance.

Another mandate in the Charter is the expansion of private sector participation in the agricultural sector. This is being supported in several ways. The most important mean is removal of the government from the role of both primary buyer and supplier of feed and food grains and pulses. In addition, economic incentives, such as exclusion of 75 percent of investment expenditures on agricultural projects from trade and domestic general sales taxes, are being provided to the private sector to encourage investment. Overall, the idea is to limit government's role in agriculture to provision of institutional support such as extension, research and infrastructure investments.

The transition from a government-dependent or highly subsidized sector to a completely free market oriented sector under the agricultural adjustment program is not without costs. For example, most livestock holders have reduced, or in some cases liquidated, their holdings in the last decade because the reduction in, and then subsequent elimination of, feed subsidies resulted in non-cost effective production. Vegetable farmers have faced significantly higher prices for water, challenging their competitive export position. Even so, the government has not slowed its pace of reforms

In general, the Government of Jordan has supported producers through a combination of means including procurement of domestic production and provision of inputs (seeds for cereals, water, credit, and livestock feed). The following two profiles provide two lists of laws and regulations that were issued to implement the economic adjustment program in agricultural sector in Jordan during the past decade.

In **Lebanon**, agricultural policy is carried out in a highly fragmented, disconnected manner and as a low priority. A wheat and sugar beets subsidy is managed by the Directorate General of Cereals and Sugar Beets at the Ministry of Economy and Trade and a tobacco subsidy program is run by the Régie des Tabacs at the Ministry of Finance. The Ministry of Agriculture is responsible for other crops, agricultural services and cooperatives. It also supervises the Lebanese Agricultural Research Institute and the Green Plan, which helps rehabilitate lands and rural roads neglected or destroyed during the war. An export-promotion program is managed by the para-governmental body Investment Development Authority of Lebanon spelled out and the Council for Development and Reconstruction manages infrastructure projects, including irrigation and mobilizes foreign funding.

Agricultural and food trade policy in Lebanon in recent decades has done little to improve the situation of an agricultural sector weakened by years of civil war and occupation. While other sectors of the economy have received considerable financial resources for reconstruction (contributing to the country's massive debt load), agriculture has benefited from little aid or even attention from the national government.

A large portion of government funds (and private subsidization, in the case of wheat) which are attributed to agriculture go to the specific crops of wheat, sugar and tobacco. The fact that there are no specific criteria for eligibility for these subsidies indicates that they are not part of an overall strategy for agricultural development. The price supports also do not particularly encourage farmers to invest in the productive capacities of their farms but act instead as short term solutions to a problem (MOA 2003).

Libya had also begun some market-oriented reforms after 2000. Initial steps have included applying for membership in the World Trade Organization, reducing subsidies, and announcing plans for privatization. Authorities have privatized more than 100 government owned companies since 2003 in industries including oil refining, tourism and real estate, of which 29 are 100% foreign owned. The following is a retrospective view of past public policies implemented during the past decades since political independence.

Policies prior to the 1969 revolution:

From the beginning, the discovery of oil reserves in Libya has had a direct negative impact on agriculture as most of the labour force fled to oil related activities which were significantly higher remunerative of the human effort and capital than agriculture. As a result, agricultural activities declined in importance and contribution to the general economic output of the country. Planning efforts were made during the fifties and sixties to preserve the historical role of agriculture but with no significant impact on really enhancing it as the oil tide was running against it.

During those years, prices were freely determined by the market with no significant public authority intervention and consumption deficits of various food commodities were imported. So for the most part, Libya was a free market economy all the way through the 1969 political overthrow of the monarchy.

Post 1969 revolution policies

From the start Libya, as many developing nations, set for itself the objective of food self-sufficiency in almost all commodities. While some production sectors performed relatively well during some periods (barley, vegetables, certain fruits and eggs), the objective of self-sufficiency for many other products turned out to be infeasible (wheat, milk, olive oil and most fruits). As a result, Libya has always been a continuous food importer.

In the meantime, Libya got involved in subsidizing most food commodities at the consumption level which boosted the Libyan intake of most food items. Subsidy levels were so high during the eighties and the nineties that many imported agricultural products from neighboring countries and elsewhere were re-exported to their countries of origin. As an illustration, the so called “Libyan markets” everywhere in Tunisia are regularly full with re-exported Libyan imports. They represent an important share of the domestic markets of agricultural commodities in Tunisia.

During the seventies, agricultural policy aimed at supporting producer prices way above international prices, while at the same time subsidizing most agricultural inputs, including interest free credit. The data contained in the table below give an idea about how big the spread between the national and international price levels was.

Agricultural policies during the 80's

Construction of a storage and silo network along with cooling houses and road infrastructure was among the relevant achievements that public authorities realized during that period.

In view of the diagnostic of failure that excessive public intervention led to during the decade before, room began to be given to private entrepreneurs to market their produce themselves and commercialize farm inputs so as to rehabilitate market mechanisms and hope to reduce food shortages.

In so far as pricing policy of agricultural commodities, public support to basic food commodities continued (wheat and barley) along with providing a selection of farm inputs to farmers at cost. A stress was also put on accompanying agricultural research and financing activities.

Despite these efforts, national agricultural production was quite volatile which led to increased imports by about 50% between early and late 1980's.

Agricultural market liberalization, beginning 1986

After many years of public domination over the Libyan economic systems new policies were introduced to promote private initiatives around the year 1987. In 1988 decisions were taken to open up borders with neighbouring countries to enhance trade and labour movements. At the same time prices of vegetables and fruits were liberalized. This gave an important push to the development of these crops, particularly in irrigated areas, which had a positive impact on enhancing farm incomes. The development of cash crops was at the expense of cereals however.

To make up for the decline in cereals production, decisions were taken to grow wheat and barley in public projects in irrigated areas. During this period, reliance began on market forces (supply and demand) for most commodities whereas imported inputs were provided to farmers almost at cost.

Towards the end of the eighties, a gradual disengagement process got underway from providing input subsidies and supporting cereal and olive oil prices.

Policies during the nineties

An attempt was made to structure agricultural activities according to regional comparative advantages of the country. Prices of agricultural produce and inputs became market determined. This automatically led to increasing input prices. In a parallel fashion and for food security reasons, Libyan authorities put together a strategic buffer stock program, enough to cover 3 to 6 month needs for most commodities. For this purpose a national institution was put in charge of either buying on the local market when local supply conditions or importing the required stocks

Policies after 2000

The willingness on the part of Government authorities to liberalize the economy in general, and the agricultural branch, in particular continued. This got translated automatically into a significant cost price squeeze for farmers as the cost of inputs increased tremendously while the price of outputs were severely challenged by the competition from imports. As result incentives to carry out agricultural activities and much less to invest in the sector were fading away. These problems were not obviously as visible as they would have been in other countries that are not similarly endowed with oil revenues as Libya.

As in many developing countries and for social considerations for the most part, **Tunisia** has adopted the inexpensive food policy approach by subsidizing staple food commodities at the consumption level, namely the cereals products, sugar and vegetable oil. This translated into much higher consumption levels of these products than otherwise would be the case.

At the same time, nominal prices at the production levels were maintained constant during decades which, together with fluctuating production resulting from climatic conditions, led to increasing import needs of these products. This was also encouraged by stability in world prices during a long period of time.

One can see the almost six-fold increase in budget expenditures on imported wheat, as compared to average expenditures during the period 2000/06, so as to maintain domestic wheat prices at their levels prior to the rising in the respective world prices. This has resulted in a revision in domestic cereals prices which were increased on three different occasions, the third one of which was then called exceptional measure, meaning transitory, but in reality more likely to be permanent.

Traditionally, **Turkey's** key policy objectives for agriculture, as mostly set out in successive Development Plans are: improving productivity; ensuring food security and food safety; and stability of food supply; raising self-sufficiency and exploiting export potential; providing stable and sustainable income levels in agriculture; enhancing competitiveness; fostering rural development; and intuitional-capacity building to come into alignment with EU agricultural and rural development policies.

Historically, government intervention in agriculture has been considerable, with price support, input subsidies and high border protection being the main policy instruments. Over the mid-1980s-2000, domestic agricultural support measures in Turkey were almost entirely based on commodity price support for crop commodities and variable input subsidies. Although the rates of support on products and input use fluctuated considerably prior to 2000, there were no fundamental changes to the kind of policies and delivery mechanisms used.

Market price support was primarily carried out through intervention buying operated by the SEEs (grains and pulses, sugar, tobacco, tea) and the ASCUs (horticultural crops, cotton, oilseeds, nuts

and olive oil). Intervention buying of crop commodities at support prices began in the early 1930s with wheat: by 1992 the total number of crops accorded price support was up to 25.

Restrictions on area planted were introduced for three commodities (hazelnuts, tobacco and tea) in the mid-1980s, under the authority of the relevant ASCU or SEE. However, enforcement was ineffective and stricter controls and compensation incentives were adopted in 1994. From 1994 onwards, tea growers were also required to cut back part of their plantation each year, in order to improve the quality of the crop. A “pruning premium” was introduced to compensate them for lost volume. Over the period 1996-2000, payments for tea pruning averaged USD 17 million annually. In addition, informal area controls operated for sugar beet.

By contrast, in the livestock sector, domestic policies played a relatively less important role. Since 1986, producers delivering milk to dairies that were certified as meeting certain technical standards have received an extra payment per litre, the “milk incentive premium”. The only other form of support for dairy products has been provided by border measures. Tariffs on most dairy products are bound at 180% (lower for some cheeses). Applied MFN tariffs were significantly below these bindings in the late 1990s, but moved closer to bound levels in the early 2000s. Apart from temporary intervention purchases of live animals during the drought of 1989, the only source of support for bovine meat has been from border measures. For example, in 1995 MFN tariffs on red meat stood at just 15%, but shortly afterwards were raised to 165%. Since 1996 there have been restrictions on red meat and live cattle imports due to concerns over animal diseases, such as BSE, FMD and blue tongue in a number of countries of origin. The restrictions have been progressively and partially lifted for some countries from the second half of 2010, following changes in the animal health status in these countries. A meat incentive premium was paid in 1990-01, and again in 1994-05, per kilogram of beef and sheep-meat, on animals delivered to abattoirs satisfying modern hygiene standards. During 1987-89, the compound feed was also subsidised at a rate of 20-25%.

Support to input use has been extensive. Until 1999, credit to farmers was heavily subsidised, and the government also provided subsidised credit to the agricultural input industries. Interest rate levels for farmers tended to be 40-60% below commercial rates, and from the late 1970s until 1998, the real interest rates on loans to farmers were negative. In 1994, for example, the average real interest rate on agricultural loans reached -45%. The use of credit subsidies to agriculture peaked in the period 1994-99, averaging over USD 1.3 billion per year. The World Bank (2004) noted that, starting in the mid-1990s cheap and abundant credit encouraged credit delinquency and, due to the high administrative costs and inefficiency of the delivery agencies, only 80% of the implicit subsidies ever reached the farmers.

From 1986 onwards, the government made subsidies available to fertilisers used by farmers via the Agricultural Bank. For a brief period (1994-97), these subsidies were paid direct to farmers, upon presentation of a sales invoice, but this procedure was eventually reversed due to the heavy administrative burden of the scheme and its susceptibility to fraud. During 1990-97 annual expenditure on fertiliser subsidies averaged USD 363 million. The fertiliser subsidy was 39% of the market price in 1993, and 50% in 1997. In 1997, the government began phasing out the fertiliser subsidy, and it ceased completely at the end of 2001.

Agriculture’s use of pesticides has been supported in two ways. First, the government assumes the cost of protective measures taken when epidemic crop diseases or pest infestations occur. Second, from 1987 onwards the Agricultural Bank has been authorised to pay a rebate of 20% on the value of pesticides bought by farmers themselves. Over the period 1996-2001, annual disbursements by government on this item averaged USD 26 million. Starting in 1985, a subsidy was paid to certified producers of hybrid maize, hybrid sunflower, soybeans and nitrogen-fixing bacteria. Total

payments under this scheme fell during the 1990s from their peak of USD 31 million in 1987 to low levels in the early 2000s. Subsidies have also been paid to farmers, at various times, for seeds and animal feed.

Incentives for capital investment were paid to farmers during the 1980-85, largely in the form of reductions in customs duty on imported machinery and other tax deductions. From 1985 onwards grants were paid for various investment projects, such as the establishment of feedlots. This form of aid ceased in 1994. MARA also funded on-farm development work (such as field-levelling, soil improvements, *etc.*), with costs averaging USD 23 million for 1986-90, USD 52 million for 1991-95; and USD 63 million for 1996-2000.

2.2 Objectives of current agro-food policies and support to agriculture

In all MPC, there are certain key characteristics that also shape a rather uniform agro-food policy agenda that is applicable throughout the region. These characteristics are:

- The low self-sufficiency rates and the reliance on imports
- The scarce natural resources and especially water
- The high unemployment rates
- The high poverty rates especially in the rural areas
- The low productivity and competitiveness of domestic agricultural sectors

Hence, the main objectives of agricultural policies in the MPC can be summarised to the following (Lindberg, *et al.* 2006):

- Increase the volume and yield of agricultural production
- Increase the competitiveness of the agricultural sector
- Achieve partial or total food self sufficiency
- Support farmers' incomes
- Improve the living standard in the rural areas
- Protect the natural resources with special consideration given to water

In addition, given the MPC's willingness to participate in international trade organizations and increase their access to world trading markets, most MPC (not with the same pace however), have introduced a series of trade reforms in the recent years in an attempt to liberalise their own domestic markets and meet the requirements set by bilateral and/or multilateral trade agreements. Most quantitative import controls were abolished and tariff rates have been reduced (even before the 2007/08 food price crisis). Nevertheless, the MPC still have highly protective agricultural sectors; guaranteed prices for staple as well as industrial crops are a common practice in countries such as **Morocco, Tunisia, Egypt** and **Syria**, as are also input subsidies (i.e. fertilizer, pesticides, fuel, water etc) (World Bank 2008).

In **Algeria**, the plan to renovate the agricultural sector, the *Plan du renouveau agricole et rural*, accelerated in 2010 with the funds of DZD 1 trillion. Under this plan, a significant part of the debt owed by farmers has been written off, while the implementation of provisions for the disposal of private state land also accelerated and the first civil, joint-stock agricultural companies aimed at opening up the capital of agricultural holdings to national savings were created. (African Economic Outlook 2011).

In **Egypt**, the following objectives have been identified as the key ones to achieve a sustainable agriculture system:

- Sustainable use of natural agricultural resources;
- Increasing the productivity of both the land and water units;
- Raising the degree of food security of the strategic food commodities;
- Increasing the competitiveness of agricultural products in local and international markets;
- Improving the climate for agricultural investment;
- Improving the standards of living and reducing poverty rates in the rural area

In **Jordan**, the government has expressed considerable concern about its "food security" and its high food import bill. Therefore, it has plans to increase crop production since the last decade of the past century. However, despite increasing investment there is a slow pace of progress. Consequently, Jordan is implementing a two-pronged agricultural development policy. *The long-term strategy*, which aims at increasing the total area under cultivation by better harnessing water resources to increase irrigation of arid desert areas for the cultivation of cereal crops. In the *short term*, the government is attempting to maximize the efficiency of agricultural production in the Jordan River valley through rationalization or use of resources to produce those items in which the country had a relative advantage.

Rationalization has started with a controversial government decision to regulate cropping and production, primarily in the Jordan River valley. Farmers there had repeatedly produced surpluses of tomatoes, cucumbers, eggplants, and squashes because they were reliable and traditional crops. At the same time, underproduction of crops such as potatoes, onions, broccoli, celery, garlic, and spices led to unnecessary imports. The government has offered incentives to farmers to experiment with new crops and cut subsidy payments to those who continued to produce surplus crops. Thereof, cucumber production dropped by 25% and tomato harvests dropped by more than 33%, while self-sufficiency was achieved in potatoes and onions.

The current agro - food policy objectives of the **Lebanese** Government are focused on:

- Providing the necessary infrastructure such as roads, irrigation systems and extension and research services,
- Securing a steady stream of reasonably priced produce for the Lebanese consumer, giving assistance and support to the local producers,
- Creating suitable environment for competition and the efficient flow of information,
- Coordinating market activities to protect the economy from the negative effects of market failure.

In **Libya**, the number of peasants who gave up farming to look for jobs in the oil industry and in urban areas rose dramatically throughout the 1955-62 period. Another adverse effect on agricultural production occurred during the 1961-63 period, when the government offered its citizens long-term loans to purchase land from Italian settlers. This encouraged urban dwellers to purchase rural lands for recreational purposes rather than as productive farms, thereby inflating land values and contributing to a decline in production.

Since the seventies the Libyan government had paid more attention to agricultural development. The government has given inducements to absentee landlords to encourage them to put their lands to productive use and initiated high agricultural wage policies to stem the rural-to-urban flow of labour. These policies met with some success. Production levels began to rise slightly, and

many foreign workers were attracted to the agricultural sector, particularly from Egypt and Tunisia and subsequently from other African countries.

Agricultural development became the cornerstone of the 1981- 85 development plan, which attached high priority to funding the Great Man Made River (GMMR) project, designed to bring water from the large desert oasis aquifers of Sarir and Al Kufrah. Interest free agricultural credit was provided by the National Agricultural Bank, which in 1981 made almost 10,000 loans to farmers at an average of nearly 1,500 Libyan dinars each. The substantial amounts of funds made available by this bank may have been a major reason why a large number of Libyans, nearly 20% of the labour force in 1984, chose to remain in the agricultural sector.

Agriculture and rural development are strategic issue for **Morocco** given its importance for the economic development of the country. Currently, the government policy aims at strengthening human and physical resources that are needed to reach the goals of the 2020 strategy for rural development. The overall vision is quite remarkable, it deals with a couple of key instruments including the Agricultural Development Fund (ADF), the Green Morocco Plan (GMP), the National Strategy for Development of Water Sector, the Fisheries Plan, the environmental policy, the agro-food industry and distribution incentives and the consumption support policy.

On the production side, public policy in **Tunisia** as regards staple food commodities has always tried to seek a compromise between the desire to boost producer prices so as to support farm incomes and, at the same time, take advantage of the relatively low prices that have prevailed at the world market during several decades. In actualities and in the case of cereals, this resulted in putting a ceiling on domestic producer prices during all of the seventies, eighties and nineties. This situation prevailed practically all the way through the world food crisis of 2007 and 2008. In the meantime, Tunisian cereals imports kept increasing, mostly in terms of quantities. The resulting public compensation was initially somewhat manageable, anywhere between a third and half of the price of imports for Durum wheat and 50 to 75%, in the case of soft wheat. During the food crisis period (2007 and 2008), the amount of subsidies got multiplied by 2 or 3 and, during some months of the year 2008, by 4. On the consumption side, public policy has been for a long time that of maintaining cereals prices low to preserve the income purchasing power of the middle to poor income segments of the population.

Studies have shown that the Tunisian universal subsidy program allocated to the cereals sector, as practiced during the seventies and early eighties, resulted in an uneven distribution of public budgets between various segments of the population, particularly the rich and the poor. While public subsidies were designed to help the poor, in the first place, they ended up helping rather the least needy; i.e., the higher income brackets of the population. This has resulted in a major economic reform that the country went through during the eighties and nineties.

During recent decades, attempts were made to identify ways to target the subsidies to the truly needy people of the country. First timid attempts were made to target food subsidies to the poor by gearing them towards economically inferior products (large size bread, bread made by bakeries located in remote areas, etc.). Then there was the adjustment in the weight of bread itself, which was gradually reduced from initially near a kilo per bread to about 400 grams, nowadays. In a parallel fashion, timid but continuous increases in the prices of basic bread, as well as other basic cereal by-products, were initiated. Apart from what is usually considered in the country as basic food commodities; i.e., other categories of bread and cereal by-products destined to pastries became marketed freely of any administrative control.

As indicated above, Tunisia has recently known political uprising which led to a change of the President of the country but also of Interim Governments on three different occasions. Presently a significant amount of work is being done to lay the groundwork for democratic elections for the

first time in the history of the country. It is expected that by the end this year a new Government would be put in place and, among other things, a new agricultural policy will be designed. To what extent the new set of agriculture and food policies will inherit past policy trends, is anybody's guess. Will it reinforce previous public commitments to market liberalization, as materialized by the country's adherence to most world trade agreements (WTO, EU, Arab State trade agreements, etc.), or will it be more social in nature by reviving some features of the old protectionism era, is hard to tell. From the lessons that were learned during this uprising which revealed the existence of major poverty pockets and a very skewed distribution of growth between the coastal zones and the western inland areas, it may be fair to assume that future agricultural and food policies will be more social in nature in that they will be put a major emphasis on inequity reductions between population segments and geographical zones of the country.

This should imply continuous government intervention in the economy, but interventions that will likely be aimed at reducing income disparities between the western and coastal areas of the countries, on one hand, and between various segments of the population, on the other. This could take the form of additional taxation for the rather well off parts of the country or the population and designing appropriate mechanisms to further support the other parts or segments.

Agriculture was one of the sectors that were targeted for structural reform in order to stabilise the **Turkish** economy. Aside from promoting allocative efficiency in the agricultural sector, reforms were necessary for fiscal stabilisation. "The Agricultural Reform Implementation Project (ARIP)", was launched in 2001 and implemented during 2001-08. The project was underpinned by the World Bank and it was also a pre-condition of obtaining International Monetary Fund (IMF) support for the macroeconomic stabilisation programme, which aimed to reduce the high inflation rate and stabilise the general price level. Under ARIP, Turkish agriculture policy has been oriented towards closer alignment with the EU's CAP. Under the reform programme, agricultural related measures have been taken in four main areas: i) reducing output intervention purchases financed from the budget leading to price cuts; ii) phasing out price support, credit and fertiliser subsidies, and replacing them by a less distorting direct income support (DIS) scheme to farmers based on a uniform per-hectare payment; iii) withdrawing the state from direct involvement in production, processing, and marketing of crops; and (iv) making available one-time transition grants to farmers. ARIP is implemented to set up NFRS and provide technical and financial assistance to restructure ASCUs, to facilitate the reform program described above. Within the reform framework, indirect support policies (price and input subsidies) were phased out at the end of 2002 and replaced with the DIS programme. DIS payments (about USD 90 per ha) were independent from crop type and quantity of agricultural production and were made to those farmers (individual persons or legal entities) dealing with land-based agricultural activity, regardless of the status of land tenure. Farmers must be registered in the National Farmers' Registry System (NFRS), which was initiated in 2002. DIS payments were started in 2002 according to NFRS for land between 0.1ha and 50 ha. Agricultural land either needed to be tilled or otherwise sustained for agricultural use. Farmers must be associated with agricultural activity for minimum of one production season (8-10 months) on the same land. State-owned land; deserted or inaccessible agricultural land with no current use; forestry areas and communal property, such as pastures, were excluded from DIS payments. Additional DIS payments were granted to farmers who undertake soil analysis, practice organic farming or utilise certified seeds on their land. Payments for soil analysis were limited to a maximum area of 6 ha. DIS payments were applied to over 16.4 million ha of land (around 63% of total agricultural land) and have benefited 2.8 million farmers (89% of the total).

A key element of ARIP was the privatisation of SEEs and the restructuring of ASCUs. The state-owned Turkish Sugar Company (TURK SEKER) and the state-owned Tobacco Company (TEKEL)

were to be privatised, whereas the TMO and quasi-governmental ASCUs, which had previously administered support prices for certain commodities, were to be restructured. ARIP supported the implementation of the 2000 ASCU Law. Prior to this date, most of the ASCUs had been acting as government purchasing agencies, and were highly overstaffed and lacked working capital. It foresaw to lay off, with severance payments, more than half of the workers in the ASCU system (WB, 2001). In addition, TRY 250 trillion was made available from the budget as a credit to the ASCUs in order to increase their working capital.

The third element of ARIP comprised one-time payments to farmers to cover the cost of switching away from crops in excess supply, such as hazelnuts and tobacco, to alternative activities (net imported products). Initially, the programme intended to cover the costs of shifting from producing hazelnuts, tobacco and sugar beet to the production of oilseeds, feed crops and corn. Participation in the scheme has been limited, and is mostly made up of tobacco farmers, as with the privatisation of TEKEL, prices are determined by a bidding mechanism.

The ARIP has been amended and extended to the end of 2008. The amendment included new sub-components such as cadastral works, rural development activities and agri-environmental policies. The ARIP, which is restructured by the ASP, is supported by a World Bank Loan Agreement. Projects started up in this context are: Land Consolidation, Village Based Participatory Investments Programme, Licensed Warehousing investments and the Conservation of Agricultural Lands for Environmental Purposes (ÇATAK). However, the Agricultural Strategy Paper and the 2006 Agriculture Law appeared to re-couple part of the DIS payment, and support linked to production was defined as a key instrument of agricultural policy. As a result, starting from 2005, the weight of DIS payments in total budgetary support to agriculture has decreased (from 19% of PSE in 2002 to 3% in 2008).

The share of crop-specific deficiency payments and support to livestock production has been increasing. Some concessional credit became available once again in 2004 (about USD 30.5 million in 2004), albeit under strict conditions that it should target producers aiming for higher-quality output, such as those using higher-quality livestock breeds. The new items in the policy agenda, such as the environmental protection schemes, crop insurance support and rural development projects have not been able to have an equal share of funding.

2.3 Price and income support policies

In **Egypt**, SAP eliminated the compulsory quotas delivery of major field crops. Such policy was replaced by an optional delivery system for all crops, except sugar cane. The sugar cane should be delivered to domestic refineries at a price determined by GOVEG. Such price is usually above the international price. In addition, the Government has established a grantee price policy for major subsistence crops, wheat and rice, (usually at a level above the international market), with optional delivery of the production to government milling plants and/or agricultural cooperatives. The objective was to encourage farmers to deliver their wheat for being processed as subsidized common bread and to raise the wheat self-sufficiency as basic strategic crop. This policy has led to decrease the Berseem area from one third to less than one-fifth of agricultural area in Egypt for wheat and sugar beet area.

Financial assistance to the sector is provided in the form of subsidized price of water, the latter being provided almost free of charge to farmers. The price subsidy policy was kept valid for diesel fuel used for agricultural machinery operations, cottonseeds, and cotton protection operation. The national program to increase productivity of sugar cane was applied free of charge and funded entirely by a governmental institution called the national sugar cane Council.

The bulk of food subsidy is bread subsidy. It acquires 73% of total supply commodity subsidy. The difference between the imported wheat price and the subsidized price, delivered to the mill plants, is the value of subsidy per ton. However, the subsidy value per ton of domestic wheat delivered for backing the “Baladi Bread” is higher than the comparable imported quantity. This additional subsidy stems from the policy of paying a grantee price to the farmers, which is often, higher than the international market price. The difference is considered as an incentive to the farmers, not only for delivering their production to produce the subsidized flower, but also to gear them to cultivate more wheat area. The ultimate goal is raising the self-sufficiency rate of wheat. Recently, a new policy has been implemented to lower the entire reliance upon wheat flower in making the subsidized bread. Such policy mix maize flower with wheat flower at a ratio (1:4). The price of maize delivered to such process is also subsidized.

It should be stressed that petroleum products represent the highest share in total direct and indirect subsidies in Egypt. It reaches around 46%, while food commodities supply price subsidy, devoted to consumers is around 19%. The subsidies left to the farmers, after liberalization of the market is less than 1% of the total subsidies in Egyptian economy. The farmer subsidy almost covers the expenditure of cotton protection operations on farm and sugar cane development program. Solar price is the main petroleum product-enjoying subsidy. Its subsidy volume reaches more than 52% of all petroleum products subsidy. Raising its price affects much the performance of the economy, as it is the source of energy for operating the transportation means, either for commodities or passengers, generating electricity, operations of many industries and for agricultural machinery. Butane share in subsidies is 23% and it is the main energy source for cooking and heating in houses. Restaurants also use Butane for preparing eating out meals, in addition to poultry farms heating. Therefore, the impacts of phasing out solar and butane subsidy are wide spread in the Egyptian economy.

The **Jordan** Valley Authority is under the institutions of the Ministry of Water and Irrigation. While, the ministry, in general, oversees the supply of water to Jordanian citizens, municipalities, industry, and agriculture, the Jordan Valley Authority provides water to agriculture and oversees development within the Valley to ensure that water demand does not exceed availability. The water has been supplied to horticultural producers at below cost until recently Producers in other areas of the country do not have access to subsidized water, relying instead on tube wells or rainfall. The Agricultural Credit Corporation makes soft loans available to farmers and investors in

agribusiness. The loans fall into one of two classes—either operational or developmental. Operational loans are from 12-24 months in duration while development loans may be made for up to 15 years, although the bulk of long term loans are for 8 years, (Johansson, Dahl and August, 2009)

Prior to the fall of 1997, the ministry of supply announced a minimum and maximum purchase price for durum wheat before or during the planting season. Announced prices would have had little effect on subsistence farmers' planting decisions—instead rainfall expectations are the most important factor. However, large-scale commercial operations in the south would base their planting decisions on those prices. After harvest, most farmers with surplus wheat transported the grain to ministry of supply collection centres located throughout the country. At the ministry of supply centres, the grain is tested for quality, priced between the minimum and maximum based on its quality, and the farmer is issued a check. A very small proportion of farmers sold wheat to traders at the farm gate who then in turn took it to the ministry of supply collection centers. The subsidy to wheat producers under the announced purchase program has varied from JD0.05 million to JD2.5 million since 1990. The value of the subsidy varies because domestic prices are measured against fluctuating world prices for wheat. For example, in 1996, when world commodity prices were quite high, wheat producers were actually taxed but then in 1997, a subsidy was given to producers. No procurement price was announced during the 1998 planting season for non-seed durum wheat. However, as the main harvesting season began, the government did announce that it would purchase wheat from producers at a base price, which could be below that of previous years but it would reflect the international wheat prices.

The government of Jordan, has almost phased out the wheat price subsidy. The only remaining specific subsidy to wheat producers is the sale of certified seed. The Ministry of Supply (MOS) purchases seed at announced prices from registered seed producers. The seeds are then sold by the Jordan Cooperatives Corporation to farmers in the next planting season. The seed discount had been about 10-15 percent of the average cost of seeds purchased by MOS. Nevertheless, currently, the Jordan Cooperatives Corporation spends significant costs for cleaning, fumigating, and other handling costs associated with preparing the seeds for sale to farmers. These costs generally are not recovered by JCC when selling to farmers.

In **Lebanon**, a 1959 law supports government subsidization of wheat, barley, corn and sugar beet production. In recent years, only the wheat and sugar subsidy have continued, in addition to a subsidy for tobacco farmers. Periodically, bakeries have been given subsidized fuel) to encourage them to continue supplying bread: this occurred once in 1981 and again in 1991. Financial assistance to agriculture in Lebanon takes many shapes and forms. The Government provides assistance to the sector in the form of input, or output subsidies and export subsidies as well as through credit. These are:

- 1) For Input subsidies: The Ministry of Agriculture subsidizes inputs to farmers (pesticides, seeds, seedlings etc) on an annual basis. Thus, pesticides are periodically subsidized for strategic crops including olives and wheat and in reaction to pest outbreaks. In addition, certified seeds produced by the Lebanese Agricultural Research Institute are sold to farmers at subsidized prices. Also, numerous irrigation projects are financed by the government and international donors (water is now used at prices that are significantly below its marginal cost of production). On the other side, the Ministry of Agriculture subsidizes inputs to livestock breeders in the form of reduced cost of vaccinations and veterinary drugs.
- 2) For the output subsidy: Five main agricultural products are subsidized by the government, namely: (wheat, sugar beet, apple, olive oil, and tobacco).

- Wheat and sugar beets are bought from producers at a higher than global market prices by the Directorate General of Cereals and Sugar Beets (DGCSB) at the Ministry of Economy and Trade, and then the wheat is resold to millers at the global price or slightly less. The state ensures that all wheat produce is purchased from local farmers at a subsidized rate.
- Apples have started only recently enjoying the benefits of price support due to their small volume.
- Olive oil: The Higher Commission for Relief, supports the marketing of their produce through buying the oil from farmers and cooperatives at guaranteed floor prices.
- Tobacco subsidy program is run by the Régie des Tabacs at the Ministry of Finance.

3) For the credit subsidy: the Lebanese Government is using elaborate schemes of financial assistance as well as credit-assistance schemes relevant to the agricultural sector, which are of great importance in further organizing the sector. Subsidized interest loans are introduced from banks to the farmers. Those are mainly short term loans. Less than 1.5% of commercial banks' loans are allocated to the private sector of agricultural activities and those who receive them are mainly owners of large farms and agro-food industrial facilities.

There are other types of agricultural subsidies including:

- Tax exemption: most of the agro - food activities is exempted from taxes. In addition, There are tax exemptions on agricultural buildings and land, and 10-year tax exemptions on agricultural industries.
- Free agricultural services (research, extension, training, infrastructure, ...etc)
- Subsidized food purchases: Agricultural products are periodically bought for the army at heavily subsidized prices.
- An Export Plus Program was started in August 2001, aims at supporting the Lebanese agricultural exports. The main financial tenet of the Export Plus program bind to certain standards functions just like a subsidy, since it acts as a reduction on the cost of transport of the agro - food produce to the importer.

However, there is recent moves to cut subsidies that are driven partly by chronic budget deficits and public debt. In recent years, only the wheat and sugar subsidy have continued, in addition to a subsidy for tobacco farmers. Periodically, bakeries have been given subsidized fuel) to encourage them to continue supplying bread: this occurred once in 1981 and again in 1991.

In **Tunisia**, the preservation of income purchasing power of both consumers and producers will in all likelihood be at the centre of future economic policies. A trade-off however will be searched by public decision makers between the need to promote economic growth, which implies the reduction in inefficiencies that may result from increasing bureaucratic running of the economy, and the necessity to promote social stability through reductions in inequities.

As a specific possible measure to sustain incomes for low income segments of the population (in agriculture and outside) there will be the activation of the minimum wage laws either by increasing their levels significantly or via enhancing their scope. Other policy measures that are likely to be designed and implemented will aim at identifying specific incentives to encourage inland, as opposed to coastal, investment.

In **Turkey**, *minimum purchase* prices exist for cereals, sugar, tobacco and tea. These prices, which are set by the relevant SEE, take into account world prices, the cost of production and domestic market conditions. However, as these prices are generally not announced until well after the planting date – and sometimes after the delivery date – market uncertainty is accentuated and

farmers' production plans can be frustrated. *Deficiency payments* (so called "premium payments") are provided for the products that are in short domestic supply. The payments are made in the form of a lump sum for every production period. Production costs, domestic and world prices, as well as budgetary considerations, are taken into account in determining the amount of support. Producers of oilseeds, olive oil, cotton and cereals and tea since 2005, and pulses (in 2009) benefit from such payments. As from 2005, there has been a growing interest in producing energy crops in Turkey. In 2010, a "basin-based support programme" was introduced, under which crop deficiency payments are differentiated according to 30 agricultural basins throughout the country. The law requires the Cabinet to determine "the agricultural basins where agricultural production is to be concentrated, supported, organised and specialised according to the regions' ecological conditions". The boundaries of these 30 agricultural basins were established in 2009, based on a sophisticated model developed by MARA. According to estimates made by MARA, under the new support system total crop production is expected to increase by 7.1 million tonnes more than under the current system, which provides support to 16 crops no matter where they are produced. In particular, the new support system is expected to increase production of wheat and oilseeds, despite the fact that area planted for wheat is estimated to decrease. *Area payments for hazelnuts*: The previous policy was ineffective in controlling excess hazelnut production in areas that were not best-suited to this activity, in terms of environment and quality of production. As a result, an area-based payment to reduce production was announced for 2009-12, replacing previous public intervention measures. The new support system shifts all support to per-hectare payments. Licensed producers will receive about USD 1 000 per hectare for three years (150 TRY/da/year), with compensation of the un-licensed producers being slightly more in the first year of participation. The hazelnut-growing regions are defined at the district level. The government's target is to achieve a fully licensed, high-quality hazelnut production area of 432 000 ha, and to uproot 237 000 ha of un-licensed plantings. *Compensatory payments*: Tea growers are partially (70%) compensated for the costs incurred in implementing the strict pruning requirements to control, supply and increase quality. Compensatory payments are also granted to potatoes and livestock producers to compensate for income losses. A new, three-year transitional payment programme aimed at helping farmers switch from tobacco to other commodities was approved in 2009. *Livestock support*: Budgetary support is also given to the livestock sector ("animal improvement support"): fodder crops; apiculture; animal health; registration of animals; and protection of animal gene sources. There is also support for dairy premiums and milking units. These support programmes are production-based (per head, litre or kg) or project-based, for fodder crop support. Animal husbandry supports, which were implemented for five year period since 2000, have been implemented annually as of 2008. The share of these two programmes in total budgetary payments has increased from 7% in 2004 to 22% in 2009.

2.4 Input use policies

The Economic reform program in agriculture sector of **Egypt** has not limited within liberalization of the market mechanism and privatization. It was associated with introduction and expansion of three packages of technologies

- (1) The biological package, mainly introducing high yield varieties of the main subsistent crops, such as rice and wheat,
- (2) The physical package, mainly expansion of agricultural machinery with introducing new systems such as combine harvesting system and levelling the soil using laser system and
- (3) The chemical technology, which is mainly, applied intensification of chemical fertilizers, to such intensive agricultural system.

Even though the private sector has conferred full opportunities to trade and to deal with marketing of these three packages of technology, the agricultural cooperatives and the governmental machinery stations have stayed as important outlets that provide these inputs at prices moderately less than free market price (partially subsidized). The principal agricultural credit Bank activities were transformed towards commercial finance bank functions. When the importation and trading of agricultural requisites were privatized, the market performance has had negative impacts on small farmers. That experience led GOVEG to intervene again through agricultural credit Bank and cooperatives in those markets. A quota per acre of agricultural requisites have being distributed through the outlets of the principal agricultural credit Bank branches and the common credit agricultural cooperatives in the villages, at a maximum 50% of inputs international prices. Apparently, the productivity of machinery labour has relatively increased as well as the fertilizers at the expenses of both human and animal labour. The interaction between higher yield rice variety and both machinery and fertilizers was positive at the expenses of human labour. The later diminished to great extent. Unfortunately, this issue was not associated with an effective integrated rural development program that might offer alternative jobs for the excess of human labour taken left agricultural activities. Such evidence supports the abundant increase in non-agricultural population of Egypt shown earlier in this study under human labour performances.

The production and trade of the seeds of the high yield varieties have left completely for the private sector at the market price without any subsidy. Only the ministry of agriculture provides the technical supervision and support. The agricultural research centres or the centres of seeds screening are allowed to sell the seeds at the market price. The commercial package is a sac contains 30 kilograms. In 2010, the seed prices of the main crops were US\$ 18-20 per "sac" for wheat, US\$ 280 per sac for rice, however the rice seeds sac I 25-30 kilograms. For hybrid maize the price varies by the variety, as the commercial unit is a sac weighing 12 kilograms, the price ranges between US\$ 15-25.

As the nitrogen fertilizers are the major chemical fertilizers in the Egyptian agricultural system, there is still governmental intervention in its market mechanism. The two main commercial nitrogen fertilizer products are the Urea (46.5% Nitrogen) and Nitrate (33.5% Nitrogen). The agricultural cooperatives distribute quotas of these two types of fertilizers at partially subsidized price of US\$ 14 per sac (50 Kg) while the free market price was US\$ 17.5 in 2010. The quota is associated with the land holding card registered in the cooperative. Phosphate and Potassium fertilizers are distributed at free market price.

The **Jordan** Cooperatives Corporation focuses on provision of inputs and supplies, throughout the country, to farmers at its outlets. Producers who are members of the Jordan Cooperatives Corporation can purchase inputs at a slight discount relative to market prices. The Jordan

Cooperatives Corporation does not participate in any marketing functions. Prior to 1989, the Jordan Cooperatives Corporation made below-market interest loans to members. Many of those loans remain outstanding today and so the Jordan Cooperatives Corporation has offered at various times to forgive some portion of the principal and interest on outstanding loans. One of the primary functions of the Jordan Cooperatives Corporation was to distribute certified seeds to farmers at subsidized prices. This role has been abolished in 1999, as mentioned under price and income policies.

Input subsidies in **Lebanon** include MOA subsidies inputs to farmers (veterinary drugs and vaccinations, pesticides, seeds, seedlings, honey bee disease control...) on yearly basis. Furthermore, numerous irrigation projects are financed by the government and international donors, although costs to farmers are still high relative to other countries. Pesticides are periodically subsidized for strategic crops and in reaction to pest outbreaks – in the past this has included olives and wheat. Certified plants seeds produced by the Lebanese Agricultural Research Institute are sold to farmers at subsidized prices. Amount of the subsidies under its jurisdiction are given for 2001-2003 in the Ministry of Agriculture budget.

The total value of subsidized inputs for the year 2003 amounted to US \$ 3,2 million against US \$ 4,2 million in the previous year. This reflected MOA strategy in reducing the budget allocated to pesticides for the year 2003 in its efforts to disseminate IPM techniques and cutting down on pesticides applications and improving the quality produce.

In **Tunisia**, the recent past has been marked with a quasi-elimination of subsidies on farm inputs, in line with WTO guidelines, with the exception of irrigation water and some farm equipment.

In spite of this public rhetoric, many forms of aid still exist: special subsidies to equipment (machinery and irrigation), livestock breeding, insurance programs, subsidies to agricultural investments, promotion of organic farming, etc. What will future agricultural policy bring in terms of new orientations is hard to tell at the moment.

From the reading one makes of the political rhetoric expressed by the numerous political parties competing for elections and the across-the-board bold promises being made, it is unlikely that the process of opening up of the economy on the rest of the world, in line with the WTO guidelines, will be enhanced in the near future to come.

In **Turkey**, in 2003 and 2005 the so-called “diesel” and “fertiliser” payments respectively were introduced for farmers who are eligible for DIS. These payments are based on land area, with rates varying by product groups. The diesel payment varies between TRY 18 (USD 14) per hectare for fruit and vegetable production and can reach TRY 54 (USD 41) per hectare for industrial crops. Fertiliser payments are between TRY 15.5 (USD 9) per hectare for fruit and vegetable production and TRY 30 (USD 23) per hectare for industrial crops. In 2009, each registered farmer under the NFRS received, on average, a “diesel payment” of TRY 29.2 (USD 18.9) per ha and a “fertiliser payment” of TRY 38.2 (USD 24.7) per ha in 2009. The share of these two programmes in payments based on area has increased from 30% in 2005 to 87% in 2009 (SPO, 2010).

- a. *Agricultural insurance payments:* Prior to 2006, farmers were compensated by government for major income losses due to severe weather conditions (mainly hail) and other catastrophic natural events. However, from 1957 until 2006 only 0.5% of farmland was covered by insurance and only 9 out of the 62 insurance companies operating in Turkey offered insurance policies for agriculture. In 2006, a new, government-supported agricultural insurance system, providing cover for natural disasters, was introduced: it is open to all producers,

regardless of the commodity produced and the size of area planted. The scheme covers crops (including crops produced in greenhouses), bovine animals, poultry and aquaculture. Moreover, the system provides coverage for additional risks, such as floods, frosts, fires, storms, twisters, earthquakes, landslides and loss of livestock due to disease or accident. The system mainly comprises an agricultural insurance pool, established by law, and government support for insurance premiums, as well as support to insurance companies for re-insurance. The agricultural insurance pool is a public body entity, which is operated by a company controlled by a board. As from 1 June 2006, standard policies are issued by 23 insurance companies, which have an agricultural license and are members of the Agricultural Insurance Pool (TARSIM). The level of government support for premiums is determined by the Cabinet, taking into account recommendations from MARA, which is responsible for checking the records in the Farmer Registration System before transfers to the pool can be made. The Cabinet determines the portion of the insurance premiums to be paid by the State. The scheme operates in 807 districts (out of a total of 850) and in 15 860 villages. Over 2006-10, the major share of government support for agricultural insurance was allocated to crop insurance (63%), followed by livestock (31%), greenhouses (4%), aquaculture and poultry (1% each).

- b. *Interest concessions:*** Support to farmers in the form of interest concessions through the Ziraat Bank (TCZB) and the ACCs continue, with a subsidy rate varying between 25 and 100%. The difference between the current rates and the rates applied to farmers, namely income loss, is paid by the Treasury to TCZB and ACC. Agricultural enterprises and farmers are entitled to benefit from interest concessions on loans such as those for good agriculture practices, organic farming, production of organic inputs, production of certified seeds, agricultural research and development, breeding dairy cattle, livestock production aquaculture production, stock farming, irrigation, agricultural mechanisation (except tractors and harvesters), greenhouse horticulture, bulb production for export purposes, production of medical crops, livestock production in specialised industrial zones based on agriculture, milking units and milk-cooling tanks, and animal waste disposal facilities. Credits regarding the pressurised irrigation system (drip and sprinkler irrigation) have been offered by TCZB since mid-2007 and by ACC since the beginning of 2009 with a 100% subsidy rate. For other irrigation credits, the subsidy rate is 60%. As of 1 January 2011, the subsidy rate for other irrigation credits is also increased from 60% to 100%.

2.5 Rural development policies

In **Egypt**, a main target of the sixth development plan (2007-2012) is “the National Project for Targeting Needy Rural Households”. It is conducted through the Ministry of Social Solidarity. It is a national project in order to target more accurately the most vulnerable households within poor areas. This project was launched during 2008. The Ministry has set itself the following goals:

- (1) Determining the neediest households with regard to social welfare;
- (2) Identifying the needs of households, which are eligible for care and support,
- (3) Monitoring the appropriateness of services provided by the State to meet actual needs;
- (4) Establishing a database of the neediest households with regard to social welfare;
- (5) Developing social welfare programs that suits the needs of households, (UNDP, 2008)

This project is based on two main types of interventions, which are geographic and qualitative targeting, in an effort to reach the neediest households. The qualitative targeting was achieved through the design of a standard digital socioeconomic model (one model for rural areas and a second for urban areas) to identify and classify the levels of need of households. The implementation of this model depends on preparing a detailed and comprehensive map of each household condition (through social field research) and preparing a file for each household, which determines the human and financial capacity of the households besides their livelihood needs. The measures rely on 37 of economic and social indicators of the household. Each one reflects one or more of the economic and social dimensions related to poverty and the standard of living.

The National Project for Targeting Needy Rural Households has relied upon “the Poverty Assessment Report in Egypt” issued in mid-2007 by the Ministry of Economic Development, in collaboration with the World Bank, (Ministry of Economic Development, 2007). It provided detailed information about the determinants behind the low standard of living and high rate of poverty, in addition to related indicators at the smallest administrative local unit (village and district). The map can help combat poverty and raise the efficiency of public expenditure through the accurate targeting of poor areas and by identifying their actual needs as well as reducing the leakage of benefits to the non-poor.

According to the poverty map the number of poorest villages has reached 1141, spread over ten governorates (Menia, Suhag, Asyut, Qena, Sharkia, Behera, sixth of October, Helwan, Beni Suf and Aswan. The total population of the poorest villages in Egypt reached about 11.8 million people. More than 1.1 million poor households live in these villages with 5.3 million poor people, representing about 45% of the population there. The villages, out of Egypt’s total number of 4,700 villages, account for as much as 54% of the total number of rural poor in Egypt. This is largely a result of the unequal distribution of public goods including physical infrastructure (water, sanitation and roads) as well as public services, namely education and health facilities. According to SYPE (2010), whereas rural youth account for 59% of Egypt’s total youth, they account for 85% of Egypt’s poor youth. Therefore, that being poor is very much a characteristic of residing in rural Egypt and thus having less access to public goods and services. Lack of access to schooling in turn becomes a major determinant of low quality work opportunities throughout life and thus the poverty cycle reproduces itself.

Since the completion of the Poverty Assessment Report in 2007, the Government of Egypt has been working on a development plan that aims at implementation of the ‘National Project to reduce poverty in more than one thousand poorest villages. A ministerial group for social development was formed in 2007. It included the Ministers of Housing, Utilities and Urban Development, Environment Affairs, Social Solidarity, Education, Higher Education, Health,

Transport, Local Development, and the Secretary of the Social Fund for Development. The group aimed at coordinating the design and implementation of the projects between different ministries whose missions are to upgrade service delivery in the villages covered by the project. Moreover, new partners were added to this group in 2009, namely the Ministry of Family and Population, the National Youth Council, the National Sports Council, the General Authority for Literacy and Adult Education, and the National Post Authority. The philosophy of geographic targeting was to given the strong relationship between public services and poverty, the approach is to break the vicious cycle of poverty by removing those poor infrastructure conditions that perpetuate it.

For Geographic targeting, finance availability, accessibility, and adequacy it is planned to implement this national large expanded project in three phases. Each phase lasts 3 years. They are: (a) 151 villages and 750 surrounding Hamlets (small communities) in 6 Governorates. These villages include nearly 1.5 million people and are located in 24 local units (between 3 to 5 villages in each local unit). The implementation of the first phase of the project started in October 2008, to be completed within two years starting from the financial year 2009/2010. The executive position of various ministries and agencies showed that the implementation of several projects in various domains has been completed during this phase. However, the problem of land allocation in the targeted villages is still the main obstacle to the implementation of various projects during this phase, (UNDP, 2008), (b) 912 villages in Additional 4 Governorates. Each village includes the hamlets) as satellites of a mother (large) village. (c) 78 villages in Another 4 Governorates, the implementation of this phase will begin within one year of the start of implementation of the second phase.

Overall, success or failure in applying programs for the 1000+ poorest villages in Egypt will rest on the ability of all parties to sustain the financial requirements necessary for this huge and ambitious project in all its phases. It will also require a high degree of coordination amongst all ministries and government bodies involved. The estimated cost of the project during the first phase amounts to about billion Egyptian pounds). To be funded from the allocations provided form the state investment budget. It is distributed over the involved ministries.. The Ministry of Housing alone holds nearly 68% of the total estimated cost for this phase. The allocations for governorates amount to 690 million US\$. This is besides an additional amount of 64 million US\$ which includes 29 million US\$ to cover drains and 37 million US\$ as the cost of buying land distributed over the governorates.

In **Jordan**, agriculture employment is dominated by non-Jordanians due to rural-urban migration, the unfavourable working environment, and low wages, thus making the sector unattractive to Jordanian employees. Therefore, only 38% of paid employees in this sector are Jordanians.

Rural-to urban migration has become a core fact of life in Jordan. The percentage of citizens living in urban areas almost doubled from 40% to 72% between 1952 and 2004. By 2009, the percentage of citizens living in urban areas grew to 82.6%. This is due to rural-to-urban migration and the fact that immigrants usually prefer to immigrate to cities rather than rural areas. Hence, the three largest cities (Amman, Zarqa and Irbid) constitute 71.4% of the total population. Still, rising rural-to-urban migration leads to increasing pressure on housing, basic amenities, increasing demand for food (leading to inflation) and rising inequalities in living standards, both within the country, and within urban centres themselves.

In addition to poverty, the other aspect, directly affecting equitable growth is regional disparities. Outside of urban areas, there are drops in educational levels, employment opportunities, and access to services, due to a lack of economic activity in rural areas. Agricultural employment is dominated by non Jordanians due to rural – urban migration, the unfavourable working

environment, and low wages, thus making the sector unattractive to Jordanian employees. Therefore, only 38% of paid employees in this sector are Jordanians.

The MSMEs (Micro finance of small and medium enterprises) have been seen as a vehicle to help control the urban-rural divide. Although the widespread growth of MSMEs in Jordan created many growth poles in small towns and rural areas, their density still favours Amman, Aqaba and Zarqa. The nature of the employment generated by MSMEs also ensures that they play a greater role in pushing for the equality of income distribution. Certain empirical data reveal that nations with a high percentage of MSME industrial companies have indeed shown greater levels of equitable income distribution. MSMEs are dispersed in both urban and rural communities, and provide employment and salaries for disadvantaged labourers and employees, such as the unskilled, women with household obligations and the elderly, as opposed to commercial banks.

Rural development responsibility is fragmented among several ministries and agencies in **Lebanon** where each implements its own program and projects separately. However the Council for Development and Reconstruction (CDR) is the body responsible for national planning and coordination. Effectively, and in May 2002, CDR prepared a draft for a “Rural Development Strategy and Policy State”. This represents an important measure concerning the formulation and application of a national and regional comprehensive rural development programs. The Proposed strategy and action plan for rural development emphasize the following:

- increasing effectiveness of public expenditures;
- improving access to social and economic infrastructure ;
- enhancing competitiveness of agriculture;
- provision of enabling policies, laws and regulations;
- improving the natural resource management;
- increasing contribution of rural women in development;
- adoption of a participatory approach for rural development.

The strategy aims at increasing allocations to rural areas to achieve a more balanced regional development and it will give elected Municipal Councils in rural areas, in a partnership with local communities and civil societies, a considerable role in identifying local needs and priorities and involving them in the implementation of rural activities.

The Green **Morocco** Plan (GMP) is the instrument for implementing a new agricultural development strategy which aims at enabling the agricultural sector to better appreciate its potential to meet new socio-economic challenges. For success implementation, the philosophy of GMP is based on the strategic foundations that govern its design and implementation:

- Its role as a tool for economic growth in the next 10 to 15 years;
- The use of aggregation as a tool that will encourage the philosophy of commodity value chain integrating production, commercial and industrial activities;
- The encouragement of private and public investments targeting an annual goal of 10 billion dirham for the targeted projects;
- The adoption of the contractual approach between various operators including the government;
- The protection of natural resources for sustainable agriculture through the preparation of special programs with The Global Environment Fund (GEF) and the Hassan II Fund for Economic and Social Development;
- The new management rules regarding land tenure policy, water policy, tax policy and the functioning of the domestic market.

For its implementation, the GMP has launched a device that causes radical changes which are realized through:

- The development of regional agriculture plans (RAPs) and the creation of regional agriculture directorates (RAD);
- The restructuring and strengthening the functions of chambers of agriculture;
- The restructuring of the Central Services at the Ministry of Agriculture via the promising comprehensive renovate of existing management partner and the creation of new directions for focused duties;
- The creation of the Food Safety Office (FSO);
- The creation of the Agricultural Development Agency (ADA) as a tool for the implementation of GMP;
- Wrapping up of program contracts with practitioners to ensure better co-pilot of the main agricultural sectors.

In fact, the GMP provides the implementation of 1500 projects for the entire investment estimated to 147 billion dirham in 10 years. All of these projects would benefit all farmers in the country through two pillars located at the centre of its strategic vision. The first pillar represented via modern agriculture with high value added practiced by the farms in irrigated areas and areas with favourable rainfall (560,000 farms). The second pillar is called “solidarity agriculture” which is located in mountains areas, oases and unfavourable rainfall areas (840,000 farms).

The socio-economic challenges of GMP are numerous and interrelated. Certainly, this plan creates enormous expectations regarding the creation of employment, the promotion of investment in agriculture and improving incomes of rural communities. Its relationship with food security is obvious through its objective to reduce the rate of poverty especially in rural areas, improving the purchasing power of consumers and increasing the availability and quality of food consumed at affordable prices. The last point is important for the recent crises in the international market which interpreted in the booming of essential commodities prices.

Thus, awareness has been expressed by both the government and the private sector in the interest of national production to fulfil the country needs. The fluctuation of international market prices and the unpredictable supply behaviour are creating special conditions that lead to keep the concept of food self-sufficiency as fundamental. In this regard, the GMP is encouraging domestic production of major agricultural crops. To do so, the government signed with the professionals special program contracts (*contracts-programmes*) to reactivate and improve the socio-economic performance of the key agricultural sectors such as cereals, sugar, olive oil, red meat, poultry, milk, vegetables, citrus fruits, date and seeds.

Other investments were made under the second tranche of public-private partnership on land use of the Agricultural Development Company (SODEA) and the Agricultural Land Management Company (SOGETA). The area concerned has reached 37,171 hectares for a total of 131 projects, with an estimated investment of 7.7 billion dirham on different pathways, primarily in the trees, including olive and seeds. All measures to accompany the program contracts will be managed by the Agricultural Development Agency.

There is a major concern in **Tunisia** now that the inland rural areas have not had their fair share in terms of rural development promotion, in comparison to urban and coastal ones. Besides, there is increasing evidence that poverty in rural areas may turn out to be much more critical than the generally favourable picture based on previous statistical aggregate indicators revealed.

Indeed, it is now publicly admitted that quite a bit of variation surrounds the national average publicly announced of 3.8% at the end of the year 2010. It appears that the spread around that average goes as high as 12% and may even exceed 20% in some places of the country, according to some unauthorized sources.

Recent rural development policy concentrated on improvements in rural infrastructure (roads, schools, health facilities, drinking water services, extensions of irrigated areas, etc.). Where agricultural occupation is limited by farm size or other constraints, financial injections are increasingly provided by especially designed institutions such as the Solidarity Bank or ENDA Arab International. So far, these funds have been activated primarily in urban areas. It is likely that expanding such financing mechanisms and micro finance sources in general, to rural and agricultural activities, will be at the forefront of upcoming rural development policies.

The main problems facing rural areas in **Turkey** are summarised as follows in OECD:

- a poorly educated and skilled workforce,
- an ineffective institutional structure and a lack of efficient farmer organisations (co-operatives, producer unions, etc.),
- a scattered pattern of settlement in some regions
- an insufficient development and maintenance of physical, social and cultural infrastructure,
- a high rate of dependence on subsistence agriculture,
- inadequate diversification of agricultural and non-agricultural income-generating activities,
- a high rate of hidden unemployment and low income levels,
- increasing migration (from rural to urban and inter-regional areas),
- and the ageing character of the rural population.

Rural development policies in Turkey have aimed essentially at upgrading the economic and social infrastructure in rural areas in order to raise the rural population's standard of living and reduce the rate of migration to cities. Broadly, policy has focused on: upgrading transport and telecommunication links in rural areas so as to facilitate the flow of goods and services; improving government services in the areas of education, health care and sanitation; and facilitating agrarian reform and encouraging land consolidation.

Traditionally, rural development policy has been under the umbrella of the overall development policy, consisted by large infrastructure projects, under the authority of the SPO. It also comprised sectoral projects, mainly aimed at improving rural and agricultural infrastructure, in order to increase agricultural production and to improve health and education services. Turkey has only lately (end of January 2006) adopted a National Rural Development Strategy (NRDS) developed the first rural development strategy plan for the country, as part of the EU accession requirements. The NRDS forms the basis of the EU Instrument for Pre-Accession Assistance Rural Development (IPARD). The NRDS and the Law of Agriculture, which describes the basic domestic agricultural policy instruments, form the basis for future agricultural and rural development policies. In August 2010, a new Plan called "Rural Development Plan (2010-13) was adopted as a High Planning Council Decision. The Plan is aimed at familiarising stakeholders with the topic of rural development through monitoring the activities of the government agencies involved in the implementation of rural policies. Currently, the main objectives of rural development policy relate to the framework of integration with the EU, Turkey being a candidate country, and National Development Plans are set so as to: ensure social cohesion and competitiveness by increasing the income level of rural communities; to develop human resources in rural areas through expanding training and participatory organisational approach; and to protect environmental and cultural heritage in rural areas.

The main goal of NRDS is to develop and ensure that the sustainability of the living and job conditions of the rural community in their territory is compatible with that in urban areas, on the

basis of utilising local resources and potential, and protecting the rural environment and natural and cultural heritage. The four strategic objectives identified in order to reach this target can be summarised as follows:

- *Economic development and increased job opportunities*, through the diversification of the rural economy and the creation of a competitive agriculture and food sector brought about by: the enforcement of producer organisations, an efficient utilisation of water and land resources, increasing the competitiveness of the Turkish agro-food industry, strengthening of consumers' rights and improved food safety.
- *Development of human resources*, improving local capacity by strengthening education and health services, combating poverty and increasing the employability of disadvantaged groups.
- *Improvement of rural infrastructure services and quality of life* by investing in rural infrastructure and developing and protecting rural settlements.
- *Protection and improvement of the rural environment* by improving environment-friendly agricultural practices, protecting forest ecosystems and sustainable utilisation of forest resources and the management and improvement of protected areas.

As a candidate country, Turkey is eligible to benefit from the EU's Instrument for Pre-Accession Assistance (IPA) framework for assistance to candidate countries and potential candidate countries, including the component on Rural Development (IPA Rural Development- IPARD). The programme is of seven-year's duration – 2007-13. The IPARD Programme for Turkey has been designed by taking into account both the priorities and needs of the country in the pre-accession period within the context of rural development. The programme defines several priority agricultural sectors, such as dairy meat, fruit and vegetables and fisheries, and will be implemented in 42 provinces. More specifically, overall policy aims of the IPARD programme are to contribute to:

- The modernisation of the agricultural sector and processing sectors through increasing efficiency and competitiveness, while at the same time encouraging the improvement of EU *acquis* – related food safety, veterinary, phytosanitary, environmental or other standards as specified in the EU Enlargement Package.
- Capacity-building and preparatory actions for the implementation of agri-environmental measures and the LEADER method.
- Development and diversification of the rural economy, increase of quality of life and attractiveness of the rural areas, counteracting rural out-migration.

The implementation of the Rural Development Investments Support Programme (RDISP) started in 2006 in 65 provinces. The programme has two components: investment support to economic activities and investment support to agricultural infrastructure. The economic activities component includes investments in: new or unfinished constructions for the storage, processing and packing of agricultural products; capacity increase or technology renewal of current facilities used in connection with the storage, processing and packing of agricultural products; building of greenhouses that incorporate alternative energy sources; and modern pressurised irrigation facilities. In addition, the programme provides support for the purchase of new agricultural machines, new baling and silage machines, pressured irrigation systems and new cold storage transportation vehicles.

2.6 Agro-environmental policies

In June 1997, the responsibility of *Egypt's* first full time Minister of State for Environmental Affairs was assigned as stated in the Presidential Decree no.275/1997. From thereon, the new ministry has focused, in close collaboration with the national and international development partners, on defining environmental policies, setting priorities and implementing initiatives within a context of sustainable development. The Environment protection law no 4/ released in 1994 was restructured the Egyptian Environmental Affairs Agency (EEAA) with the new mandate to substitute the institution initially established in 1982. At the central level, EEAA represents the executive arm of the Ministry. The Environment Protection Law no 4 issued in 1994, has a greater role with respect to all governmental sectors as a whole. The law has been designated as the highest coordinating body in the field of the environment that will formulate the general policy and prepare the necessary plans for the protection and promotion of the environment. It is also, follow-up the implementation of such plans with competent administrative authorities. The Environmental Protection Law has defined the responsibilities of the agency in terms of the following:

- 1- Preparation of draft legislation and decrees pertinent to environmental management,
- 2- Collection of data both nationally and internationally on the state of the environment,
- 3- Preparation of periodical reports and studies on the state of the environment,
- 4- Formulation of the national plan and its projects,
- 5- Preparation of environmental profiles for new and urban areas, and setting of standards to be used in planning for their development
- 6- Preparation of an annual report on the state of the environment to the President

According to the environmental Law 4/1994, the mandate of the Egyptian Environmental Affairs Agency (EEAA) is to protect and promote the environment. It is established within the cabinet premier ship. The agency has a public juridical personality. It is affiliated to the component minister of Environmental Affairs with independent budget. It has several branches in the Governorates of Egypt. EEAA formulates the general policy and lays down the necessary plans for protecting and promoting the environment. It follows up the implementation of such plans in coordination with the competent administrative authorities. It also has the authority to implement some pilot projects. The agency is responsible for strengthening environmental relations between Egypt and other countries and regional and international organizations. It recommends taking the necessary legal procedures to adhere to regional and international; conventions related to the environment and prepare the necessary draft laws and decrees required for the implementation of such conventions

The National Egyptian Environmental Protection Policies aiming at natural resources conservation, protection of Air, water and soil quality. The policies are implemented through packages of programs and projects. Each program consists of three major components: information and monitoring; preventive and/or corrective measures; and supportive measures. Most of the information and monitoring activities are that of the Egyptian Environmental Affairs Agency. Some supportive measures, such as awareness and capacity building is also the responsibility of the Egyptian Environmental Affairs Agency Most of the corrective and preventive measures are that of central and local agencies to include in their plans the issue of protecting the environment. For example, combating desertification is central to the activities of Ministry of Agriculture and Land Reclamation (MALR); while protecting the Nile, canals, drains are that of Ministry of Water

Resources and Irrigation (MWRI). The Egyptian Environmental Affairs Agency plays its role as a coordinating body that implements demonstrative pilot projects as prescribed by Law 4/1994.

1. Water Resources: The Government of Egypt, through the Ministry of Water Resources and Irrigation (MWRI), is updating a water master plan and initiating a special program for managing water demand. MWRI has embarked on implementing another program for managing water quality. Protecting the coastal waters and shores are also included in the NEAP capitalizing on previous efforts in that area. The working group on the water issue emphasized the need to reform the production and delivery of drinking water as well as executing planned activities to manage wastewater through specialized central authorities and local administrations. However, the working group argued for measures to manage the demand through charging the consumers for recovering the costs of delivering drinking water and encouraging the conservation activities.

2. Air: EEAA has begun the development of National Strategy for Air Quality Management to include executable plans, such as relocating small and micro industrial enterprises outside human settlements, programs for cleaner production techniques and energy conservation.

3. Land: (a) Agriculture: sound environmental agricultural development and management of rural settlements is a program that coincides with the plans and efforts of the Ministry of Agriculture and Land Reclamation (MALR), Ministry of Housing, Utilities and Urban Communities (MHUUC), and the Integrated Rural Development Program (Sherouk) that the Ministry of Local Development (MLD) executes. Through these central agencies GOE is implementing plans for sustainable land uses that encourage planning on a scale large enough to maintain the health of regional ecosystems. The implemented plans would also minimize food losses, employ biological control, host-plant resistance as means to reduce costs and conserve the environment. The achievements of "Sherouk- Project" in reconstructing and developing the Egyptian villages are: the outcome of participatory decision-making and building partnerships with local stakeholders to own the process and output.

4 Human settlements: the Government is encouraging the development of new cities, and secondary cities with desert frontiers, Allocating investments to develop new industrial estates and direct the development of these medium-size cities will create employment and housing, thus attracting new comers away from major metropolitan areas. Concerning the desertification, three National Action Programs (NAPs) are included in the NEAP. The first is for the North Coastal Belts, the second is for Nile Valley and the reclaimed desert areas that share infrastructures with the land of old valley; and finally yet importantly, is for the oases and Southern remote desert areas. Each proposed NAP fits and suits the ecological conditions and addresses factors that trigger the desertification processes and their social and economic outcomes.

5. Marine Environment: the Ministry of Tourism is among the major institutions concerned with protecting the marine environment when planning and developing the country's tourism industry. NEAP includes a program for managing national marine coastal zones. The main objectives of this program include establishing a dynamic process for national comprehensive coastal zoning (land and sea), and achieving Sustainable use of marine and coastal resources through a combination of scientific research, appropriate quotas and regulations, active monitoring and enforcement, and pilot projects allowing use of certain resources by local citizens. The responsibility of conserving Egypt's marine life lies mainly with the EEAA, which is responsible for setting the general environmental policy and formulating legislation standards and guidelines to protect the environment as well as having the authority to initiate national coastal zone management activities.

6. Waste: the MESA and the EEAA have formulated a policy for the proper management of waste in Egypt and this policy is currently under implementation. The National Municipal Solid Waste

Program, which the Governor's council that the Prime Minister heads approved in December 2000, presents an integrated management system to be implemented at the national level. User charges for solid waste collection and disposal are among the supportive measures adopted by the EEAA.

7. Biological Diversity: EEAA has adopted and implemented various measures and programs to meet the challenges of biodiversity in Egypt. EEAA is currently developing programs and measures to support Egypt's declared natural protectorates, which cover about 8.5 percent of the area of the country. In Collaboration with various international donors, GOE is implementing projects to conserve biodiversity, including conserving the wetland and the environmental systems along the Mediterranean shores and a program for conserving Gulf of Aqaba protectorates.

8. Bio-safety: in this issue, safety is achieved through the provision of transparent information on the product and the process, and conducting adequate risk assessment and risk management by the regulatory authorities in the receiving environment. The NEAP includes a program for regulating the handling and Unintentional release of biological material. It also includes a program for regulating intentional release of Genetically Modified Organisms (GMOs) in the environment.

The national environmental plan acknowledges the environmental effects on some social classes more directly than others, either because of their nature, ages, social and cultural aspects, or their direct relation with environmental problems. NEAP includes programs catered for six of these categories: children, youth, women, and the elderly, physically disabled and marginalized people that both NGOs and governmental agencies can implement.

Organic agriculture is one of the main priorities in *Jordanian* agricultural policy agenda, as its role in magnifying the value added is vital. Total area certified as organic reaches about 1.06 thousand hectares. Most of it is devoted for permanent crops, in particular fruit trees, i.e. 96% and only 1% is organic vegetables' acreage. 300 hectares are under conversion to organic.

In addition, because of the fragility of the environment in much of the country, rural peoples can play important roles in protecting the environment and managing natural resources efficiently. Agricultural policy therefore aims to promote efficient and sustainable use of rural resources while increasing economic opportunities in rural areas so that farm incomes are more equitably distributed within the sector and are closer to urban incomes.

Still, the Jordanian environment is faced with many challenges. The Jordanian Ministry of Environment estimates that environmental neglect and abuse costs the Kingdom JD 330 million yearly (approximately 5% of GDP) due primarily to the fact that the environment is not taken into account in national and regional development plans. Water wastage alone costs the Kingdom approximately 100 million Jordanian Dinars yearly.

Energy exploitation, natural resource depletion, land degradation, chemicals, and waste are among Jordan's leading environmental concerns. The main cause of Jordan's increasing air pollution is the rapid increase, at 7% yearly, in the number of automobiles in the country.

Regarding solid waste collection, Jordan collects approximately 90% of urban solid waste and 70% of rural solid wastes, although frequently dumping them in open, unregulated sites, except for Amman, which has more sophisticated waste disposal mechanisms. Regarding dangerous wastes (such as medical wastes), disposal is insufficient. For example, roughly, half of such waste is burned in old-fashioned incinerators, and the remainder is dumped in open municipal landfills.

The Arab Sustainability Leadership Group (ASLG) has noticeable efforts to bring awareness of environmental issues. This group is an amalgam of enterprises, NGOs, and public agencies, designed to promote sustainability in the work place, in conjunction with strong business growth. In addition, in May 2002, the heads of Jordan's 99 municipalities offered a declaration of support, regarding the World Earth Charter. By implementing this Charter, governmental municipalities

have agreed to the concept of strategic, sustainable development, in conjunction with the JOHUD and the Ministry of Rural Affairs.

Jordan is increasing the amount of land that is designated 'protected areas,' reaching 6% of forest spaces (that is, twice the MENA average). The Royal Society for the Conservation of Nature (RSCN) is designed for the preservation of nature, in conjunction with rural economic growth. It seeks to do this via the private sector and free market. The collective impact of these initiatives and the general adoption of business approaches have been to revolutionize nature conservation strategies in Jordan.

Lebanon's agriculture offers environmental opportunities for green space, landscaped terraces and fresh and healthy produce. At the same time, improper agricultural practices lead to soil erosion and impoverishment, depletion of underground water resources, water pollution and health impacts from inappropriate use of pesticides and fertilizers, and environmental pollution from haphazard dumping of slaughter waste and animal farms. The Lebanese Government policies appear targeted to increasing the availability of irrigation water and controlling the use of pesticides, with however, little investment or incentives for water- and soil-conserving irrigation techniques.

Lebanon launched its National Action Program to combating desertification on the 17th of July 2003. The NAP emphasized line of actions that are considered as commitments of the government towards the implementation of the UNCCD. These included: Water management, Forest management, sustainable agriculture, soil conservation, rangeland management, protected areas, socio-economic conditions, land use planning, and institutional framework and legislations. Also a map of desertification prone area was produced.

Morocco is ranked among the poorest countries in water resources worldwide, with a potential estimated at 22 billion m³ per year, the equivalent of 730 m³/inhabitant/year, against 2560 m³ in 1960. More than half of these resources are concentrated in the north basin of the country, covering 7% of the country.

In the consequences of political independence, the country has made considerable efforts in water supply consolidation, particularly through the construction of dams and hydro-agricultural extension networks. Significant results have been recorded, which allowed the country to have an irrigated area of more than one million hectares. In contrast, potable water demand has begun to receive the prominence it deserves as the mid-1990s with the promulgation of the Water Act 1995 (Act 10-95). This law among others, created water basin agencies and introduced financial mechanisms to protect and maintain water resources for the consolidation of the integrated management, participative and decentralized water resources.

Consequently, many programs have been established with the target of expanding irrigated areas and improve access to safe drinking water particularly in rural areas. The implemented policy has enabled the country to dispose of nearly 1.5 million hectares of irrigated area. At the same time, the rate of access to potable water raised in a remarkable manner from 14% in 1994 to 90% at present.

To cope with these threats of the scarcity of water resources, a new strategy for strengthening water policy was established in April 2009. It comes in partnership signed between the government and 16 regions with the objective of rationalizing water utilities based on the following three activities as follow:

- Achieving the ambitious goals related to water consumption and supporting the socio-economic development of the country;
- Radically changes in water use and management behaviour;

- Implementing a truly sustainable water management."

The planned investment for the implementation of this strategy is estimated at 82 billion dirham over the period of 2009-2030. Currently, three types of programs are encouraged by the government to improve the recovery of irrigation water over the next ten years. The first program is aimed at increasing the share of land irrigated by water saving systems (such as drip irrigation) to 50% of the total irrigated area. The second objective was the extension of 110,000 ha of land affected by large hydro-projects. The third concerns the privatization of water management irrigation in the major irrigated areas under the scheme of the Agricultural Development Offices (*Offices de Mise en Valeur Agricole, ORMVAs*) through public - private partnership (delegated management).

Regarding drinking water supply, the strategy aims at connecting people nationwide on an effective supply management scheme in quantitative and qualitative manner. Moreover, the National Office of Drinking Water has launched projects for the benefit of both rural and suburban areas to reach the said target by 92% in late 2010. Such activity is considered as a part of the program contract signed by the Government at the period of 2008-09 for an amount of 13 billion dirham. Taking into account the issue of sustainable development, it has to be accompanied with the progressive regional observatories of the environment related to the Environment National Observatory.

At the same time, the function of water distribution is allowed to the private sector, including multinationals, who are currently engaged in the supply of urban area with drinking water, sanitation, sewage and household waste collection based on delegated management. Progress aims at achieving the Millennium Development Goals into its components of food security and environmental protection.

Since resource degradation is directly related to the population well-being, the government has developed and adopted a new policy based on an approach integrating environmental issues in the socio-economic development. In 1995, this policy has led to design the National Strategy for Sustainable Development (NSSD) which determines the main lines of national policy regarding the environment. Secondly, to better structure and operationalize the strategy in question, the National Action Plan for the Environment (PANE) has been developed in 2002 and its actions are within the following priority areas:

- Protection and sustainable management of water resources and soil;
- The air protection and promotion of renewable energy;
- Protection and sustainable management of natural environment;
- Prevention of natural disasters and major technological risks, and
- Improving the urban environment and suburban areas.

In order to ensure the sustainability of natural resources of the various ecosystems of the country, the modalities of government intervention requires the cooperation of several government agencies especially the Ministry of Water and Environment, the Ministry of Interior, the Ministry of Agriculture, the Office for Water, the High Commissariat of Water, Forest and Desertification Control and the Ministry of Health. However, the Secretariat of Environment (SE) is responsible for coordination, monitoring and control in protecting the environment.

Recent interventions in the form of integrated development projects have contributed to a better understanding of the challenges to natural resources and environment and ways to implement its resolution. This is the case of "the Integrated Development Project - Management of Natural Resources (*DRI - GRN*) established for the period 2000-2008 within the framework of the MEDA program of cooperation between Morocco and the European Union. Its general objectives are the

improvement of rural livelihoods and sustainable management of natural resources in seven provinces of northern Morocco, including Al Hoceima, Nador, Oujda, Taounate, Taza and Tetouan. Overall, the project covers a total area estimated at 1.35 million hectares with a population of around 1.2 million people. Budget financing reached 36.1 million € of which 67.3% are from the EU MEDA program.

Another project for Integrated Rural Development of Forest Areas and Périforestières (DRI Forests) was established in 2004 by the High Commissariat of Forest with funding from the World Bank (450 million dirham) over a period of 5 years. Its main objective is to improve living conditions of populations and the initiation of sustainable management of forests in partnership with various stakeholders.

Note, however, that the action of the state management of natural resources and environment faces some constraints that have relatively low efficiency. Indeed, the institutional framework is characterized by a multitude of stakeholders for whom the degree of understanding of gravity is not the same. The result is also inconsistent when it comes to perception, for example when the issues of natural areas protection, livestock development and forestry development are taken in account all together. In addition, it is necessary to discuss the overall character rather repressive and non-incentive regulations governing the exploitation of natural resources, something that could be seen only in a negative way by farmers and forest neighbouring residents.

In view of the aridity of the **Tunisian** climate, natural resource (soil and water) preservation will certainly continue to be at the centre of future policies, as it has been in the past. Hitherto conservation programs and their corresponding budgets have been geared towards water mobilization through dams and hill reservoirs construction, in the case of water, and erosion breaks and brakes, in the case of soil. Efficiency considerations along with maintenance problems of these conservation projects, along with limited budget resources, are raising new questions as to their economic and environmental relevance. Alternative techniques of resource conservation based on relative soil immobilization through reduced tillage, or absence thereof, are being contemplated and experimented.

On the basis of international information and experience, it appears that these techniques could enhance and stabilize farm incomes through the reduction of negative externalities generated by excessive mechanization at the farm level, such as soil and water erosion. Conservation agriculture is also bound to have positive environmental impacts outside specific farm boundaries by better harvesting rain water runoffs, thus better protecting and valuing water catchments and possibly protecting neighbouring infrastructure facilities such as roads, both in rural and urban areas.

In **Turkey**, the development of agri-environmental policies has been limited since 1990, although recently more policy initiatives have been undertaken. In the context of the Turkey's EU accession negotiations, the environment is regarded as one of the most important areas. Under the 2006 Agricultural Policy Strategy (2006-10), the share of budgetary support for agri-environmental purposes is to reach 5% by 2010. The *Environmentally Based Agricultural Land Protection Programme* (ÇATAK) came into effect in 2005, as part of the amended (2005) ARIP programme. It was financed by external sources and it was implemented in four pilot provinces in the years 2006, 2007 and 2008 (25 provinces in 2011). The objectives of the Programme were to protect the quality of soil and water resources in agricultural lands, to ensure the sustainability of renewable natural resources and to decrease the adverse effects of intensive agricultural activities. There are also several initiatives underway to implement various EU Environmental Directives, such as the Habitats and Birds Directive, and the Water Directive.

Economy-wide environmental policies also affect agriculture. The National Environmental Action Plan, which came in force in 1998, provides for national and regional plans to generate

information to combat land desertification and reduce discharges of nutrients, and stipulates a number of regulations designed to control water and soil pollution, and protect biodiversity. A Nitrate Directive was adopted in February 2004, as part of the goal to harmonise with EU policies, but there is still a need to define the responsibilities of the organisations defined under the Directive. The Regulation on Water Pollution Control (1988) defines water quality criteria according to the purpose for which the water is destined, including treated waste-water used for irrigation.

The 2004 *Law on Organic Farming* and the 2005 *By-law on Principals and Application of Organic Farming* regulate organic agriculture in a similar way to the EU Regulation (EEC) 2092/91. Up until 2006, no support payments were provided for organic farming. However, the “Farmer Transition Programme”, provides financial incentives to encourage farmers to divert from over-produced commodities to alternative commodities and creates an opportunity for the introduction of environmentally benign management practices.

The key environmental concerns relate to: soil degradation, especially from erosion; over-exploitation of water resources; water pollution, including salinization from poor irrigation management practices; and adverse impacts of farming on biodiversity.

The most widespread form of soil degradation is erosion, with approximately 86% of land suffering from some degree of erosion, mainly caused by water. Turkey loses as much as 1 billion tonnes of topsoil annually. The main causes of these elevated rates of erosion include: natural conditions, especially climate and steep topography, and mismanagement of cultivated land (e.g. inappropriate tillage; stubble burning; abandonment of rural infrastructure; especially terracing and inappropriate or excessive irrigation); deforestation (forest degradation due to forest fires; over-harvesting; illegal cutting; misuse of fuel wood or clearing of land for farm and urban uses); over-grazing and stubble burning in some regions. Other forms of soil degradation are more limited, with an estimated 6% of arable land suffering yield limitation due to salinization, and a further 12% being affected by water logging. Inappropriate irrigation and fertiliser-management practices, as well as excessive water extraction have been important causes of soil salinity in some areas, with the problem rapidly escalating in parts of the area under *South-Eastern Anatolian Project* (GAP).

There are two aspects to the impact of agriculture upon water resources – agricultural water use and agricultural pollution. Water use is one of the most critical environmental issues facing Turkey. The pressure on water resources is increasing over time, as a result of global climate change; alterations in water consumption habits due to increasing socio-economic development and growing urbanisation; and the increasing demands of agriculture and the tourism industry but – most importantly – from rapid population growth. Irrigated agriculture currently consumes 75% of total water consumption, which corresponds to about 30% of renewable water availability.

Agricultural pollution of water bodies from nutrients is a concern in specific parts of Turkey, such as the Aegean and Mediterranean regions. In agricultural areas, 2.5% of monitoring sites exceed recommended drinking water standards for nitrates in groundwater. Evidence suggests that the uptake rates of nutrient management practices are low, as many farmers have little access to necessary capital for investing in manure storage and other manure treatment technologies, and their knowledge of nutrient management practices is limited.

Turkey has a very rich biodiversity, but is coming under growing pressure from agriculture, although the impacts are diverse, complex and poorly monitored. The increasing pressure on biodiversity mainly due to: intensification in fertile areas, with greater use of agro-chemicals; construction of large rural development projects that alters the ecology of entire regions (e.g. GAP); and diversion of water for irrigation to the detriment of wetlands. At the same time, there is

the loss of some farmed habitats from conversion to urban use, and, in some marginal farming areas, from the afforestation and abandonment of semi-natural farmed habitats to overgrowth, although the overall area of agricultural land has increased since 1990.

Farming accounts for around 6% of total national agricultural greenhouse gas (GHG) emissions. In Turkey the main agricultural and livestock production activities causing GHGs can be described as follows: livestock production; use of fertilisers; stubble burning; and to a lesser extent rice production. Agricultural GHG emission reductions are largely explained by the decrease in cattle, sheep and goat numbers (lowering methane emissions), partly offset by higher fertiliser use and crop production. With the projected expansion of agricultural production up to 2016 and rising direct on-farm energy consumption, it can be expected that agricultural GHG emissions may rise.

2.7 Infrastructure policies

In the past half a century, **Egypt** has experienced remarkable progress in the provision of infrastructure in all areas, including transportation, telecommunication, power generation, and water and sanitation. Judging from an international perspective, Egypt has achieved an infrastructure status that closely corresponds to what could be expected given its national income level, as well as contributed to the progress in social and economic well-being of its citizens. The present infrastructure status is the result of decades of purposeful investment.

In the past 15 years, however, a worrisome trend has emerged: Infrastructure investment has suffered a substantial decline, which may be at odds with the country's goals of raising economic growth. Improving infrastructure in Egypt would require a combination of larger infrastructure expenditures and more efficient investment. In the last years there has been a slowdown or even a decline in some areas of infrastructure, particularly power generation and transportation. Associated with this decline, capital expenditures in Egypt have been reduced in the last decade, raising concerns that the country may have reached an unsustainably low level of infrastructure investment.

Egypt has had a high share of public investment in infrastructure even among MENA countries. Over the last few decades, however, public infrastructure investment in Egypt has been falling, and the decline in public investment has not been compensated by a rise in private investment. Private participation in infrastructure investment in the MENA region declined in the 2000s compared to the 1990s and in fact, its cumulative investment for 1990-2001 is smaller than other regions, even smaller than Sub-Saharan Africa. The World Bank (2003) concludes that the MENA region especially suffers from an unfavourable investment environment that prevents private participation in the last decade.

Jordan has good infrastructure including an extended network of permanent roads, a seaport at Aqaba, three international airports capable of handling modern freight planes and a number of grain storage silos. A modern information and communications technologies (I.C.T) sector has been established in recent years and estimated 96 percent of all households have telephone, 40 percent with home computers and Internet connection and 98 percent are connected to the national electricity grid. It is considered an excellent base to build up a viable agro-industries sector that has regional implications. No other regional country has such advanced I.C.T facilities.

Jordan has a reliable and stable banking industry with a variety of services available but, notwithstanding assets of this kind, neither agriculture nor agro-industries have featured as focus for investment. The same holds true for small and medium enterprises investment. Some effort will be required to redirect investment and to take advantage of on-going efforts to simplify financial business practices, complex laws, and cumbersome regulations. The private sector has become recognized as a leading service provider – in the financial sector and elsewhere within industry, and is expected to take an increasing role with the shift to an open market economy. The country is well served with a stable and technically skilled labour force that is generally cheaper than that of neighbouring countries.

Infrastructure policies in **Lebanon** aims at the following :

- Develop the transport, energy, water and information society sectors and networks through sector liberalisation, investment in infrastructures and interconnection with EU networks.
- Identify the priority infrastructure projects in various sectors as well as addressing financing issues;

- develop land and water resources for the purposes of increasing farmers' incomes and protecting the environment through land terracing and harvesting of runoff water in small hill ponds;
- increase access to and from isolated rural areas through the construction of agricultural roads; (*European neighbourhood policy, EU-Lebanon action plan*)

In **Morocco**, the investment budget of the Ministry of Agriculture amounted in 2009 to 5653 million dirham, which is 120% greater than 2008 budget. This increase is particularly due to the setting of the Morocco Green Plan activities from the second half of 2008. Incentives for investment in agriculture are mainly grants and aid granted by the government through the Agricultural Development Fund (ADF). The main components of intervention are the machinery equipment of farms, land and irrigation schemes improvement, intensification of animal production, development of agriculture and the fight against climate hazards, the drought in particular.

In 2008, the amount of grants and premiums totalled nearly 1595 million dirham. This amount increased by 75% compared to 2007 due to a revaluation of 76% for grants. Of a total of nearly 1393 million dirham subsidy, the share of hydro-agriculture (including drip irrigation which is granted 60% to 100% and land improvements amounted to 41.1% with an increase of almost 130% over 2007. It is followed by that of the equipment of farms (35.8% of the total grants), livestock intensification (9.3%), use of improved cereals seeds (7.1%) and the promotion of agricultural exports (4.4%).

As regards the premiums granted to producers, equipment for livestock is the main component of the ADF budget with 70.2 million dirham in 2008, nearly 48.5% of the awarded total. Crop trees development is second with 35.7 million dirham premium. Citrus, olive trees and date palms are the most targeted and producers can benefit from an installation orchards premium that varies between 1800 and 7800 dirham per hectare. The total premium paid on the purchase of tractors fell by slightly more than 88.5%, which is contrary to the expected objectives in terms of mechanization of farms. Such an observation has contributed to upward revision of subsidies to producers for mechanical equipment and irrigation equipment from 2008.

Other ADF interventions are part of the government efforts against natural hazards. The main actions in this regard relate to support for agricultural insurance to secure grain production, the backup and protection of livestock during drought and locust control. In 2009, commitments granted by the FDA for these actions amounted to almost 380 million dirham.

In addition to the benefits granted under the FDA, the Moroccan agricultural sector continues to be exempt from income tax until 2013. Although the deadline approaches, the discussion around the subject of tax exemption does not appear in the agenda and nothing can prove or disprove its continuation beyond that date.

Tunisia has a fairly adequate public agricultural infrastructure, as compared to similarly natural resource endowed countries. Access to most areas is fairly decent but requires maintenance, in most cases. Perhaps among the most lacking aspects of infrastructure in Tunisia is the one that could facilitate marketing services (internal and external). This includes transport means and refrigeration centres to store, package agricultural produce and mitigate marketing power that may prevail on agricultural markets. The provision of such services may require the input and collaboration of farm operators through the setting up, and/or activation, of farm organizations.

Such a rehabilitation of farm organizations could turn out to be very critical as national agricultural exports are confronted with increasing competition as well as qualitative restrictions from world markets. Meeting these challenges could be facilitated through collective work effort.

In **Turkey**, the General Services Support Estimate (GSSE) indicator entails transfers whose aim is to improve the functioning and competitiveness of the agricultural sector. The transfers are non-commodity specific and do not accrue directly to individual farmers and include policy measures, such as investments in research and development, agricultural schools, infrastructure, marketing and promotion, and public stockholding. In Turkey, GSSE support to the agricultural sector has been low and declining in importance over time. The share of support to general services in total support to agriculture decreased from 8% in 1986-88 to 5% in 2007-09, and remained far below the OECD average of 23%. In general, transfers to general services are considered relatively benign, with a potential for distortion that is deemed lower than transfers to producers. By contrast, in Turkey, a key feature of the support to general services is that it has consisted largely of bail-out payments to the SEEs and ASCUs.

In particular, the GSSE is dominated by marketing and promotion, which in 2007-09 accounted for as much as 93% of GSSE. The marketing and promotion category is, in turn, comprised of two elements: i) transfers to ASCUs and equity injection from Treasury to SEEs (80% in 2009); ii) duty loss and debts write-offs. During 1995-2002, these payments never fell below 85% of the GSSE, and over the same period they averaged one-third of total support. Even since the reforms in 2001, the cost of financing these organisations continued to require considerable transfers. More specifically, spending for marketing and promotion rose sharply in 2001 due to duty loss and debts write-offs, and again in 2006 and 2009, due to equity injection from the Treasury to SEEs.

2.8 Consumer policies

In *Egypt*, with a more liberalized economy, serious attention has been paid to ensure that mechanisms were in place to protect the consumer. Such attention is translated in real actions through passing and implementation of the consumer protection Law in 2006. The consumer protection societies have been also expanded to play the role of the civil society in building up the consumer awareness and education towards food specifications and safety issues. They also observe the effectiveness of transparency and building up the necessary trust in private producers and government on one side, and consumers on the other. The new law was a necessary tool for allowing Egypt to move further in the direction of trade liberalization and encouragement of private participation without compromising the government's obligation to provide legitimate protection to consumers.

In relation to food prices policies, the Government has continued subsidizing the consumer price of various food products since fifty years ago. Such policy focused upon most notably bread besides and quotas of other subsistence food items (sugar, vegetal oil; rice and pasta). Bread represents more than one third of calories per capita intake in the Egyptian diet and almost 60% of wheat consumption. Subsidized common bread (83% extracted wheat flower) is delivered to the market at almost 70% subsidy in the price (Called baladi bread). Currently Egypt imports more than 55% of wheat required for such bread and the rest is from delivered domestic wheat to milling plants and/or agricultural cooperatives, at grantee price. Mill plants (mainly private) deliver the flower at subsidized price to bakeries (entirely private) to produce such bread at the subsidized price. Such policy is facing currently, many arguments. Among those are different types of the seepages of subsidy value. Such seepages stem mainly from using considerable amount of this bread type for livestock feeding, particularly the commercial dairy farms around big cities. The subsidized low price flower is also Leaked to other processing purposes, rather than being backed as "baladi" bread. The seepage of such subsidized price bread expands to being smuggled, illegally, to the popular take away food shops and small restaurants and other not target categories. The big argument is that undeserved categories of the population (relatively high-income classes) buy such low price bread. Finally, it is sometimes a source of troubles when reaching such bread is difficult at times of shortage in the distribution centers. Troubles also raise between people and government due to low quality of this bread and/or sell it at less weight than the allowance.

The rational card program concerns delivering monthly quotas to low-income households. Vegetal oil, sugar, and rice are food items provided to the consumer at quota system and recently pasta has been added. There are two levels of quota and subsidy. The First is the highly subsidized price of some food commodities, called supply commodities. The second is the less level of price subsidy for additional quota of food commodities. The purchase of this additional quota of partial subsidized price is voluntary, but both quotas are distributed through the rational card on per capita base of the household.

Currently, the ministry of the social security is responsible for such program. About 70% of Egyptian population (62 millions) enjoins such program of direct subsidy. However, there is a debate about the effectiveness of such policy. The drawbacks of the subsidy in kind are the seepages of the low price food items to what is called the black market. In addition, the consumers complain about the quality of delivered quota. It is postulated that the government intend to purchase or import low quality of such commodities to keep the costs of subsidy at the lowest level. Another source of argument is the undeserved households registered in the program, as their level of income is above the poverty line.

Even though 25% of the urban houses has connections of natural gas network, the bulk is still rely on the Butane-Gas pressed in standard containers for house use. This fuel type is vitally imported.

It is available for the consumers at highly subsidized price. The government postulates that the subsidy of this price surpasses 80 %. Government imports it but the private sector, through contracts, distributes it to the consumers.

The arguments around consumer subsidy policies in Egypt have led to a proposed alternative, which is issuing an electronic Card for each household deserves subsidy to use it for getting the subsidy allowance under this proposed program. Such alternative program is under experimental stage in one or two governorates in Egypt. Another alternative has been raised. It postulates that cash allowance is more effective substitute for subsidy in kind or via an electronic card.

Like most countries, **Jordan** has conflicting interests in terms of its agricultural sector policies. Because some portion of the population is very poor and therefore vulnerable to high food prices, the government is very sensitive to the price of food staples. At the same time, in the interest of food security, it is also important to provide farmers with positive production incentives that maximize efficient and sustainable production of suitable agricultural products. In the past, subsidies were widely used to support the rural sector. However, under Jordan's agricultural sector restructuring program, subsidies have been abolished and support is now provided through other, non-market distorting means.

The government of Jordan also faces the absolute necessity of ensuring that the population has access to basic foodstuffs at stable prices that preserve the living standards of limited opportunity and the lowest-income groups. As a result, policies also are directed at increasing Jordan's food self-sufficiency through export of high-value agricultural products and import of lower value goods. To support a growing horticultural export economy, the government is promoting production of quality products at internationally competitive prices. This is being implemented through provision of more water for irrigation, an enhanced research and extension program, and expanded marketing services such as grading and residue testing using internationally accepted measures of quality assurance.

Consumer protection policy in **Lebanon** promotes the consumers' civil rights, and the development of the private sector. The promulgation of the Consumer protection law N-659, 2005 in Lebanon goes along with the process of modernizing laws essential for the country's development. This should be completed by the introduction of other legislations on competition, anti-monopoly, alimentary security, dumping and credit. For the past few years, governments and economic forces have forgotten about the consumer's interests, instead of making them a priority.

Intervention programs in the field of food security in **Morocco** are classified into three types namely, social support programs, activities related to quality and food safety beside other programs related in particularly to the distribution channels.

In **Tunisia**, support to consumers through administrative price control is not likely to disappear in a near future; particularly that the "street power" in Tunisia has proven to be strong and effective. There is however an increasing awareness that constantly pursuing cheap, or inexpensive in some cases, food policies has resulted in world record, or at least high, consumption levels of certain products (cereals globally, bread specifically, other cereals by-products, sugar and fats).

Beyond the budgetary considerations, there is a growing social concern that these policies have resulted, or at least contributed to, increasing obesity and health problems of the population, as a consequence. Hence future prospects for public consumer policy are likely to give more attention to qualitative and safety aspects of consumption and progressively deviate from the exclusively quantitative feeding objective of the consumer that has been pursued so far.

In **Turkey**, the changes in support to agricultural producers are essentially the result of variations in the gap between world prices and domestic prices, as measured by market price support. These

changes are also reflected in the evolution of transfers from consumers to producers, the main component of the Consumer Support Estimate (CSE).

The cost imposed on consumers, as measured by the %CSE, has been very variable over time, with some years higher than the average in the OECD area, and other years lower. It increased from 25% in 1986-88 to 38% in 2007-09. However, while since 2002 the %CSE of the average in the OECD area has declined steadily, for Turkey the trend was upwards. Consumers paid prices in 2007-09 that were 38% higher than world prices, as compared to 25% in 1986-88.

3. Trade policies

3.1 General presentation of agro-food trade

The MPC belong geographically to the MENA region which, as noted earlier, is a net food importing region. Likewise, the MPC included in the study are - all but **Turkey** - food importers with an agricultural trade deficit that in most cases appears to be growing. As illustrated in **Table 3.1**, **Algeria** and **Egypt** have by far the greatest deficit in agricultural products trade, followed by **Morocco**, **Libya** and **Lebanon**. Interestingly, the MPC exhibited a surplus in agricultural products trade in the 1960s, as only **Jordan**, **Lebanon** and **Libya** had a deficit. This is an indication of poor adaptation to changing dynamics in the globalised markets; for most MPC agricultural productivity lagged behind the growing incomes and most importantly the rising population.

A recent study by Galanopoulos, *et al.* (2011) assessed the Total Factor Productivity of agricultural sectors for a number of European and MENA countries and concluded that productivity growth in the MENA countries is quite low when compared to other countries and regions, and also that there is no evidence of convergence among the growth rates between the different geographic regions. In fact, the only MPC countries that were found to be converging in the high-productivity club were **Egypt**, **Turkey** and **Lebanon** (**Figure 10**).

The most export-oriented agricultural sectors are in **Turkey**, **Tunisia**, **Lebanon** and **Jordan**, as the value of exports represent around 20% of the value of domestic agricultural products. By contrast, in **Algeria**, **Libya** and (to a lesser extent) **Egypt**, exports constitute only a fraction of agricultural production. Agricultural exports still constitute a major part of national exports in most MPC countries (excluding oil-exporting countries) although their share has been gradually dropping in the last decades. In **Jordan** they account for more than 14% of total merchandise exports, 13.8% in **Syria** and 12% in **Lebanon**. In all countries agricultural exports' share is higher than 8.4%; only in **Algeria** and **Libya** they constitute a negligible portion of 0.1-0.2%. On the other hand, for these two countries, food imports represent a considerable share of over 20% of total imports, while for the rest of the countries this figure ranges from 9.5% (**Tunisia**) to 17% (**Egypt**). Only in **Turkey** do agricultural imports account for a much lesser percentage (4.9%). **Table 3.2** provides some insights on the trade of main agricultural and food commodities for the MPC countries.

The country that achieves the highest per capita exports of fresh food is **Jordan**: 101 US\$, followed by **Turkey** (76 US\$) and **Morocco** (66 US\$). (**Tables 3.3-3.11**). **Egypt**, **Lebanon**, **Syria** and **Tunisia** exhibit similar figures of around 30 US\$, whereas the lower per capita exports are recorded in **Algeria** and **Libya**. Turning to processed foods, it is apparent that Tunisia becomes the most export-oriented country: Per capita exports of processed foods exceed 90 US\$, followed by **Jordan** (75), **Lebanon** (73) and **Turkey** (71). **Egypt** and **Syria** have much smaller figures (19.5 and 12.6 respectively), indicating a less export-oriented food processing sector.

The same Tables reveal some more interesting insights on the exporting profile and the competitiveness of the food sectors in the MPC countries: Competitiveness is, as indicated also elsewhere in the text, quite low and it appears stagnant during the period 2005-2009; with the exception of **Egypt** that exhibit an 0.06% annual increase of world market shares, all the remaining countries have either negative, or no change.

While the total merchandise exports of **Egypt** was 5700 million US\$, its merchandise imports was almost triple exports value, i.e. around 16.9 million US\$ in 2009. EU is the main client of the Egyptian merchandise export. It market absorbs 83% of such value, even though EU merchandise exports to **Egypt** covers only around one third of the letter's merchandise imports. Therefore, the Egyptian merchandise exports to EU cover only 76% of the EU exports to **Egypt**. The performance

is worsening when we analyze the agricultural trade flow. Egypt agricultural exports to EU are only 6% of its total merchandise exports and Egypt agricultural imports from EU is only 3% of its total merchandise imports. However, the Egypt-EU net balance of Agro-food trade showed better performance than the Egyptian agricultural trade with the rest of the world.

The total agricultural exports of Egypt was 1201 million US\$ and the total agricultural imports was 5420 million US\$ resulting a deficit of about 78% of agricultural imports value. While the Arab Countries are the major market of the Egyptian agricultural exports, which receive around 44% of total agricultural exports, Egypt imports only 4% of its agricultural products requirements from Arab countries. Therefore the net agricultural merchandise balance between these two markets is positive, where exports cover 225% of imports. The EU market is the second important market for the Egyptian agricultural exports. Whereas EU share in the Egyptian agricultural exports is about 29%, EU share in Egyptian agricultural imports is only 11%. However, the net balance is negative, with a deficit of around 41% of the imports value of Egypt from EU. The other European countries receive 8% of the agricultural exports of Egypt and deliver to the Egyptian market 17% of its agricultural import with a deficit I the net balance of 90%. None of North America markets imports agricultural products from Egypt.

Jordan ranked fourth in the Middle East in the 2009 Global Trade Enabling Report, after the UAE, Bahrain, and Qatar. The nation is emerging as a free market economy and a member of the WTO. Jordan's trade sector is growing rapidly, in spite of the regional insatiability in Iraq and Lebanon, Jordan is emerging as a stable alternative. Jordan also has more Free Trade Agreements than any other Arab country in the world. For instance, it has signed FTA with the European Union, the United States, Canada, Syria, Algeria, Tunisia, Singapore, Malaysia, and Libya. The country is also a partner of the Agadir Agreement, the Greater Arab Free Trade Agreement, and the Euro-Mediterranean free trade agreement.

Exports fell to \$6.989 billion from \$7.782 billion in 2008. Jordan imported goods worth \$12.31, which was lower than the \$14.99 billion worth of goods imported in 2008. Jordan primarily exports the following commodities: Clothing, Fertilizers, Potash, Phosphates, Vegetables, and Pharmaceuticals. Jordan exports primarily to the following partners: India (16.2% of exports), Iraq (16.1%), US (13.2%), Saudi Arabia (6.9%) and UAE (4.6%).

Jordan primarily imports the following commodities: Crude oil, Machinery, Transport, equipment, Iron and Cereals. Jordan has some tiny oil reserves, which it is not exploiting, so all its oil needs are imported. It has 6.031 billion cu m of gas reserves. It produces 250 million cu m for domestic use, and imports a further 2.72 billion cu m. Jordan imports primarily from these countries: Saudi Arabia (21.2% of imports), China (10.4%), Germany (6%), US (4.6%), Egypt (4.5%) and Ukraine (4.3%).

Jordan's foreign trade policy is based on the norms of economic openness and integration into the rapidly globalizing world economy. It incorporates the country's vision and possessiveness in viewing economic partnerships as necessarily achieving both mutual interests and fair dividends. Jordan has made giant strides on the path of economic and trade liberalization in addition to reinforcing mechanisms and functioning of a market-oriented economy that is built on an active role of the private sector in managing economic activities. This was made possible through an intensive reform process bringing about a modern and conducive regulatory environment for business and investment.

The favourable geographic position, combined with the large entrepreneurial ability of its population and a liberal, market-oriented economic policy, made of **Lebanon** the gateway to and the turntable of the Near-East economy, especially in trade sector.

Lebanon imports more agricultural goods than it exports. The gap between domestic food production and consumption requirements is covered mainly by imports. However, Fruits, vegetables and poultry production exceed the local consumption and could contribute substantially to increasing exports, a national priority for mending persistent deficits.

The country imports 80% of its food requirements, food imports range from basic food categories to the finest foods, wines and spirits. Food imports include basic commodities like animal products (live animal, meat, fish and dairy products) and crop products (wheat, tobacco, vegetables and fruits in some seasons).

On the export side, Lebanon has always been a major producer and exporter of a variety of agricultural products. The export opportunities in the Lebanese food sector can mostly be found in the processed foodstuff supplies and food processing equipment. Agro-food processing is well developed and is a major part of Lebanon's agricultural sector. The country also exports fruits and vegetables to the Gulf Countries. Lebanon generally exports apples, potatoes, tomatoes, cucumber, onions, garlic and citrus fruits.

In 2009, total food imports were estimated at US\$ 2.216 billion, or 13% of Lebanon's total imports (US\$ 16.242 billion). In 2009, Lebanon imported a total of US\$ 62 million of food preparations products. The main suppliers were: USA 12%, UK 8%, Thailand 8% and France 7%. Canada 3%.

Lebanon top ten agro-food import products in 2009 were: Live Bovine Animals - 2. Cheese - 3. Meat (bovine/boneless) - 4. Wheat (Durum) - 5. Sugar - 6. Maize (Corn) - 7. Food - 8. Milk Powder Preparations - 9. Sheep, Live - 10. Coffee.

Prices of imported goods are subject to customs fees and a value-added tax (VAT) of 10%. Lebanon has reduced tariff rates on imported goods to help revive domestic growth, to facilitate local, regional and global trade agreements.

The main import partners are; Syria (10.5% of all imports), Franc (9.5%), USA (9.3%), Italy (7.3%), China (6.8%), Germany (4.9%), Saudi Arabia (4.8%) and Turkey (4.2%).

Lebanon imports grains, dairy products, meats and fish primarily from the United States, Syria and the European Union.

Lebanon mainly exports to neighbouring Arab and Gulf countries. Lebanon's primary export partners are; Syria (24.9% of total exports), UAE (12.9%), Switzerland (6.6%), Saudi Arabia (6.1%) and Turkey (4.2%).

In 2009, **Morocco's** foreign trade in goods amounted to around 377 billion dirham against 476.4 billion dirham in 2008, a decrease of 20.9%. Imports and exports reached nearly 264 and 113 billion dirham respectively, which means an overall coverage rate of almost 42.8%.

The EU is the main trading partner of Morocco with around 60% of the value of transactions in 2009. It is also the first export destination and the main origin of imports to Morocco 71% and 53.5% of the value of products. France and Spain are placed first with respective shares of total trade of 22.1% and 15.6%. The Asian countries also have considerable importance as their share amounts to 18.2%, followed by that of America (8%), and followed by Africa (5.3%).

Food trade balance, recorded a total transaction valued at 43 billion dirham in 2009, or 12.8% of total trade for the same year against 12.1% the year before. The coverage rate of food imports reached almost 101% against 82.3% in 2008. The improvement rate is due to the food import decline which registered 23.9% down. On the other hand, the main export products are citrus and early vegetables. In 2009, exports generated over than 7 billion dirham currency equivalent or nearly 84.2% of the value of total food exports, excluding fish products. The evolution of the overall performance of these two categories of products has not been favourable since their total

export declined 10% and 3.7% in volume and value respectively. However, best results were recorded for vegetables.

Agriculture plays an essential role in the **Syrian** economy. The agricultural trade was recognized by an active distinguished performance in the last decade. The importance of agricultural trade is particularly increasing after the economy has opened on international markets.

The agricultural trade registered a percentage of 56.4% of agricultural GDP as an average during the period 2006-2008. This percentage increased between the year 2006 and 2008 by 42.8%, reflecting an increase in Syria agricultural market opening on foreign trade. The share of agricultural trade in total trade averaged to 11.4% during 2006-2008.

The agricultural trade balance changed and became negative since 2004 and registered negative value of US\$ 537.9 million for the average of 2006-2008, due to more increase in the import over export. The agro- food trade consists most of the total agricultural trade. In the period from 1999/2001 to 2008, agro- food trade has been growing at an average annual rate of 11%, contributing, on average, to some 86% of total agricultural trade in 2008.

In 2006, the food and animal products accounted for two thirds of the agricultural trade and their value increased from US\$ 1961 million in 2005 to US\$ 2011 million.

Export is very fundamental for Syrian economy, thus the government is looking for means to push agricultural export forward through quality improving, circulating the products and supporting strategic and important crops. The agricultural export witnessed a distinguished growth in the last decade. The growth between the two periods 1999-2001 and 2006-2008 was about 50% and in 2007, the agricultural export increased to US\$ 1386 million up from US\$ 1222 million in 2006 and grew by 13.4%. However, in 2008, a decline in the agricultural exports was witnessed.

Although Syrian agricultural export has increased, its contribution in total export has dropped lately. Agricultural export share in total export has been constant at 12% during 2006 and 2007, but in 2008 a great fall was registered. The main reason for such drop is that, agro- food export was restricted in 2008 due to financial world crisis, which caused an increase in food prices in international market and obliged many countries including Syria to reduce their food export

Agro- food export compromises an average share equal to 75% of total agricultural export for the years 2006-2008. Therefore, any slowdown in the agro- food export causes significant reduction of agricultural exports which are highly concentrated and limited to few products. Syrian agro- food exports are mainly raw materials. In fact, most agro- food exports, such as vegetables and fruits are raw products. Nevertheless, the average share of raw exports in total agro- food exports has significantly declined during 1999/2001 -2008. The government is making great efforts to push up the exportable agro- food processing to benefit from value added.

Sheep is considered a peculiar commodity very demanded by the Golf Countries. Its export rose remarkably in the last five years and now represents good exported commodity gains more than US\$ 230 million annually. Export of olive oil in 2008 significantly grew by around 56.7% in comparison with last year despite a big difference in its export during last ten years. The reason behind this difference is the phenomena of less production in every other year in the olive trees, and thus, the available production for export is not constant along the years. Other promising exportable agro- food products are; mineral and aerated water, apricot pastes, potatoes, citrus, cumin seeds, lentil and grape. The Arab countries are the main agro- food export destinations representing about 73.4% of total agricultural export value for the average of the years 2006-2008, the second partner is the EU with 13.3% for the same period, Asia countries (10%) and other countries (3.3%).

Syria started in the eighties its economical reform, since then, Syria cared to liberalize trade and open the market for foreign commodities. As a result, import started to significantly increase. Import accelerated during the years 1999/2001-2008 and grew fast advancing by 48.8% in 2007 in comparison with previous year, and by 6% more in 2008.

The agricultural import growth was faster than the agricultural exports. In fact, since 2004, agricultural import accelerated more than the agricultural export leading to trade balance deficit registered its highest rate in 2008 reaching US\$ 1028 million and representing 34% of total agricultural trade.

The country witnessed an increase in the agricultural imports. Agricultural imports increased by about US\$ 1166 million (15%) annually from 1999/2001 to 2008. Agricultural import value in 2007 reached US\$ 1911 million by an increase of US\$ 627 million in comparison with previous year. In the meantime, the average value for agro- food imports was multiplied from US\$ 734 million for the average of the years 1999-2001 to US\$ 1513 million during 2006-2008. This was helped by trade policy reform and allowing private trader to import various agro- food products.

Significant changes in agro- food trade policies resulted in driving strong growth in agricultural imports. Factors that contributed to the agro- food imports growth include relaxation of the import ban list and more openness on Arab markets after the Great Arab Free Trade Area (GAFTA) agreement's implementation as well as the bilateral trade agreements which are likely to substantially expand imports. The policy change facilitated agro- food imports.

During the period beginning in the year 2000 agricultural exports of *Tunisia* have been growing moderately, in nominal terms, and at a similar pace as all exports. This has coincided with an accelerated depreciation of the national currency as compared to the main trading ones, such as the Euro and the US dollar. However the share in total exports has declined over past decades when it used to exceed 10%. While this is an indication that other exports have been growing too, the annual growth rate in the share of agricultural exports in the total has not been increasing, on the contrary. Furthermore, a closer look at the trends in the evolution of typically most exported agricultural products during the decade 2000/10, olive oil and dates, reveals that most of the increase in the nominal value of exports comes from improvements in the unitary value of the exported commodities.

In the case of olive oil, for example, the impressive levels recorded both in terms of receipts and volumes actually exported during the past decade, particularly in the year 2004, while taking advantage of the sliding value of the currency of the country (dinar) with respect to the major trading currencies, did not turn out to be sustainable. The actual annual growth rate of the volume of exported olive oil during that period has rather been negative. This is a direct reflection of the continuing severe variability in the national production of olive oil.

The situation of dates is rather different, as exports - both in terms of volumes and value - have been increasing significantly, while unitary values much less. Among the typical products that are exported, olive oil is evidently at the top, followed by the fruit category, which includes primarily dates. Then there is the group of seafood products which occupy a steady second position after olive oil. Cereal preparations, such as diverse brands of couscous and other pasta products, are taken an increasing share in the balance of agricultural exports. Vegetables such as potatoes and artichokes are also growing in importance. Finally there is the category of "*other agricultural products*", which includes a long list of small agricultural products, in terms of weights, but is steady ones in terms of transactions. Together, they make up about 26% of total agricultural exports.

A major share of all exports of agricultural commodities goes to traditional markets of the UE. Some diversification of these markets is presently taking place, particularly for olive oil and dates as these products are exported towards new markets like the USA, some Asian countries and Arab states (Gulf and North Africa). For the year 2007, picturing the situation prior to the international food crisis, the breakdown of the destinations for Tunisian agricultural exports between the EU and the rest of the world is as follows: On the other hand and as part of the international trade agreements that the previous Tunisian government signed with international trade bodies, there are diverse trade regimes and preferences. Some of these preferences characterize the free trade area agreement with the EU which is officially underway but practically moving very slowly. As an indicator of such inertia the following table shows the rates of fulfilment of quota preferences that are tolerated for Tunisian products.

In **Turkey**, fruits, nuts, vegetables and related processed products comprise 60% of total agricultural exports and a further 20% originates from tobacco, cereals and sugar. On the average, total unprocessed agricultural products account for 45-50% of Turkey's total agricultural exports. Among the processed agricultural commodities processed fruits and vegetables, milled grain products and bakery products constitute majority of the export revenue. Turkey's main importable agricultural products/groups are cereal and cereal products, meat and products, starchy products, animal feed tobacco and tobacco products, animal and vegetable oils, fats and waxes, oilseeds and oleaginous fruits; raw hides and skins, leather and textile fibre scrap comprise the main non-food agricultural imports of Turkey. On the average, unprocessed agricultural products accounted for about 50-55% of Turkey's total agricultural imports. At the specific product base Turkey is a major exporter of dried fruit, tobacco and hazelnuts and her main imports include cotton, soya beans, vegetable oils, tobacco, maize and rice.

The EU is the Turkey's main export and import partner in agricultural sector. Turkey has also important trade relations and a trade surplus with countries in the Mediterranean basin and the Gulf region. The most important trade partner on the import side is the United States, in particular for tobacco and tobacco products, cereals and oilseeds. In contrast to the merchandise trade, Turkey has a trade surplus with the EU in the field of agriculture. Turkey is the largest producer and exporter of agricultural products in the Near East and North African region.

Over the period of 1986-2010 Turkey is a net exporter in agricultural trade but the trade surplus is quite low in year 2000 and 2008. When the trade relationship with respect to Turkey's main agricultural trade partners over the 2007-2009 period is examined, it is observed that Turkey is a net exporter to the EU (including northern Mediterranean countries) and to Russia and a net importer from the USA and Ukraine. Other than these Turkey's main import markets are Argentina, Brazil India and Kazakhstan and main export markets are Iraq, Saudi Arabia, Switzerland and free zones.

3.2 Trade agreements

The total number of international agreements between **Egypt** and the rest of the world are 400. Among them 100 with European countries, 33 with African Countries, 85 with Asian Countries, 70 with north American Countries, 5 with south American countries, 2 with Australia. Numerous of these agreements related directly or indirectly to trade. The study extracted the following set of agreements that are purely for trade promotion. These are (1) COMESA agreement, (2) Egypt - EU Partnership Agreement, (3) EU/EGYPT Action plan, (4) Qualified Industrial Zone [QIZ], (5) Free and Preferential Trade Agreements Between Egypt and the Arab Countries, (6) International Agreements [International Organizations - Asia - Europe, (7) AGADIR, (8) TIFA, (9) PAFTA, (10) MEFTA, (11) Global System of Trade Preferences (GSTP), and (12) Egypt-Turkey. In addition, there are some important agreements signed, as draft and soon will be applicable. These are:

(1) Egypt-(UEMOA) Free Trade Agreement: for the Establishment of a Free Trade Zone between Egypt and West African Economic and Monetary Union (UEMOA) the UEMOA is composed of eight West African member countries (Benin, Burkina Faso, Cote D'Ivoire, Guinea-Bissau, Mali, Niger, Senegal and Togo),

(2). Egypt- CEMAC Countries agreement for Regional Free Trade Area Negotiation, the CEMAC group are Cameroon, Central African Republic, Chad, Congo-Brazzaville, Gabon and Equatorial Guinea in Central Africa,

(3) Egypt- Nigeria Bilateral Free Trade Area with the goal of obtaining an economic preference ,as Nigeria is the economic powerhouse within the Economic Community of West African States (ECOWAS) group,

(4) Egypt-Tanzania Bilateral Free Trade Area to compensate the drawbacks stemming from Tanzania's withdrawal from COMESA,

(5) Egypt-Mercosur Preferential Trade Agreement which includes the Southern Common Market, regional trade agreement (RTA) between Argentina, Brazil, Paraguay and Uruguay founded in 1991 by the Treaty of Asuncion, which was later amended and updated by the 1994,

(6) Egypt- India Preferential Trade Agreements,

(7) Egypt-Sri Lanka free trade agreements,

(8) Egypt-Russia Free Trade Agreements

Jordan continues to face some challenges in its stride movement towards improving its terms of references and competitiveness in the international market. The political and economic stability of the country and a sound track record of social development and inward investment in recent times have considered recognition of good governance until the Arabic spring movements in 2011, which has shown a breath flow around such stability in Jordan. Jordan has made effort to liberalize the economy, to seek open borders and to become a respected partner in international trade. The country has enforced copyright and intellectual property laws. Trade-related legislation has been passed, pro-privatization programs implemented and inward investment has been encouraged, which have resulted in a number of multilateral trade agreements with key multi-national companies.

In the context of liberalizing its agricultural trade, **Lebanon** bilateral and multilateral trade and economic agreements have been or are being implemented with more than 35 countries such as: Australia, Belarus, Chile, Indonesia, Iran, Morocco, Pakistan and others. Bilateral agreements between Lebanon and most countries in the region allowed various trading benefits to the country. Therefore, Lebanon has signed bilateral Free-Trade Agreements with Iraq, Egypt, Kuwait, Syria, Jordan and the United Arab Emirates. Moreover, Lebanon also has signed over 17

agreements on avoidance of double taxation and the prevention of fiscal evasion and about 30 bilateral agreements on Investments Promotion and Protection (IPPA). Lebanon has joined GAFTA (Greater Arab Free Trade Area) in 1997, since then, Lebanon is a member of GAFTA, through which it receives full exemption of customs duties to 16 other member countries after the full implementation in January 2005.

Syria has taken steps towards increasing its participation in the international community. This involves the recognition of the benefits related to trade cooperation through which reciprocal trade concessions with other countries in the context of trade agreements. Syria gives priority to preferential trade agreements as a way to improving trade flows, so great efforts have been made to sign regional trade agreements such as GAFTA, the FTA with Turkey and the suggested Association Agreement with EU, in addition to many other bilateral agreements that aimed to accelerate trade liberalization, and benefit from the reciprocal preferential trade concessions that help in evolving exports and boosting trade. Several internal procedures that contribute in harmonizing domestic laws with international trading rules were taken, including particularly ending the negative list, allowing the importation of most agricultural commodities, and allowing exportation of new groups of products. The progressive integration of Syria into regional agreements and into the WTO will provide guidelines to build up a body of regulations which are transparent and internationally accepted.

Syria intended from those agreements to lower trade barriers within the agreements and thud, to improve and foster economic growth by increasing trade through gaining access to new markets for exporters, increasing Syrian export competition, attracting more foreign direct investment, improving Syrian consumption pattern and heathen the standard of living. In contract, Syria has reduced domestic trade barriers in the context of such agreements in order to comply with the requirements and to keep up with other countries.

3.2.1 Intra MPC trade

There are a number of multilateral trade agreements amongst MPC and MENA countries, in which most of the countries under study are members. **Turkey** is the only such country that is not participating in these agreements, but has strong trade, economic and political bonds with the other countries of the region.

These agreements are:

- Greater Arab Free Trade Agreement (GAFTA)
- Pan Arab Free Trade Area (PAFTA)
- AGHADIR Agreement
- Council of Arab Economic Unity

Greater Arab Free Trade Agreement (GAFTA):

Pursuant to Decision No. 1317 D 59, the Economic, and Social Council, at a meeting held on 19/2/1997, adopted the Executive Program, and set a timeline for the establishment of an Arab Free Trade Area in accordance with the 1981 Agreement for Facilitation and Promotion of Trade among Member Countries. The Agreement entered into force on 1/1/1998. All trade among Arab member countries was subject to a gradual phase-out from 1/1/1998 until 1/1/2005, which was the timeline set for establishing the Arab Free Trade Area. During the liberalization process Member countries were able, as per agreement during the implementation process, to schedule certain commodities for immediate liberalization. The FTA applies to all products as follows: Agricultural and animal products, from HS Chapters 1 to 24, whether in their raw or processed form. During the liberalization process member, countries were able to exclude from tariff reductions certain agricultural products depending on the production season. However, since

1/1/2005 all agricultural products became exempt from customs duties and other fees and charges having similar effect. Provisions cited in this Program shall not apply to products or materials banned from importation, circulation or use in any member country for reasons related to religion, health, security and environment or because of quarantine rules. Member countries are required to submit a list of these products, as well as a list of any related amendments. These provisions do not apply to commodities produced in free zones where specific procedures are yet to be established in connection with the treatment of such products. The Preferential treatment implies that the reduction rates reached zero level by 2005.

Seventeen Arab member countries have acceded to this Agreement to date Bahrain, **Egypt**, Iraq, **Jordan**, Kuwait, **Lebanon**, **Libya**, **Morocco**, Oman, Palestine, Qatar, Saudi Arabia, **Syria**, Sudan, **Tunisia**, United Arab Emirates and Yemen. However, three of the countries in the region have not yet rendered effective the gradual phase-out of customs duties and any other duties or charges having equivalent effect (Palestine, Sudan and Yemen). Where Yemen reduces its import duties by 16% annually starting from 2005 to reach total exemption in 2010, Sudan reduces its import duties by 20% annually starting from 2006 to reach full exemption in 2010, and Palestine is exempted from reducing its import duties. Palestine exports to Arab countries are exempted from any customs duties or other duties having equivalent effect pursuant to the Arab Summit decision in Tunisia no.274 in 2004. The reduction rates reached zero level by 2005. All exceptions granted to member countries were terminated by 16/9/2002. The Arab rules of origin are currently being used in order to apply the GAFTA agreement. These rules of origin require at least 40% value-added. The detailed Arab rules of origin derived from the EU rules of origin are being developed currently. Their objectives are to protect Arab countries' production from substitute products originating in non-member countries and to give preferential custom treatment on applicable goods that fulfil the value added criteria.

All types of non-tariff measures (seasonal restrictions, import licenses, and other quantitative measures) have been eliminated. To dispute settlement mechanism member countries have established procedures for settling disputes among them and abolishing the authentication/certification needed for rules of origin documents and certifications. Schedules of concessions under the GATS are now being discussed to reach an agreement on services in accordance with WTO agreement. A detailed schedule for services fees is being prepared to determine whether they include duties with equivalent effect. The provisions of the GAFTA agreement including the customs reduction are not applicable to free zones products.

Pan Arab Free Trade Area (PAFTA):

The Establishment of the Pan Arab Free Trade Area was signed by the members of the Arab league on the February 27, 1981 to facilitate and development the trade among Arab States. Member States of the (PAFTA) are **Egypt**, United Arab Emirates, (UAE), Bahrain, **Jordan**, **Tunisia**, Saudi Arabia, Sudan, **Syria**, Iraq, Oman, Palestine, Qatar, Kuwait, **Lebanon**, **Libya**, **Morocco** and Yemen. The non member states include the Arab League members who have not yet finalized the procedures to join the area. They are Algeria, Djibouti, Somalia, and Comoros Islands, Mauritania. To enhance the implementation of this Agreement the member states agreed on February 19, 1997 on the arrangements to establish the Pan Arab Free Trade Area to be completed within 10 years. The Arab Summit held in Beirut in march 2002 and the Economic And Social Council meeting held in September 2002 decided to reduce the transitional period for the implementation of the Pan Arab Free Trade Area (PAFTA) to be seven years ending in January 2005.

The objectives of Free Trade Area (PAFTA), are to eliminate the customs duties and other fees and duties having similar effects. This objective was implemented as follows: 10% annual reduction on first of January of each year from 1998 to 2003 and by 20% for the years 2004 and 2005. Member

States should eliminate all non tariff barriers (NTB's), including Administrative, Monetary, Financial and Technical barriers. The Arab Summit decided to grant the least developed member states a preferential treatment, through which their exports to the other member states should enjoy free access and exemption and custom duties, meanwhile they have to reduce their customs tariffs gradually in five instalments starting from January 1, 2005.

The rules of origin applicable now require either to apply detailed rules of origin on the item that the member states reached a consensus about them or to apply the value added should not be less than 40% of ex- factory cost for the items that the member states could not reach a consensus about them. Detailed rules of origin have been under discussion among member states for some time, when agreed upon; it will replace the previous one. Trade in Services Agreement has been reached on the general Provisions of the Agreement. Negotiations shall start soon between member states to agree on the specific commitments of each member.

The tariff dismantling for all industrial and agricultural products started in January 1997 with a 10% customs duties reduction and finalized on 1st January 2005 with a final 20% customs duties reductions. Currently all products meeting the transitional rules of origin (products should have at least 40% Arab component) can access members' markets duty-free. Only 6 Member States (incl. Egypt) presented negative lists with products exempted from tariff dismantling, but they were valid for a maximum of 4 years and expired in September 2002. However, three of the countries (Morocco, Tunisia and Egypt) have added some administrative procedures for textiles products in order to obtain duty-free market access. The Arab League, who clearly stated that they should be removed, considers these measures as non-tariff barriers.

The Arab League's Economic and Social Council (ECOSOC) administer the PAFTA-Agreement with high officials meeting, at least twice per year. Under the AL ECOSOC, there is one Committee on ROO, and one on NTB, also meeting 2-3times/year. Dispute Settlement procedures have already been finalized. A focal point has been appointed in each MS responsible for dealing with complaints or problems faced by MS companies. If no solution is reached by the focal points, then the ECOSOC will act as arbitrator, if this fails, it goes to the Arab League Court for investment and trade problems. The Committee on ROO is currently working in the establishment of detailed ROO. The General Framework has already been endorsed by the Eco-Soc and the ROO on agricultural products will be presented in the July meeting for endorsement. The expert group is currently working on the ROO for industrial products was finalized by the end of 2005 and presented to the ECOSOC for endorsement. The possibility to adopt the Pan-Euro-Med ROO as PAFTA ROO was initially discussed, but no agreement reached. The Committee on NTB is analyzing the different customs procedures, import/export documents, and costs related to customs clearance aiming at harmonizing them in order to enhance trade and investments in the region.

AGHADIR Agreement:

Aghadir Agreement is the Agreement establishing a free trade area amongst Arab Euro-Mediterranean Countries. Aghadir Agreement was signed in Rabat on Feb. 25, 2004 pursuant to Aghadir Declaration, which was signed by **Jordan, Egypt, Tunisia** and **Morocco** on May 8, 2001. Building on the common grounds that the four countries share within the context of their bilateral trade agreements and Association Agreements with the EU, they perceived the importance of Arab joint cooperation in line with the Executive Program for Establishing the Greater Arab Free Trade Area. The aim was to establish an Arab Common Market.

The agreement cited that the Arab countries member of the Arab league who are members of the Pan Arab Free Trade Area and have Association or a Free Trade Area agreement with the EU could join Aghadir agreement on the acceptance of its members. It has entered into force on 6/7/2006. The goals of the agreement are to establish a free trade area between the member states by

1/1/2005, to develop economic and commercial cooperation between the member countries and to encourage economic and industrial integration among member countries by applying accumulation rule to produce goods for export to EU as well as to their domestic markets. Even though it stipulates the Agreement shall be in force for an unlimited duration, however, any party to the Agreement can withdraw from it, if the Party concerned sends a notification to this effect to the Foreign Ministerial Committee. The advantages of the Agreement include exemption of all industrial and agriculture products from the entire tariff and the non-tariff measures as soon as the agreement is into effect, and applying the cumulative Rules of Origin, which will support and enhance the economic and trade cooperation among the parties. The agreement applies the pan euro med rules of origin so as to be benefited from the diagonal accumulation already applied in the context of pan euro-med rules of origin. On the other hand, it Pursuits to enhance trade exchange between Egypt and the signatory Arab countries since the volume of inter-Arab trade does not exceed 10% of their total trade volume currently, and it has even more benefits of expanding the European Union markets after the accession of ten new member states.

This Agreement deals with many important issues such as customs systems, rules of origin, government procurements, financial transactions, safeguard measures, new industries, subsidy and dumping, intellectual property, standards and specifications, and establishing a dispute settlement mechanism. Rules of origin constitute one of the most important articles stipulated in the Aghadir Agreement since it will increase the prospective European Market Access for products of Party states, which consequently will encourage investments and increase inter-country regional cooperation.

The Agreement also aims at harmonizing of general and sector's economic policies in member countries in relation to foreign trade, agriculture, industry, financial and taxation systems, services, and customs with the view of achieving objective competition amongst member countries. The agreement provides for full liberalization of trade in industrial and agricultural goods as of its date of entry into force. Moreover, member countries are committed under the Agreement to eliminate all non-tariff barriers including quantitative restrictions, financial, administrative, and technical barriers that may be imposed on imports. A Technical Unit is established in Amman, Jordan to supervise the implementation of the Aghadir Agreement and offer advice and technical support in all related matters.

Council of Arab Economic Unity:

The Council of Arab Economic Unity agreement was established in June 1957 by a resolution of the Arab Economic and Social Council of the Arab League. The Council's objective is to achieve economic integration among Arab countries with the view of establishing an Arab Common Market. The Council of Arab Economic Unity held its first session in Cairo in June 1964, being responsible for administrating the Agreement on Arab Economic Unity and supervising its implementation. **Jordan**, Somalia, **Egypt**, Iraq, Sudan, **Tunisia**, Yemen, **Syria**, Mauritania, Emirates, Palestine, and **Libya** signed establishing Countries of The Council of Arab Economic Unity. However, the current members of the Council of Arab Economic Unity are **Jordan**, **Egypt**, Sudan, Yemen, Mauritania, Palestine, Somalia, Iraq, and **Syria**. It should be mentioned, that certification fees were cancelled but authentication is still required among the member's governments.

The Council of Arab Economic Unity has under its umbrella a number of agreements that aim to encourage Arab investments. These agreements have the following objectives: Non-Double Taxation, Tax Evasion, and Establishing Common Rules on Income and Capital Agreement, signed on Dec. 3 1997. Members up to date are Jordan, Sudan, Egypt, Syria, Iraq, Libya, and Yemen.

There are also a number of bilateral trade agreements amongst MPC countries, such as the ones listed below:

Jordan: Free Trade Area Agreement with *Egypt*

It was signed: Dec 10 1998 and entered into Force in Dec. 28 1999. The trade preferences as of January 1st , 2005 were a total exemption of customs duties and charges having equivalent effect on all traded goods of national origin, except textiles, readymade clothes and enforcement iron products as shown in the table 1 of the agreement.

Free Trade Area Agreement with *Syria*

The date of Signature was Oct. 8, 2001, and entered into Force: May 21. -. The trade preferences as of January 1, 2005 were a total exemption of customs duties and charges having equivalent effect on all exchanged goods of Jordanian and Syrian origin.

Free Trade Area Agreement with *Morocco*

The date of Signature was June 16 1998. The date of Entry into Force was Oct. 3 1999. The trade preferences as of January 1st , 2005 were a total exemption of customs duties and charges having equivalent effect on all exchanged goods of Jordanian and Moroccan origin mentioned in table (1) of the agreement, of a total of 56 goods. In addition, other group of goods of customs category is of 0-25% duties). There is third group of commodities under customs duties of more than 25%. The customs and charges having equivalent effect to be reduced gradually for five years of the agreement date of effect according to reduction percentages mentioned in table (2) of the agreement for the Jordanian side, and table no (3) for the Moroccan side to reach 25% of the customs duties and other charges having equivalent effect. Moroccan goods exempted from reductions are mentioned in annex (4) of the agreement, and Jordanian goods are mentioned in annex 4 of the agreement.

Free Trade Area Agreement with *Tunisia*

The date Signature was April 22 1998, and the date of entry into force was June 16 1999. Item recorded in annex 4 of the agreement are exempted of gradual liberalization and reduction is postponed. In addition, there are total exemption of customs duties and charges having equivalent effect on exchanged goods of Tunisian origin mentioned in annex no., 1 and goods of Jordanian origin mentioned in annex No., 2 of agreement date of effect. Except what is mentioned in paragraph 2-1 of the agreement, gradual reduction of 10% on Jordanian and Tunisian goods as of agreement date of effect. There are items of Tunisian origin mentioned in annex 3 of the agreement and items of Jordanian origin mentioned in annex 4 of the agreement.

Free Trade Area Agreement with United Arab Emirates

The date it was signed was May. 21st 2000, and the date of entry into force was Nov. 24 2001. The trade preferences as of January 1, 2005 were a total exemption of customs duties and charges having equivalent effect as of Jan. 1 2003 on all goods of Jordanian and UAE. origin.

Trade Cooperation Agreement with *Algeria*

It was signed in May 19 1997. The date of Entry into Force: was Jan. 31 1999. The trade preferences as of January 1st , 2005 were a total exemption of customs duties and charges having equivalent effect on all exchanged goods of Jordanian and Algerian origin, except goods mentioned in annex 1 of the agreement.

Free Trade Area Agreement with *Lebanon*

It was signed in Oct. 1 1992. The date of Entry into Force was July 8 1993. The trade preferences as of January 1st , 2005 were exemption of fruits and vegetables of all customs duties and other charges having equivalent effect when importing directly within the adopted agricultural calendar among both countries, exemption of live stock, botanical and meat products and non-processed

natural materials exchanged between countries of customs duties and other charges having equivalent effect. In addition, there is exemption of all industrial products of national origin of both countries. All customs duties and other charges having equivalent effect mentioned in annex (1) of the agreement, and goods mentioned in annex (2) of the agreement are exempted of one third of fees and other charges having equivalent effect.

Trade Cooperation Agreement with Palestinian National Authority

It was signed: Jan. 26 1995. The date of Entry into Force: was to be valid from the date of signature. The trade preferences as of January 1st , 2005 were a total exemption of customs duties and other charges having equivalent effect on all exchanged goods of Jordanian and Palestinian origin, taking into consideration goods allowed to be exchanged mentioned in lists (A) & (B) according to Paris Protocol.

Free Trade Area Agreement with Kuwait

The date of signature was Dec. 25 2001 and entered into Force since April 9 2005. The trade preferences as of January 1st , 2005 were a total exemption of customs duties and other charges having equivalent effect on all industrial and agricultural products of origin of any contracting parties

Free Trade Area Agreement with Sudan

It was Signed: Feb. 6 2003 and entered in force Aug. 29 2003. The trade preferences as of January 1st , 2005 were a total exemption of custom duties and other charges having equivalent effect on all goods of Sudanese origin to be exported directly to Jordan as of agreement date of effect. It cited that there would be gradual reduction of customs duties and charges having equivalent effect on goods of Jordanian origin exported to Sudan by 25% on Jan. 1st. 2005, by 40% on Jan. 1st. 2006, by 70% on Jan. 1st. 2007 and 100% on Jan. 1st. 2008

Free Trade Area Agreement with Bahrain

It was signed in July 21 2001 and entered in force by May 29 2005. The trade preferences as of January 1st , 2005 were a total exemption of custom duties and other charges having equivalent effect on all industrial and agricultural goods of Jordanian and Bahraini origin exchanged between countries. The following items are excluded: Tobacco and similar products (chapter 24), liquors and alcohols.

Free Trade Zone with Saudi Arabia

Jordan has been actively involved in promoting inter-regional free-trade zones, signing an agreement with Saudi Arabia that provides for a free-trade zone before 2005.

Djibouti Agreement

It is a multi-objectives agreement of Economic, Trade, and Technical objectives. It was signed on 3 April 1984, which was the same date of entry

Syria has economic bilateral agreements with several MPC countries to strengthen trade exchange including. Examples of the agreements signed with MPC countries are listed below:

- A free trade agreement between **Algeria** and **Syria** was signed in 2005. Syria and Algeria also signed 11 agreements, protocols and executive programs in 2008. The agreements cover agriculture, trade, exports and scientific research sectors. a committee to follow up the implementation of what has been agreed on in cooperation various fields was established.

- A free trade agreement between **Syria** and **Jordan** in 2005 aimed to expand economic cooperation and increase the volume of mutual trade. Then, in 2006, Syria and Jordan signed an agreement for cooperation in terms of scientific research and technical promotion. In addition, an executive program for environmental cooperation was signed. Also, A memorandum with Jordan to cooperate in the field of industrial property rights and a program intended to develop small and medium firms and to organize the work of shared free zones in 2009.
- Syria signed a package of agreements with **Lebanon** in January 2005 covered the economic, agricultural, health, environmental, and tourism sectors. In 2008, the two governments signed a minute of meeting emphasized bilateral trading of agricultural commodities and promoting that trade through abolishing any barrier to trade.
- Twelve agreements were signed with **Tunisia** in 2005. The agreements cover trade, industrial property, higher education, scientific research, environment, and family issues. The two governments also agreed to exchange experience and information, and to identify more areas for cooperation and mutual investment projects. Moreover, 13 agreements and memorandums and an executive program on environment conservation were signed between the two countries in 2008. Among the signed agreements, one was about harmonizing import licensing rules; another was about importing animal drugs and vaccines.
- **Syria** and **Libya** signed twenty one agreements, accords and executive programs in 2007. Among the signed agreements, one for avoiding custom duplicity, and encouraging investment. In 2008, the two countries agreed to establish “Syrian-Libyan businessmen council”.

As far as **Tunisia** is concerned, most of the trade is taking place with the European Union (over 75%), but it also is a member of the big Arab Zone for Free Trade (AZFT), the Aghadir Agreement and the Union for Maghreb states. However, the political uprising that has been taking place in the North African region since the beginning of the year 2011 has interrupted most trading mechanisms with all country and particularly with Libya as the uprising took place on both sides of the border between the two countries. Presently, a big uncertainty hangs over future outlook in terms of trade promotion and general cooperation, more generally, between Tunisia and the rest of the world.

3.2.2 Trade agreements with the EU

Egypt started negotiations with EU for concluding a partnership agreement in 1995. Its initial signature was made on January, 26th 2001 in preparation for the final signature that was effective on June, 25th 2001. The Member States Of the European-Egyptian Partnership Agreement are the EU members. According to the Agreement, a free trade area (FTA) will be established during a 12-year transitional period, from the date the agreement enters into force. During the third year both parties will decide upon the procedures, to be implemented on the following year, to further liberalize their trade in agricultural products, maritime products and processed agricultural products. The Agreement permits Egypt to take certain exceptional measures for specific periods during the transitional stage, if and when certain domestic industries face a threat as a result of liberalization of imports of similar goods from the EU. The Agreement includes implementation of WTO and GATT regulations against anti-dumping, subsidy and safeguard measures. The Agreement allows each party to enjoy Most Favourite Nation treatment (MFNT) from the other party in trading services. The Agreement aims at increasing the flow of foreign capital, expertise,

and technology to Egypt. Egyptian exports of manufactured goods to the EU will be exempted from tariffs once the Agreement enters into force, meanwhile, EU exports of manufactured goods to Egypt shall be tariff-exempted, according to the lists and period specified in the Agreement. Agricultural goods and agricultural processed goods shall not be tariff exempted but shall be treated according to the rules stipulated in the agreement, which defines certain quotas for specific goods with tariff privileges and certain market windows for exportation. The agreement is valid until terminated by either party by notification to the other party. The Agreement shall cease to function after the elapse of 12 calendar months from date of notification.

In addition, the agreement aims at developing balanced economic and social relations through cooperation. While it contributes to the process of economic and social development in Egypt, it also encourages regional cooperation to promote peaceful coexistence and economic and political stability, as well as promoting cooperation in other fields of mutual interest. Egypt and the EU agreed on exempting certain quotas of agricultural products from custom duties and reducing the tariffs on exports that exceed these quotas.

With respect to Egyptian Agricultural Products Exports to EU of Egyptian origin, they are either eliminated from tariffs or the rates are reduced. For products which the EU tariff system stipulates a value-based fee and a specific fee, reductions shall only apply to the value-based fee. For specific products, tariffs will be eliminated within the quotas specified. Beyond the set quotas for quantities, either full tariffs are applied or a tariff reduction is implemented. Other Products are liable to a 3% annual increase on tariffs based on the volume of the preceding year.

As of December 1st and up to May 31st, the agreed upon entry price shall apply for fresh oranges within a tariff quota of 34000 tons, with regards to the preferential advantage of a value-based customs fee. The customs fee shall be reduced to a zero level, which was set at Euro 266/ton as of Dec 1st, 1999 and up to May, 31st, 2000 and readjusted to Euro 264/ton afterwards for the same period. The shipment's entry price is less than 2%, 4%, 6%, or 8% of the agreed upon price, the fixed tariff fee shall be equivalent to the 2%, 4%, 6% or 8% percent of the agreed upon entry price. If the entry price is less than 92% of the agreed price, the fixed tariff rate set by the WTO shall then apply. As for the remaining quota of fresh orange (26000 tons), the value -based tariff rate shall be reduced by 60%.

Cut flowers have a quota of 3000 tons, under the following conditions: The price level of the Egyptian exports to the EU must be at least equal to 85% of the EU price for the same type of product and during the same market window. If Egypt's price level for any of these products is below 85% of the EU price level, preferential tariff shall cease to function, The EU shall reapply the preferential tariff, if and when the Egyptian price quotas exceed or equal 85% of the price level of the EU. With respect to EU Agricultural Commodity Exports to Egypt, the tariffs on EU agricultural exports shall either be eliminated or reduced to the level defined in for specific products; tariffs will be eliminated or reduced within quotas listed

The agricultural products used in the production of agricultural commodities. They are subject to CAP (Common Agricultural Policies) to attain the domestic prices higher than those prevailing in the international markets (especially products like grains, sugar and dairy products). The EU imposes the following duties on its imports of processed agricultural commodities:

- 1) Relative custom fees (between 2% and 12%) are applicable based on the processing operations of those commodities. Egyptian exports will be exempted from this custom fee.
- 2) A tariff fee on the agricultural components, equivalent to the difference between their international prices and domestic (EU) prices

- 3) A list of Egyptian processed agricultural products will be exempted from the relative custom fee while the tariff fee on the agricultural component will remain unchanged, whereas a number of other Egyptian processed agricultural products will enjoy a 30% exemption of the tariff fee on the agricultural component in addition to the complete exemption from the relative custom fee
- 4) An additional fee shall apply on commodities whose component includes ingredients of grains, rice, sugar or dairy products.

EU Exports of Processed Agricultural Products to Egypt will be treated according to the following categories:

- 1) Products that will be exempted of all tariffs and other fees with a similar effect after two years from the date the Agreement enters into force.
- 2) Products whose tariffs and other similar fees will be reduced according to the following time table:
- 3) A reduction of 5% of the basic fees after two years from the date the Agreement enters into force.
- 4) A reduction of 10% of the basic fees after three years from the date the Agreement enters into force.
- 5) A reduction of 15% of the basic fees after four years from the date the Agreement enters into force.
- 6) Products whose tariffs and other similar fees will be reduced according the following timetable:
- 7) A reduction of 5% of the basic fees after two years from the date the Agreement enters into force.
- 8) A reduction of 10% of the basic fees after three years from the date the Agreement enters into force.
- 9) A reduction of 25% of the basic fees after four years from the date the Agreement enters into force.

Since 1991, **Jordan's** economic policies have focused on economic stabilization, market liberalization and reducing the size of the government. Jordan has participated in the WTO General Agreement on Trade in services since 2000. It was one of the seven Mediterranean partners that officially opened negotiations on liberalization of services and establishment of the Euro-Mediterranean Trade at the Ministerial Conference in Marrakech. This liberalization provides Jordan with access to the EU services market, the largest in the world, and provides benefits from EU service technologies, company links, and investments.

Jordan signed with EU an association Agreement on 24 Nov., 1997, which has been entered into application since the first of May, 2002. Recently, a protocol between European Union & Jordan has been signed to establishing dispute and Settlement Mechanism of the bilateral trade in 11 Feb. Its date of entry was 1 July 2011

Such important free trade agreement was signed between Jordan and the European Union, which took effect in January 1999. It aims to eliminate tariffs on nearly 500 industrial goods over 5 years and to spur local industrial activity. Essentially, Jordan's products will be eased onto the European market as duties and taxes on European products are removed. Another significant part of the agreement will lift the ban on majority foreign ownership of Jordanian firms. Jordan also became a member of the World Trade Organization (WTO) in December 1999 and is currently in talks with the European Union regarding a free-trade agreement with the European Free Trade Association (EFTA).

The Association Agreement between **Lebanon** and EU was signed in early 2002 and the agreement entered into force in April 2006. No tariffs are a reality with the EU since 2008. For the EU, about 40-46% of Lebanese imports are originated from the EU and for Lebanon, 20-26% of the Lebanese exports are destined to EU countries. Also, the Association Agreement offers important concessions in agricultural exports to the EU. In fact, the agreement with the EU has benefits for Lebanon, but also has its costs. Lebanon has

The main characteristic of the Agreement is the full liberalization (i.e. no duty, no quota) for most Lebanese agricultural products, with a list of exceptions covering sensitive areas of EU domestic agriculture. The list includes (olives, olive oil, table grapes, wine, potatoes, pears, apples, garlic and tomatoes products) which are massively produced in other EU member states. Moreover, significant reductions in duties of processed agricultural products will also be applied. Furthermore, duties will be phased gradually on a wide range of food and other processed farm products from Lebanon. Actually, on the economic level, the agreement would result in the complete removal of Lebanese duties on EU industrial and agricultural imports between 2008 and 2015.

The main challenge for Lebanese products remains in its ability to follow up with the EU and international standards and norms to benefit of the potential markets. As for the benefits, liberalizing trade with EU is expected to facilitate the transfer of new technology and know-how as a result of the expected increased inflow of Foreign Direct Investment. Nevertheless, The Association Agreement will stimulate agricultural production, widen the export potential of certain commodities to the EU and create export opportunities for Lebanese producers of high-value crops such as organic food, fruit and vegetables, medicinal plants and poultry products. Also, taking into consideration the low cost of production mainly attributed to the low labour cost. It is estimated that products like olive oil and citrus will easily find outlets to European markets. In the mean time, Technical and financial assistance for Lebanon is introduced through the MEDA program and (ELCIM) program for modernization of SME.

The EU is the second main trade partner for **Syria** after GAFTA countries. Syrian trade with the EU in 2008 equalled to US\$ 10,369 million with a share of 31.2% of total Syrian trade. The EU is considered the second destination for Syrian exports when Syrian exports to EU in 2008 equalled to US\$ 5,121 million. In the meanwhile, the share of EU in total Syrian exports as an average for years 2006-2008 was 37.4%. Also, the EU has the biggest share of Syrian imports with 29% of total imports.

Co-operation between the EU and Syria dates back to 1977, with the signature of the Co-operation Agreement. Then after Barcelona Conference in 1995 Syria and EU began negotiations to sign an Association Agreement (AA) in accordance to the Euro-Mediterranean Partnership (EMP) when Syria signed a Framework Agreement in 2000. The negotiation has longed until 9 December 2003, when first draft of AA was finalized, then the AA was initially signed by Syria and the European Commission in 19 October 2004 with an agreement to be finally signed during the first three months in 2005. However, the AA has been delayed until 2008 when initially resigned again in 14 December 2008. In October 2009, the EU inform the Syrian authorities that they agree to sign the agreement, but Syria requested to have time to review the terms of the AA on the light of changes in the Syrian economy in the last few years.

The AA aimed for liberalization of trade and cooperation in different areas including: social, cultural and political fields. The AA differentiated the agricultural products into three categories; namely, raw agricultural products, processed agricultural products and fisheries products. For each category there were different mutual concessions as follows:

1. In the context of the AA, EU will grant Syria facilities for Syrian raw agricultural product exports to the EU to have preferential tariffs lower than the Most Favoured Nations (MFN). Also exported raw agricultural products will maintain all tariff exemptions granted to Syria under previous agreements, full tariff exemption for a list of Syrian products, a tariff-quota with full custom exemption within quota quantities for key Syrian agricultural products (olive oil, citrus, apples, grapes, potatoes, and tomatoes). On the other hand, Syrian will give preferences to imports from the EU in according to three groups of imports as follows: the first group will benefit from immediate custom duty elimination; a second group tariff will be gradually reduced to be eliminated in 2015; the third group will enjoy a duty-free quota as long as prices of imports do not fall below the corresponding domestic prices.

2. For processed agricultural products, the AA will allow Syrian processed agricultural products to have preferential treatment relative with tariffs below to the MFN rates. Beside, many processed agricultural products will be exempted from tariffs as in the earlier cooperation protocol and processed agricultural products will be exempted from import tariff, while other fees such as fees on quantity, flour fee, and sugar fee will be maintained. Then after that, EU will reduce tariffs on imports from Syria over a 12 year-transitional period and duty free quota will be granted on some Syrian processed agricultural products such as mineral water, alcoholic beverages, sweets, biscuits, and pasta. Apart from those commodities, EU's tariffs will be reduced over a 12 year period. In the same time, Syria will reduce tariffs on imports from the EU over a 12 year, including immediate elimination for some products and Syria will grant to the EU tariffs-quota at rates reduced by 40% for within quota import of some European products such as mineral water, alcoholic beverages and tobacco.

3. As for fisheries, the AA will allow a preferential treatment relative to MFN treatment for Syrian fisheries. In addition, all tariffs on Syrian exports to the EU will be eliminated within 2 years from the entry into force of the agreement and Syrian fish products took quota with free duty immediately. On other side, Syrian tariffs on EU imports will be immediately dismantled for some products and others gradually dismantled during the transition period.

For facilitating the implementation of the agreement, the EU was committed to provide Syria with financial support through the European Investment Bank and the Euro-Mediterranean Cooperation Programs (MEDA) targeted to make some reform-oriented projects focusing on economic and administrative reform in both the private and public sector.

Tunisia: With the EU, Tunisia signed an agreement in July 1995 but was not implemented until March 1998. Both parties are committed to promoting a free trade area over a period of 12 years. With respect to agricultural commodities, the agreement calls for progressively promoting the liberalization of trade, as of January 2001. Presently, certain commodities such as peppers, capers, food legumes, mandarins, grenades, cactus figs, etc. are already freely traded. Others are also freely traded but are subject to quotas, beyond which various import barriers are imposed as in the cases of olive oil, oranges, potatoes, etc.

With European states and apart from the agreement on establishing a free trade area with the EU, there is the agreement with the European Association for Free Trade (EAFT) signed in June 2005 between Tunisia and 4 European states: Liechtenstein, Switzerland, Norway and Island.

This agreement provides for safeguard measures for Tunisia in the case of infant industries and/or cases of adjusting sectors and activities that are experiencing serious difficulties on economic, social or environmental grounds. The EAFT agreement also provides measures for international cooperation and technical assistance for the sake of implementing the general objectives of free trade promotion.

Turkey: The agricultural sector was not covered by the Customs Union formed in 1996, but Turkey and the EU have agreed to extend the preferential regime in basic agricultural products with a view to assisting Turkey to adapt its agricultural policy to that of the EU. Since 1998, Turkey has given preferential market access to many EU agricultural products, but for the most part, preferential concessions have been accompanied by a quota limit.

Overall, concessions agreed in 1998, and updated in 2006, are in favour of Turkey. Apart from a full *ad valorem* exemption on almost all agricultural products, Turkey acquired concessions in a number of products including: tomato paste, poultry meat, sheep and goat meat, olive oil, cheese, certain fruits and vegetables, hazelnuts, marmalade and jams in the form of duty exemption/reduction, within tariff quotas or without any quantity restrictions. Roughly 70% of Turkish exports to the EU entered duty free.

Similarly, Turkey has granted concessions to the EU in the form of tariff quotas on live bovine animals, frozen meat, butter, cheese, seeds for vegetables and flowers, flower bulbs, apples, peaches, potatoes, cereals, refined or raw vegetable oil, sugar, tomato paste and some animal food.

Turkey adopted EU's tariff system regarding processed (non-Annex I) products, and aligned its import regime accordingly and introduced separate duties for the agricultural and industrial components of non-Annex I products. Regarding the industrial component, Turkey applies the EU's Common Customs Tariff vis-à-vis third countries

3.2.3 International trade agreements & globalization

MPC countries have established trade relationships with several countries worldwide. Apart from multilateral agreements within the World Trade Organisation (WTO), each country has signed bilateral agreements with other trading partners. Such agreements are listed below.

Free Trade Agreement between **Egypt** and EFTA States: Norway and Switzerland were among the founding member states of EFTA in 1960. Iceland joined EFTA in 1970, followed by Liechtenstein in 1991. Norway, Iceland (from 1994) and Liechtenstein (from 1995) are also parties to the European Economic Area Agreement (EEA) with the European Union, while Switzerland has signed a set of bilateral agreements with the EU, (EU, EEAS, 2010). Although the four EFTA countries are small, they are world leaders in several sectors vital to the global economy. The two EFTA Alpine countries – Liechtenstein and Switzerland – are internationally renowned financial centers and hosts to major companies and multinationals. The two EFTA Nordic countries, Iceland and Norway, stand out in fish production, the metal industry, and maritime transport. Accordingly, to make FTA with Egypt would generate mutual benefits. The Egypt-EFTA agreement was signed in Davos in January 2007 and entered into force in August 2007, The Industrial products are treated as follows:

While the Egyptian exports to EFTA shall enjoy an immediate removal of all customs duties and other charges having equivalent effect, Egyptian imports from EFTA states, if they are originating in EFTA, shall be gradually abolished. This procedure occurs according to the schedules of four lists in which Egyptian tariffs are phased out differently over the years starting from the date of entry into force of the Agreement. The tariff reduction on Egyptian imports could be summarized as the following schedule:

List 1: includes the raw materials that are important as inputs for most of industries, this list enjoys 75% reduction from the day of entry into force, and it will be completely liberalized in the second year of entry into force (year 2008). The most important products included in this list are: Aluminum ores, sodium chloride, Sulfur, wood, parts of machines, aluminum oxide, copper alloys.

List 2: includes the intermediate goods, the tariff phasing out will start in year 2008 and it will enjoy free access in year 2014. The most important products included in this list are: carbon, chemical preparations, papers, glasses, fibers, Tubes and pipes of vulcanized rubber, Insecticides, and Vacuum flask

List 3: includes the final goods, the liberalization of this list will be started in year 2010 and end in year 2017. The most important products are apparel, textiles, shoes, iron and steel, electrical equipments and machines.

List 4: includes mainly vehicles and some of the electrical engines and generators. This list will be liberalized in ten years (2011-2020).

It was agreed that the agriculture file would be dealt with on a bilateral basis. A List of agriculture exports to each EFTA member country was prepared, as well as lists of imports of agriculture products from member countries, in accordance with Egyptian interests. Both parties agreed on the list of Egyptian exports that is to be accorded preferential treatment by EFTA countries, equivalent to the preferential treatment accorded to EU countries for 5 years. This preferential treatment will not be reciprocal. Negotiation is to take place by the end of the 4th year to the effect that Egypt accords the same preferential treatment to goods of EFTA. An article was agreed upon regarding the protection of IPR according to the Egyptian interests and the annex regarding trade in fish was agreed upon, according to the Egyptian interests. Both parties of the agreement apply the PAN-EURO-MED rules of origin, which allows products produced from materials originating in any of the Euro-Med countries to enter the EU market with Pan-Euro –Med preferences. Therefore, Egypt and EFTA can benefit from the PAN EURO -MED by establishing originating integrative industries and export them into the EU market.

A certain country can enjoy this accumulation, if some pre-conditions are satisfied. These are: (a) All participating countries must conclude FTAs among each other (such as Egypt-Turkey FTA), (b) All participating countries must conclude FTAs or Association Agreement with EU (such as EU-Egypt Partnership Agreement and the custom union between Turkey and EU), (c) participating countries, must employ the Euro-Med rules of origin.

Lebanon is not a member, but it is still in the process of accession to the World Trade Organization (WTO). In 1999 Lebanon was granted the status of observer. The working party was established in 14 April 1999, then the Memorandum on the Foreign Trade Regime was circulated in 13 June 2001. The first meetings of the Working Party was in 14 October 2002 and the Seventh meeting of the Working Party was held in October 2009. Multilateral work is proceeding on the basis of a revised draft of Working Party Report and bilateral market access negotiations are conducted on the basis of revised offers on goods and services.

A number of areas where Lebanon has to bring its legislation into WTO compliance have been identified. Areas of concern included the lack of conformity with WTO requirements on sanitary and phytosanitary measures, technical barriers to trade, import licensing and intellectual property.

Lebanon is among the most open countries in the region. It has less restrictive for trade than other countries in the region . At present, more than 84% of customs tariff lines have duties equal to 0 or 5%, and tariff peaks do not exceed 75%.

Lebanon also does not maintain any tariff quota system other than on potato seeds. However, Lebanon prohibits the importation of around 326 goods for various reasons (i.e., health, safety, and environment). It also regulates the importation of drugs, while it requires import licensing for around 79 tariff groups. As for export, only a few goods are subject to taxes, licenses or quotas. Exporters must simply comply with registration requirements.

Jordan: Within the context of its accession to the World Trade Organization (WTO), which came into effect on April 11, 2000, Jordan undertook several reforms to bring its economic policies and trade regime into compliance with the WTO agreements. Special legislations of intellectual property rights were amended and drafted. Laws of Standards and Metrology, Agriculture, National Production Protection, General Sales Tax, Customs, and Import and Export were amended, as well as non-Jordanians' Investments Regulations.

On the other hand, and because of joining WTO, Jordan liberalized its services sectors providing market access to foreign investors and service providers of WTO Members in accordance with Jordanian laws and regulations. Whereas in goods' trade, Jordan committed to reduce customs tariffs to reach 30% as a maximum in 2000, to be reduced to 25% in 2005, and to reach 20% in 2010 with the exclusion of a limited number of goods. Customs tariffs on some agricultural products, such as tomatoes, cucumbers, and olive oil are bound at 30%, while the maximum tariff on certain agricultural products such as citrus products, grapes, garlic, and figs, and would not exceed 50% in specific calendar months.

Jordan finished with success the first review of its trade policy within the framework of the World Trade Organization during the period 10-12/11/2008, which is first review since Jordan's accession to the WTO in 2000. In its statement addressed to the trade policy review body and the Member States Jordan shed the light on the importance of the role played by the review mechanism in promoting the principle of transparency and deepening the understanding of Member States of the policies exercised by the member under review. The revision was conducted for the reforms made by Jordan to promote its economy, assuming that the adoption of the economic liberalization leads to economic growth despite the various challenges facing the Jordanian economy. These challenges are mainly poverty, unemployment and inflation as well as the current global financial crisis. Jordan also highlighted its next steps to liberalize further the economy to ensure full integration in the world economy and stressed its commitment to fulfil all its obligations under the World Trade Organization, which have contributed positive results in terms of economic growth and increased exports.

Associated with opening economy policies of Jordan, several bilateral agreements were established with Asian, North, and South American countries. It seems that such agreements have promoted the Jordanian trade volume. E.g., In July 1997 Jordan signed an -Investment Promotion and Protection Agreement with USA. However, it was entered into application in June 2003. In October 2000, Jordan also signed a free trade agreement with the United States, and as a result, exports to the United States have risen rapidly. In 1999, Jordan provided US\$13.1 million worth of exports to the United States, and in 2000, this figure had jumped to US\$27 million.

Syria is seeking to join the WTO, which will lead to specific rights and obligations that will make it easier for Syria to enter into the international trading system. Most of the reforms undertaken in the recent years are in the direction of building trade policies that are more transparent and compatible with the international trade rules.

Syria first applied to join the WTO in October, 2001, and then “reaffirmed” its application in February, 2004. In 4 May 2010, the General Council formally accepted Syrian application for accession and Syria is now an observer country in the WTO waiting for the establishment of the Working Party for the country.

Actions Taken by Syria for Joining WTO: Principal lead and coordination responsibility for Syria’s WTO accession goes to the Ministry of the Economy and Trade which is monitoring and overseeing the overall process. Preparations for joining the WTO started far before the acceptance of the application. Through which, the texts of the agreements included in the WTO was studied by

technical persons and all other activities and negotiations concerning agricultural issues were followed.

Moreover, Syria has the following bilateral trade agreements:

- Ten agreements for promoting economic and investment cooperation between Syria and Cyprus were signed in 2005. One of the agreements is an executive program for an agricultural cooperation.
- Syria and Germany reached an agreement in 2007 aiming at contributing in economic and social development in Syria included paying € 10 million to the Syrian part to enhance its economic and social reform. The agreement also included supporting institutional projects for water sector. Furthermore, Two agreements with Germany in 2009 to provide a grant by 3 million Euro to the Syrian association for small finance, which supports financing small, medium and too small family projects.
- An agreement to encourage and protect mutual investments and avoid custom duplicity between Syria and Czech was signed in 2008.
- Syria and Romania signed three agreements in 2008 for cooperation in protecting investments and avoiding custom duplicity. Another agreement with Romania signed in 2009 to encourage and protect investment.
- An agreement with Italy in 2008 for cooperation in financial and technical fields through which a loan for Syria of 60 million Euro and a grant of 20 million Euro will be given for services and infrastructure projects
- An agreement with France in 2009 to initiate a branch for the France development agency to encourage France investment in Syria and activate the Syrian –French Business Council in Paris.
- Syria and Yemen signed an agreement about sea transportation between Syria and Yemen in 2005. The two countries signed several agreements and executive programs in 2007. One of the signed executive programs was dedicated to cooperation in environmental protection, and another was for cooperation in terms of fisheries. There was also another signed executive program for agricultural cooperation.
- Syria and Oman in 2005 signed several agreements, including an agreement for prohibiting tax duplication. Other agreements about promoting investments and cooperating in terms of shipping and land-transportation were also signed.
- Syria and Tajikistan signed in 2007 eight agreements and memorandums related to economic, scientific and technical cooperation, beside encouraging mutual investments.
- Syria and Russia signed in 2005 an agreement to encourage mutual investments. The agreement aimed at establishing the proper loyal conditions, and securing the needed guarantees for mutual economic activities.
- The Syrian and Chinese governments signed in 2007 several agreements and accords. The agreements include activating the economy, cooperation in terms of investment and commercial, higher education, transport and communications. On the other hand, the two sides signed also a memorandum for cooperation in international meetings, in terms of economy and trade, and particularly in terms of supporting Syria's accession to the WTO.
- Syria and Malaysia signed in 2007 a memorandum related to sea and air shipment, and an accord with the Malaysian Industry Promotion Board that controls investments there for promoting and protecting mutual investments. The two parties also study the possibility of

initiating free trade area between the two countries. In addition, the two countries signed in 2009 two agreements for encouraging and protecting mutual investments and also a memorandum included a program for cooperation in terms of supporting setting up small and middle-size enterprises.

- Syria and South Africa signed an agreement for avoiding custom duplicity in 2007. The two countries also reached several agreements about encouraging mutual investments, economic, commercial and technical cooperation.
- An agricultural accord was signed by Syria and Bahrain first in 2002, and then in 2007 a letter of agreement on agricultural cooperation program was signed. The program comprises agricultural research about salinity and drought durable crops, plant production and grassland, protectorates, protecting plants, agricultural quarantine, exchanging information on pests, cooperation on animal production, encouraging and facilitating the exchange of animal drugs and vaccines, cooperation in extensions, and exchanging information on agricultural production and agricultural trade.
- The Syrian - Armenian Committee for Economic, Trade, Scientific and Technical Cooperation agreed to establish two technical committees to study various issues. The committees are: the committee of trade, investment, finance and banks; the committee of economic, scientific and technical cooperation. The two countries signed in early 2007 three agreements for economic and commercial cooperation.
- The Syrian and Iranian governments signed ten agreements and memorandums in 2008, including an executive program for 2008-2009 for cooperation in terms of environment's conservation, vaccines and animal drugs, specifications and standards. The preferential trade agreement between Syria and Iran was activated formally in 2009.
- Syria and Ukraine signed 8 agreements and cooperation memorandums in 2008. The bilateral agreements include economic, trade, scientific and technical cooperation. There was a focus also on facilitating Syrian products' accession to Ukraine in light of trade imbalance that is in favour of Ukraine. Thus a committee was established to study launching a free trade area between Syria and Ukraine in future.
- An agreement with Venezuela in 2009 to set up a mutual fund with a capital amounted to US\$100 million financed equally by the two countries to finance investment projects of public sectors in the two countries
- An agreement with India in 2009 to establish information and technology training centre in Syria

Tunisia is a member of WTO almost since its creation (March 1995). As such, it adheres to the general spirit of market liberalization and trade promotion. As is well known, WTO agreements rest upon three basic principles: market access facilitation, reduction in internal support to the economy and the elimination of subsidies on exports. By and large Tunisia has been faithful to these principles, even though a formal WTO agreement on agricultural commodities has not been reached yet.

Among the challenging implications of the WTO agreements, as far as the Tunisian exports are concerned, is the increasing emphasis on norms and standards the tradable commodities need to increasingly conform to. One important difficulty with these norms is that they are constantly changing for a given destination. They are also variable from one destination to another.

Furthermore their implementation requires continuous adjustment costs that are not affordable by all traders.

Aside from the EU, **Turkey** has also signed a number of multilateral and bilateral agreements on free trade, defining preferential trade conditions with EFTA, Egypt, Israel, Morocco, Tunisia, Syria, Palestinian Authority, Bosnia and Herzegovina, Albania, Croatia, the former Yugoslav Republic of Macedonia, Georgia, Jordan, Chile, Serbia and Montenegro. In general, tariff preferences on agricultural products granted under Turkey's trade agreements are subject to quotas. Turkey is also part of the Euro-Mediterranean Partnership (Barcelona Process) aimed at establishing a free-trade area in the region.

3.3 Tariff and non-tariff barriers

As **Egypt** has become a member of WTO, the tariff barriers were a big debate in the Egyptian trade policy. The government in treating tariff's list of rates was trying to make compromise between several national development objectives. On the national level there is a need for protecting the domestic enterprises from imports competition, in the same time, there is a need for facilitating the delivery of domestic industries imported requisites and raw materials. The ultimate target of trade liberalization agreements of WTO is to lower the tariff rates.

As the Customs Law No. 66/1963 stipulates in Articles 6 and 9 that the Customs tariff should be issued by a Presidential Decree that has the power of law, on condition that it be submitted to the legislative authority in its current cycle as soon as it becomes effective. If Parliament is in recess, it is to be submitted to the following legislative cycle, tariff rate amendments were made through several successive presidential decree over the last decade. Therefore, Egypt made several amended its on tariffs system over the last decade. The Presidential Decree No. 33 in 1999 was amended by the Presidential decree No. 300 in 2004, implying significant across-the-board tariff cuts and a reduction in the number of tariff bands. The only products excluded from tariff cuts were alcoholic beverages, tobacco, and cars with an engine greater than 1,600cc. No other changes in Egypt's MFN tariff have been implemented since 1999. The Customs tariff was amended by the Presidential Decree No 39 in 2007 and again was fatherly amended in the Harmonized System of the year 2009 Issued by The Presidential Decree of The New Customs Tariff No 51 in 2009 to reach a regulated system of the rate of custom tariffs in Egypt.

The tariff reductions that came into force then were largely driven by national and international changes the Egyptian economy had experienced at the time. The Egyptian Government's long term development plan since 2004 has been to create an investor friendly environment that is increasingly led by the private sector and that provides rapid job growth. In this context, a new Customs tariff issued by Presidential Decree No. 39/2007 has made amendments deemed necessary to achieve the Government's economic objectives in a changing environment. The main objectives of the amendments were as follows:

1. To simplify the structure of tariff rates with a view to reducing distortions in tariff rates and facilitating their implementation by all concerned parties. This objective is achieved through the following reductions: a) 12 % down to 10 percent; (b). 22% down to 20 percent; (c) 32 % down to 30 percent; (d) 40 %t down to 30 percent
2. To achieve a balance between tariffs imposed on manufactured products, intermediate goods and raw materials that are used entirely or in part in the production of final goods, while taking into consideration the contradictory goals of supporting the national industry reducing the burden on the Egyptian people, and supporting the various productive activities.
3. To comply with Egypt's commitments to the International Convention on the Harmonized Commodity Description and Coding System, as stipulated by Presidential Decree No. 33/1999, by adopting the HS 2007 issuance as the basis for the Egyptian Customs tariff. This will help facilitate Egypt's external trade, put Egypt's statistics at par with international standards, and ultimately serve negotiations on bilateral and multilateral trade agreements.
4. To review Article 3 of the Customs Law concerning the collection of Customs taxes due on goods that are subject to temporary admission – whether for repair purposes or for completion of manufacturing activities – in order to ensure sound implementation of the Law.
5. Eliminate many of the tariff lines and keep only those strictly necessary in order for the tariff schedule to be at par with international practice.

6. Reduce the current tariff rates on selected imports of basic commodities, medications (especially those used for chronic illnesses) and intermediate and capital goods used for production activities.

7. Support production activities while creating a fair and competitive environment that does not represent a burden on the Egyptian consumer.

8. Develop a partnership with all stakeholders to ensure transparency – a pillar of the international trading system – in the decision making process. The tariff schedule was discussed widely with all concerned parties such as commodity councils, chambers of commerce, the Federation of Egyptian Industries, a number of private and public sector production units, and industrial and investment compounds. The objective was to harmonize all points of view, and to ensure that all stakeholders are partners in the decision-making process to engage all parties and factors concerned with production and commercial operations.

9. Contribute to the creation of a clean environment by applying to selected environmental products a Customs duty of 2 percent of the value of the product. (In cases where a lower tariff rate below 2 percent has been in force, the lower rate applies.) This tax will be applied on stations supplying vehicles with natural gas, on parts needed to transform vehicles to use natural gas, on equipment used to monitor and control various products of environmental concern, and on equipment for renewable and new sources of energy (wind and solar energy) and their spare parts.

Reviewing the (See attached PDF files into the Folder : TRADE TARIFFS) shows that the tariff rate on almost all food products are within the range 2-5% and the tariff rate on agricultural requisites is almost nil (free)

Egypt's average applied MFN tariff has fallen from 26.8% in 1998 to 20.0% in 2005, and the number of tariff bands has been reduced. While the majority of rates adopted by decree (normally the applied rates) remain well below Egypt's bindings, for 19 tariff lines, they exceed, sometimes substantially, the corresponding bound rates; imports from WTO Members are alleged to carry the bound or the applied tariff rate, whichever is lower. Despite recent tariff reforms, Egypt's tariff system remains complex, with numerous exemptions, reductions, and concessions. In addition to tariffs, imports are subject to a general sales tax of between 5% and 45%, which also applies to domestically produced goods. The 2005 tariff contains 5,687 lines at the HS eight-digit level, of which 99.8% carry ad valorem duties. Egypt does not apply compound, mixed, or seasonal MFN tariffs.

There are other Trade Barriers rather than tariffs, which have been adjusted and relaxed during the economic reform program application. Imports are not subject to licenses or prior approval. However, a wide range of imported products is subject to mandatory quality controls. Since its last Review, Egypt has imposed 14 definitive anti-dumping duties and two safeguard measures. No notifications on sanitary and phytosanitary (SPS) measures or on technical barriers to trade (TBT) have been submitted to the WTO during the period.

Egypt's customs regime is based on Law 121/1982, Law 66/1963 (the Customs Law), Law118/1975 (which, together with its Executive Regulations (Ministerial Decree 275/1991), is also known as the Import and Export Regulations), and a number of Ministerial Decrees.

In accordance with Law 121/1982, all persons or companies importing goods into Egypt must register with the General Organization for Export and Import Control within the Ministry of Foreign Trade and Industry. The Law also requires that all registered importers be Egyptian nationals and fulfil a number of other conditions, including financial reliability and the presentation of a proven record of past commercial activities. When registering, importers must

also provide details of the products they intend to import. Importers must pay for imports through a bank operating in Egypt.

All goods imported into Egypt, except those destined for the free zones, must be accompanied by a customs declaration, irrespective of their value. Other documents required are the original commercial invoice, bill of lading, packing list, pro-forma invoice, a form specifying the mode of payment, delivery order from the carrier in return for the bill of lading, and, if appropriate, a content analysis of the commodity. In certain cases, additional certificates may be required by the customs authorities, including chemical certificates for imports of food additives and other material used in the food processing industry; quality control certificates for a number of products; and a disinfection certificate for shipments of shaving brushes and bristles. Sanitary certificates are also required for a number of products, and plant and animal products are subject to inspection by the Agriculture Quarantine Body and the Animal Quarantine Body.

Ministerial Decree 619/1998 requires that all imported consumer goods be shipped directly from the country of origin to Egypt. Ministerial Decree 423/1999 exempts from these provisions goods shipped from the producing country through a transit port and goods assembled from intermediate products of different origins. The authorities indicate that the decrees are intended to prevent the entry of products of unknown source into the Egyptian market.

Various imported goods are liable to quality control inspection by the General Organization for Export and Import Control within one week of the date of import (see also section (2)(viii)(b)). The Organization is entitled to examine a random sample of 1% of the total number of packages in each consignment and up to 2% of the contents of the chosen packages. The procedures for sampling are laid down in Ministerial Decree 1186/2003; as a main principle, the customs officials must ensure that the samples examined are representative for the consignment. If the chosen samples are not in conformity with regulations, the Organization may search up to 2% of the remaining number of packages in the sample before rejecting a consignment. (Import and Export Regulations, Article 83) Rejected goods must be re-exported or destroyed.

Since Egypt's previous Review, the Customs Administration has stepped up efforts to improve inspection and clearance activities. Advanced clearance centres have been established at the ports of Alexandria, Cairo, Port Said, and Suez to simplify entry procedures (There are six customs offices). The use of computers and x-ray equipment has also helped to improve efficiency and, according to the authorities, the average clearance time has been reduced to between 30 minutes and three days, depending on the size and sensitivity of the consignment. In late 1999, Egypt established a register of trustworthy importers and exporters (reliable in trading in products in conformity with Egyptian specifications). Inclusion on the register, held by the General Organization for Import and Export Control, entitles speedier product quality controls based on the producers or importers' declarations.

Regarding subsidies in the agricultural sector, **Jordan** is to reduce total domestic subsidies offered by the government to local agricultural producers by 13.3% out of JDs (1,539,199) over a period of seven years as of date of joining WTO. The ceiling of agriculture exports subsidies has been fixed at 0%. While for export subsidies in the industrial sector, which are considered, prohibited under WTO agreements, a special program by the Central Bank of Jordan to subsidize exports loans' interests was cancelled by December 31, 2002. In addition, under Jordan's commitments under the WTO, the exemption of profits resulting from exports from income tax is to end by the end of the year 2007. (This program was extended to the end of 2007 as a result to the exemption given to Jordan and other developing countries during the fourth ministerial meeting of WTO in 2001).

It is noteworthy that Jordan submitted its application in 1994 to what was known then the General Agreement on Tariffs and Trade (GATT) which was changed later to become an application request

to join WTO in 1995 (the legal successor to GATT). Accession negotiations were concluded in signing the Accession Protocol that became part of Law No. 4 for the year 2000 (Law of Ratification of Jordan's Accession to the World Trade Organization).

Accession to WTO provides Jordan's goods and services with market access to more than 150 countries within clear and transparent trade procedures and laws and regulations in accordance with WTO rules and agreements. On the other hand, national economic reform procedures and new legislations that were enacted in preparation to joining WTO, contributed to creating a conducive business environment attracting investments. In addition, joining WTO provides new market access opportunities for Jordan's goods and services that would result from the Doha Development Agenda (Multilateral trade negotiations round that was launched in WTO Fourth Ministerial Conference in Doha in 2003).

Syria used to have high NTBs for the purpose of providing commercial protection for domestic producers and achieve self sufficient of local production. However, within the economical reform, the state started gradually abolishing those barriers as a step in the direction of adopting with international trade bodies. Syria has also adapted the Harmonize System on imports and exports (law 265 for 2001).

Currently, most quantitative restrictions for import or export have been removed and tariff rates on import and other fees have been reduced (maximum tariffs on imported products have been reduced from as high as 150% down to 50% and tariffs on most imported raw materials were reduced to 1%).

Moreover, the ban on most agro- food imported products was lifted, most other non-tariff barriers to imports or exports were removed, procedures for export and import are being simplified, import licensing was eliminated except for some sensitive products, tariffs on imports have been simplified (Law No 336 for 2002) and agricultural tariffs were justified (Law No 494 for 2005). In addition, imported commodities, that have to temporary entered the country to be manufactured and re-exported, are exempted from the provisions of prevention and restriction on the import and also exempted from the currency regulations.

Furthermore, the previous confines, restrictions, and commissions on imports for some products, which were in favour of some public associations, were left out by law No 61 for 2009 which specified the associations and the products. The agricultural goods that included in this law are; (veterinary antiseptics, agricultural fertilizers, Soya beans, sunflower seeds and fish).

However, there are some agricultural products still banned or restricted from import such as onion, citrus and sugar beet which are banned; cotton, and wheat which are restricted to public associations. Those products are included in the official list of banned products that was issued in 2008. This list has been eased since that time. In the meantime, some types of bans and inspection requirements on imports are applied for religious, national security, health, or environmental grounds.

In addition, some agricultural products are subject to consumption expenditure tax such as alcohol drinks at a rate equal to 35% and there are quantitative restriction on export of some other products as a tool of a policy managed to satisfy local need from domestic resources.

At present, some of the bans are no longer applied to imports from GAFTA countries, or from Turkey, and also such bans will not be practiced on imports from the EU under tariff quotas and other market access facilities that included in the AA.

Generally, some products are restricted from import for one of the following reasons:

- Protection of local production such as vegetables, fruits and animal products;

- Religious, and health or environmental reasons, such as: animal fat to the food industry;
- Social reasons related to the existence of a large number of workers in the sector (producers, industrialists, workers) who are vulnerable to low income, or even loss of employment in the event of exposure to foreign competition;
- Support for some starting or nascent agro-food industries which need such protection in order to develop and become competitive;
- Food security reasons, the wheat is an example for these products.

Agricultural imports are subject to SPS condition in which imports have to be inspected to get certificate proves its according to SPS terms (law 26 for 2007). As for animal products, in addition to the previous condition the imports should be only from the country of origin (law 29 for 2006).

Actually, some exporters and importers claim that, they face some constraints include: fees and delay for customs and various inspections during export and import.

Tunisia: As is known, not all trade barriers, past or present, are of a tariff nature. As a matter of fact those that are of this type are undergoing major revisions so that they would be either reduced or converted into tariff equivalents, in line with WTO guidelines. Some non tariff barriers such as norms and standard requirements, calendar export restrictions, variable entry price restrictions, administrative rigidities and slowness in export procedures are more cumbersome and difficult to overcome.

Tariffs are the main policy instruments of **Turkish** agricultural trade policy. Within the framework of the URAA in 1995, all border levies were converted to tariff equivalents and bound. Under the URAA, Turkey's tariff bindings had to fall by an average of 24% over 10 years, with a minimum 10% reduction per tariff line. Turkey opted for the minimum 10% reduction on many products, including a number of animal products, tea, most grains, flours and cereal preparations, a few vegetables and nuts, sugar and unprocessed tobacco.

The tariff structure of agricultural products is mostly composed of *ad valorem* tariffs, while non-*ad valorem* tariffs in the form of specific, mixed or compound and formula duties are utilised only to a limited extent. For agriculture, tariff escalation is observed for some products such as edible vegetables and its preparations", while negative escalation is observed for processed dairy, meat and grain products which constitute a significant proportion of all processed agricultural products.

In general, tariff protection for agricultural products is substantially higher than in non-agricultural products. The simple, average, applied m.f.n. tariff in agro-food products was 59% in 2007, 42% in 2008, 46% in 2009 and 50% in 2010. Tariff rates on some dairy and meat products were higher than 100% in 2010. Other products with relatively high tariffs include sugar, cereals, and preparations of vegetables, fruits and nuts. Imports of agricultural products, such as live animals for breeding purposes, are duty free, as are cotton, raw hides and skins. In general, Turkey maintains a restrictive import policy for livestock products. In response to high red meat prices in 2009, the government announced a partial lifting of the import ban for live cattle and beef meat.

In addition to the URAA, as a result of the Customs Union between Turkey and the EU, Turkey began, since 1996, to base its tariff on all industrial products and the industrial components of processed agricultural products (imported from third countries) on the EU Common Customs Tariffs, whose levels are far below the rates bound under the URAA.

Sanitary and phytosanitary measures: Sanitary and phytosanitary (SPS) controls are imposed on live animals, and animal and plant products, whether domestically produced or imported. Existing SPS measures are in accordance with the WTO Agreement on Sanitary and Phytosanitary Measures. The *Production, Consumption and Inspection of Food Law*, which has been in force since

2004, is Turkey's principle law governing food. Its aim is to ensure food safety and the hygienic production of all food products and food packaging materials; to protect public health; to establish the minimum technical and hygienic criteria for food producers; and to set forth the principles for monitoring production and distribution. The harmonisation of Turkish legislation on veterinary, phytosanitary and food safety with EU standards is a key objective.

Under the Law on Agricultural Quarantine, live animals (cattle, sheep, goats, cats and dogs) entering Turkey must put into be quarantine for 21 days at the place of destination, or a quarantine centre. The countries from which imports are allowed are determined on the basis of the World Organisation on Animal Health (OIE) disease notifications, and information provided by Turkish representations in third countries. In this regard, food and non-food agricultural imports require control certificates, issued by MARA.

The list of documents required to prove that imports of agricultural products and foodstuffs comply with food safety conditions, and qualify for control certificates, includes: a *pro forma* invoice; original official veterinary health certificate; sample of a *pro forma* health certificate; certificate of origin; test and analysis results; pedigree certificate.

All documents must be obtained from and/or approved by the relevant authorities in the producer country. Documents must be in the language of the country of origin and a translation into Turkish is required. Control certificates must be presented to customs authorities upon import. The period of validity of control certificates ranges from four to twelve months, depending on the product. The importer will normally receive written approval, along with a "control certificate" from MARA, within one or two weeks.

Turkey has signed co-operation agreements to prevent animal diseases from entering the country through trade in, and transit of, live animals and animal products, veterinary medications, fodder and other products that may have the potential effect on animal health. Moreover, bilateral agreements on a product-by-product basis have been signed with Belgium, France, Germany, Italy, the Netherlands, New Zealand, the United Kingdom and the United States, in relation to the use of sanitary and phytosanitary certificates.

Turkey faced its first avian influenza outbreak in October 2005 and further outbreaks have occurred. In order to prevent the expansion of epidemic diseases, including Bovine Spongiform Encephalopathy (BSE), the Turkish authorities are maintaining since 1996 a temporary import ban on live animals (dairy and beef cattle, sheep, goats and poultry) and on meat (beef, sheep, goat and poultry) (WTO, 2008). Turkey's BSE regulations had allowed imports of dairy and beef breeding cattle from only three countries, Australia, New Zealand and Uruguay. However, Turkish legislation does not permit importation of live bovine animals, beef meat and derivate products from the countries where BSE has been detected.

Export support measures: Export subsidies have not been a major tool in promoting Turkish agricultural exports. The level of commitments for export subsidies in the URAA was low in 1994 and reduced sharply by 2004. Turkey's URAA commitments on export subsidies include 44 agricultural product groups. Due to budgetary restraints, Turkey generally gives export refunds to only 16 products/product groups (Table 10). Export subsidies are set at 5-20% of the export values, changing between 14% and 100% of the exports of eligible products.

4. Future prospects

Agricultural sectors in the MPC are faced with certain common challenges stemming both internally (population growth, lack of natural resources, etc) as well as externally (liberalisation of economies, entering world trade organizations, strengthening relations with the EU, etc). This section will introduce the key characteristics of the future evolution of the agro-food sectors, as well as the main relevant policy issues that will need to be addressed in the near future by the MPC. These policy issues refer to the main thematic areas that are of prime importance to most MPC, namely, enhancing competitiveness, boosting productivity growth, alleviating poverty, reducing food import reliance and achieving a sustainable management of the scarce natural resources.

4.1 Agro-food sector outlook

Agriculture is a major sector in *Egypt's* national economy. It is responsible for achieving food security, by using human and natural resources with technology and capital in intensive way. The economic reform program has been significant although unequal across sectors. Agriculture has received closer attention than manufacturing and some services, which are only being liberalized gradually. Reform in agriculture, which began in the 1980s, has reduced government control over production, pricing, and distribution. As a result, there appear to be no major remaining restrictions on annual production and most agricultural products appear to be freely tradable. While reforms in the manufacturing sector have continued, they have not been as rapid. All import and export bans and quotas have been abolished.

There was a low growth rate of the Egyptian agricultural production, over the last decade, associated with imbalance between a low share of this sector in GDP and relatively higher share in total employment. Such imbalance implied lower productivity, in terms of average value of agricultural output per agricultural worker, comparing with the national level) where the agricultural labour productivity reached only 50% of the national one. Egypt has remained a net importer of agricultural products, although its agricultural trade deficit has decreased in recent years. A SWOT analysis of Egypt's agricultural sector is presented in **Tables 4.1 & 4.2**

The scarcity of water resources is one of the main challenges for *Jordan* and a limiting factor for economic development especially for agriculture. The demand on water resources is increasing with time for both agriculture and non-agricultural purposes.

In addition to the overall constraints of this resource, there are other problems which limit its large scale usage for irrigation purposes. One of the most significant problems is the exceeding of the safety limits which leads to the depletion of fresh water resources and an increased salinity of water. Other problems include the growing costs of water pollution and excessive pumping of groundwater especially in the highlands e.g. the Dheleil and Azraq basins.

Public supported agricultural and agro-industrial R&D is invested largely in the national agricultural R&D centres and the universities, but sharing across programs and sectors is poor with lack of coordination, competition, and inefficiencies arising. This results in duplication of work and wasted effort and funding. The country recognizes existing deficiencies and efforts are in hand to make the changes required, but the limited financial and human resources available with which to improve the institutional and technical performance of existing systems hinder this. It is essential, however, that more emphasis be placed on unifying national R&D investment – that some form of strategic direction be defined that will provide the support services, information, technologies and

human resources required of agro-industries development. This will be essential for prioritizing the use of limited R&D funds available. More commercially led R&D investment is required.

Agricultural productivity in **Lebanon** is generally hindered by the following main factors:

- The agriculture sector suffers from lack of funding, receiving less than 1% of the state budget. Private-sector finance and bank loans to agriculture are limited. The net result has been a lack of investment, undermining productivity and competitiveness.
- The absence of compliance with the EU food safety standards and other requirements,
- Weak farmers organizations,
- Inadequate marketing structures,
- Water shortages,
- Limited access to water and soil-conserving irrigation techniques.
- Small field sizes reducing the economies of scale (Seventy-three per cent of Lebanese farmers have a plot of less than one hectare. This adversely affects their creditworthiness and access to other agricultural inputs).
- The local distribution market suffers from a lack of marketing regulations, and competition from lower-priced products from border and neighbouring countries.
- High costs of inputs
- High labour cost
- Poor regulatory framework for quality control assurance (e.g. certification, quarantines, pesticide applications) and in cases where available, they are not enforced

Lebanon has a good potential to boost the agro-food sector. Despite the importance of the agricultural sector, Lebanon has a widening agricultural deficit and growing food dependence. Promoting and strengthening the agricultural sector in Lebanon will contribute to alleviating a major socio-economic and environmental problem, namely rural migration that results in heavy concentrations in Beirut and its suburbs, which is unsustainable in terms of development and the environment. To develop and improve the agro- food sector trade, Lebanon is seeking to diversify and produce more unusual fruit varieties, such as kiwi fruit, pomegranate, custard apple and even truffles. The key future trends for Lebanese agriculture are summarised in **Table 4.3**.

Due to the predominance of oil revenues in the **Libyan** economy for about sixty years now, and particularly over the past forty ones during which economic policies have pretty much been confounded with pure and erratic politics, the mix and the reading of the agricultural activities along with their corresponding policies, is too complex to be analyzed in a systematic way.

In general it is safe to say that the performance of the agricultural and food sector in Libya has been over the past 40 years anything but stable and consistent. It is clear that the big factor explaining such instability is the availability of abundant financial resources generated by petroleum export earnings which together with the lack of political democracy pushed its past Government to extreme economic arrogance and neglect of basic economic principles going from introducing and changing economic policies as they pleased, opening and closing the country borders with neighbouring countries according to their mood of the moment.

Hence economic performance of the agricultural sector not only was erratic but it was also relegated to minimal relevance. With the change they have had now, as part of the so-called Arab spring movement, it is expected that the economy of Libya will be based on a new and more predictable paradigm the aim of which would be a better use of the oil revenues, no doubt, but also a better reliance on the growth of the agricultural sector.

Despite the small contribution of agricultural sector to the national GDP (around 3.5%), agriculture still accounts 6% of the workforce, employing more workers than the oil industry. Given the fact that Libya is a net food importer (75% of food consumption is imported) and considering the

turmoil that the country is into after the recent revolution, it becomes apparent that policies to increase self-sufficiency rates will be eminent. In the past years, Libya had initiated several projects to lease land in the Ukraine, Liberia and Mali for agricultural purposes and was negotiating a similar project with Turkey (African Economic Outlook, 2011).

Syrian agriculture sector is growing fast and is one of the most important sectors in terms of employment generation and protein supply to the Syrian population. The sector has significantly developed after several new economical reforms that covered the sector. On the other hand, several constraints have to be addressed to strengthen the competitiveness of the sector. In particular policy should address the problem of supplying food for the annually high population growth, which is about 2.45% under the condition of hasten and rapid changes in the global economy which caused rising food demand and increased costs of agricultural products in world markets.

The challenge becomes greater with the limitation of its natural resources. Therefore, the government devotes a special attention to exploiting those resources in rational way and shifting to have vertical expansion through increasing the productivity of unit area for agriculture as well for animal products.

Even though Syria has achieved self-sufficiency in many agricultural and animal products the market orientation of the Syrian economy which entails the opening of its markets created new challenges regarding its agro –food ability to compete in such a free market, since the agricultural sector is still under considerable intervention from the Syrian Government and several types of support are offered for agricultural sector by the government as tool to spur producers for increasing and improving the production. Furthermore, The agricultural policies still give priority in the support to what is called “strategic crops”, either for the purpose of food security (as the case of wheat), or for social concern related to the employment in public factories (as the case for sugar beet plantation), and for economical considerations (for cotton).

The agricultural policy, so far, has achieved great performance. And thus, the cultivated area is expanded, fertilization and seed production are improved and modern agricultural techniques are applied. Also, subsidized feed, free of charge veterinary vaccination are provided, and high productivity animal species are introduced. On the other side, the policy encouraged the agro-food industry in order to stabilize the agro-food prices by absorbing the production surplus, and to enhance food security.

The new agro–food policy targeted to increasing agricultural production to maintain food security; but in the mean time, improving its quality to enhance exports. These policies focus on the sustainability in using natural resources including pastures and forests. The government also uses the price policy as a tool helping to increase the production and improve the quality.

These policies were emphasized in the objective of the tenth Five-Year Plan which defined the objectives of the agro-food sector in Syria as; to ensure food security, increase productivity, improve production quality, increase exports of commodities that have competitive advantages, develop agricultural resources, and rationalize their use to achieve sustainable development in addition to fulfil other general objectives related to water reservation and rational use of water and fight desertification, usage of vital technology to improve quality, sustainable use of national resources, limitation use of chemical products in agriculture, encouragement of organic agriculture and development of rural communities and improvement of life standard there taking into account environmental aspects.

Regarding the agricultural subsidy, the government is aware of the sensibility of this issue for joining WTO. Therefore, it started early to cut down all types of subsidies which are not allowed in

WTO. And thus, subsidy for input has gradually reduced starting by liberalizing the some agricultural inputs including chemical fertilizers, pesticides, machinery and some seed varieties; and also limited the subsidies for fuel and electricity as well as for irrigation cost for state projects in order to unify the different forms of subsidies to be granted through a fund for agricultural support which targeted the subsidy to strategic crops and to certain important products with limited budget. These policies resulted in enhancing the sector's efficiency and reducing the distortion for trade. The government also activated the participation of private sector to take an active part in producing, importing, and trading most of these inputs.

On the hand, the government had encouraged private sector to locally produce such inputs by facilitating agro-industrial investment projects. This was resulted in setting up several plants manufacturing inputs for plants and animals production. A SWOT analysis of Syrian agricultural sector is given in **Table 4.4**.

In view of the political turmoil presently taking place not only in **Tunisia** but also in other neighbouring states which are experiencing similar changes (Libya, Egypt, Syria, etc), two possible scenarios are likely to come out. One scenario could be qualified as somewhat conservative which will likely honour previously established agreements seeking trade promotion and liberalization.

An alternative scenario is equally likely to come out of the ongoing political negotiations which could put more emphasis on equity considerations thereby implying a possible return to new forms of protection of the economy, and consequently less reliance on world trade. The likely consequences of either scenario are quite different both on the growth of the overall economy, and therefore on the welfare of the Tunisian population, and on the Tunisian flow of agricultural trade with the rest of the world which also has impacts on economic growth.

The agricultural policy reforms have brought about important improvements, but the productivity and efficiency of the agricultural sector in **Turkey** still remain low. This low productivity and efficiency can be attributed to several factors, such as various structural impediments – including socio-economic weaknesses, for example, the large number of small and subsistence farms, use of old technologies, natural conditions, high demographic pressures on land and excess labour – as well as inappropriate policies.

Despite the recent emergence of more commercial and specialised farms, particularly in the Aegean and Mediterranean regions of Turkey, farm structures are dominated by small-sized, family-owned and highly-fragmented farm holdings, using only elementary technologies. On those farms subsistence or semi-subsistence farming continues to be an important feature of Turkish agriculture. The continuation of informal marketing chains and large post-harvest losses are encouraged by this prevailing farm structures which prevent the agricultural sector from achieving its potential growth.

ARIP and the accession process to the EU have been the major contributors to changes in the legislative framework of the sector. There has been an impressive progress during the last decade and various laws and regulations have been introduced as a result of the government's attempts to restructure the agricultural sector. Notwithstanding the decisive steps that have been taken since the implementation of the 2001 policy reforms to address the structural impediments of the sector, ample scope remains for policies to improve the efficiency and increase the competitiveness and market orientation of the sector.

Targeted policy tools to boost productivity growth are not very well developed. For example, while small-scale production is considered to be one of the most important factors undermining productivity growth and the efficient use of resources, agricultural policy instruments cover all farms in the country, and there is no policy instrument specific to small farms. The Law also does

not mention any price policy or trade policy which could contribute to the achievement these objectives. Current policy tools, however, also include support for the use of certified seeds and soil analysis to increase productivity and efficiency in the use of variable inputs (*e.g.* inorganic fertilisers). In addition, measures taken to reduce post-harvest losses, such as the implementation of proper handling of the produce and cold chain management of fruits and vegetables are crucial for enhancing productivity.

The role of public and private research and extension in improving productivity and competitiveness is well established. R&D is one of the three issues which are specifically acknowledged in the Agricultural Law of 2006 and all of the associated legislation places specific emphasis on the need to support and invest in R&D.

The large size of the population working on small farms makes consolidation of the agricultural sector socially difficult and this may be one of the factors that make the pursuit of reforms politically challenging. A key aspect to structural change in agriculture is the extent to which small, semi-subsistence farms can escape the vicious circle of low technical efficiency and the lack of technological and educational advancements. Development of the agricultural sector's human capital has remained stagnant, with the vast majority of farmers (78%) having no more than a primary education (or less) and as many as 15% were illiterate in 2009. Improvements in human capital through specific policies to facilitate farm labour mobility are crucial to raising agricultural performance. Training and advisory services need to be upgraded to assist farmers to adopt new, efficient and environmentally-friendly farming practices. There is also a need to create activities in sectors other than farming in rural areas, which could complement revenue from farming activities and gradually ease the demographic pressure on land, while at the same time maintaining the population in rural areas.

In 1999, Turkey was granted the status of candidate country for membership of the EU. Before full membership can be granted, a number of political, economic and legal obligations have to be met such as increasing production through sustainable agriculture; phasing-out existing support policies and replacing them with a direct income support system targeted to low-income farmers; establishing a land register system; up-grading food inspection and control mechanisms; and establishing a clear strategy for phytosanitary conditions.

While in the EU agricultural support is increasingly becoming delinked from commodity production and more targeted to stated objectives, support coupled to commodity production continues to be the main policy instrument in Turkey. Bringing Turkey's agricultural policy into alignment with the CAP is a key element in the accession negotiations. But the enlargement of the scope of crop-specific deficiency payments and elimination of DIS under ARIP manifested a major shift in Turkish agricultural policy away from the EU's CAP.

Notwithstanding the apparent divergence of agricultural policies between Turkey and the EU's CAP, an important issue is whether current agricultural policies can help to improve the competitiveness of the Turkish agricultural sector, and thereby ease the adjustment of the sector in the event of accession to the EU. As noted earlier, the reform programme has paved the way towards the implementation of more market-oriented policies.

The competitiveness issue becomes more apparent in the implementation of agricultural trade policy. Import tariffs for most agricultural products in Turkey are higher than in the EU. As the Customs Union with the EU excludes agricultural commodities, bilateral trade is essentially driven by preferential trade agreements between the EU and Turkey. The preferential trade agreement with the EU has not, as yet, been implemented fully, as import protection for some agricultural products has not been reduced. Full compliance with the preferential trade agreement with the EU will also benefit the sub-sectors that are competitive in EU markets and facilitate further

economic integration with EU. The EU is Turkey's major trading partner in agri-food products, more in terms of exports than imports and Turkey's competitiveness in fruits and vegetables has been enlarged as is now concentrating on processed products. A SWOT analysis of Turkish agricultural sector is given in **Table 4.5.**

4.2 Agro-food policies' evolution outlook

The MENA region is comprised of countries with considerable deficit in external food trade, low self-sufficiency rates even for staple food and a large reliance on food imports. In the same time, several MPC still have highly protective agricultural sectors that operate under schemes of duties, tariffs as well as producer subsidies. In the recent years this protectionism has been reduced gradually as MPCs are being incorporated in the globalised economy, entering world trade organisations and signing bilateral and multilateral trade agreements. In this respect, in the next few years, MPC will need to (Chaherli & El-Said 2007):

- Harmonise norms and standards for export agricultural commodities
- Improve their marketing systems through campaigns
- Improve the efficiency of their agricultural system via increases in productivity rather than protective measures
- Diversify and expand exports to more countries

In **Algeria**, the plan to renovate the agricultural sector, the *Plan du renouveau agricole et rural*, accelerated in 2010 with the funds of DZD 1 trillion. Under this plan, a significant part of the debt owed by farmers has been written off, while the implementation of provisions for the disposal of private state land also accelerated and the first civil, joint-stock agricultural companies aimed at opening up the capital of agricultural holdings to national savings were created. (African Economic Outlook 2011).

In the next years, the issues of improving agricultural productivity and increasing the currently quite low self-sufficiency rates of major food commodities will attract growing importance. The government has been initiating agricultural reforms in order to attract more private investments (especially in the dairy industry), while it has also started to cut down the subsidies given to producers, as well as to consumers. Due to the increasing food prices in the period 2008-09, Algeria also cut-down a number of taxes imposed on imported foodstuff. The Ministry of Agriculture aims also at developing the country's wine production, which accounts for 25% of agricultural exports (Business Monitor International 2009).

The poverty rates indicate to the concentration of the poor in rural areas and particularly those in Upper **Egypt**. Even though rural regions are poorer than urban, inequality in income distribution is less in rural than urban regions of Egypt, However, more income distribution equality associated with much less income level than urban, is a disadvantage, as it means that poverty is wide expanded and more deeper in rural than in urban

Several lessons were learned from the application of previous strategies in eighties, nineties and at the onset of this century. The component of price liberalization of the structural reform program has reached its ultimate to great extend, however, the associated institutional reform, suffered from much lag response and needs further reform. The limited water resources have not faced with proper policies towards rationalization of water use. Although small farm holdings are more than 80% of the Egyptian agricultural system, such sector of the majority has not supported with policies that let the stakeholders being adapted with the dramatic changes in agricultural sector and protect them from the negative impacts of market liberalization and globalization.

The newly reclaimed land, which reached about one million hectare, has generated communities lacking of the foundations of settlement and efficient institutional framework as well as efficient marketing system. The system of distributing the new reclaimed land was biased against the real

stakeholders of the agricultural system, i.e. the small farmers and agricultural graduates from either universities or high agricultural schools

The previous strategies have lacked of a proper vision towards achieving sustainable agricultural development through an integrated rural development program. Therefore, unemployment, risky migration to urban or abroad, poverty gap, all has expanded in rural communities. Environmental impacts on agricultural system in Egypt from the production, marketing and foreign trade dimensions had not received much attention, particularly its impacts on output specifications, yield losses and barriers on exportation

In spite of full privatization of production and marketing firms of the agricultural system in Egypt, the private agricultural enterpriser have not shared in financing the agricultural research institutions in Egypt by any means. Drying most of the area of internal lakes and transformed most of their water area for agricultural production wasted the main source of fish production in Egypt (such lakes were providing 70% of Egypt fish supply) and failed to cultivate economically the dried land. The fault was that the feasibility studies made had denied the valuation on social price and costs of the transformed natural fisheries.

Reluctant development plans for efficient agricultural and food marketing system distorted the implemented plans for raising agricultural productivity. Even high yield was violated with high losses and lack of sufficient specifications and lack of proper grading, sufficient storage, or efficient processing. The lag of issuing the act of protecting competitiveness and prevention of monopoly, for 15 years between liberalization and privatization of the market, in addition to lack of effective mechanism of implementation generated inherited power poles of monopoly in the Egyptian market. Two marketing functions suppose to be monitored by government under free market system. However, both are not conducted at proper effectiveness. These are Market information system, monitoring and control on specifications, grades and safety,. International and regional backgrounds have experienced many changes, most important of which is the international trend towards further liberalization of agricultural trade, this big issue raised extra challenges that faced the agricultural development in Egypt.

Even though land and water resources are the two main natural resources allocated for agricultural production, the later is the most limiting factor. Thereof, it occupies the highest interest in the future vision of Egypt's sustainable agricultural development. Such target implies both vertical and horizontal development of the sector. Horizontal increase means additional arable land. However, the water resources availability limits the horizontal expansion. As far as Egypt has a constant quota of Nile water, the available approach is by raising the water use efficiency and looking for nonconventional water resources. Vertical expansion implies to raise the productivity, which in turn, relay upon the potential yield in comparison with the existing yield, either for crops or for livestock. Such potential yield is approached via improvement of farming practices, input intensification and bio-technology, which means to cultivate high yield varieties and introducing improved genetic makeup of livestock.

The future prospects have three milestones. Raising irrigation water efficiency and maintaining agricultural land resource associated with institutional reform and policy adjustment program.

In **Jordan**, the main policy-related priorities could be summarised into four main categories, namely:

- Evolution of Water Resources Use
- Evolution of Range Management and Livestock
- Evolution of Rain-fed Farming
- Evolution of Technology

Lebanon is restructuring to become a much more efficient economy better able to compete based on its core competences that allow it a sustainable competitive advantage than relying on the previous practice of state interventionism.

Lebanon is looking forward to making further liberalization of import and export through the alleviation of tariff and non-tariff barriers on trade. It is expected that in the future Lebanon will develop its past role as being a primary trade centre in the region and between the GAFTA and the Euro-Mediterranean. Given this fact, Lebanon is targeting for organizing and further promoting agricultural exports to Europe as well as to the Arab world and the Gulf countries in particular.

The government policy aims to increase the contribution of agriculture to the economy through:

- A stronger commitment of the State toward agriculture through the implementation of projects of public interest (communication networks in rural areas; water and irrigation projects; environmental protection; watershed management; education in rural areas, etc.) and through a stronger participation of the rural population and the grass-root organizations in the decision making process.
- The updating of legislation to be better adapted to the market needs and to the health of the consumer
- The opening of the market through bilateral and multilateral agreements
- Giving stronger role to the private sector with a drastic reduction in public intervention
- Enhancing Lebanon's export potential by further liberalizing agricultural trade, simplifying and upgrading customs legislation and procedures, improving standards and modernizing the sanitary and phytosanitary systems.
- Ensuring progressive liberalization of trade in services.
- Strengthening the environmental dimension of public policy.
- Promoting sustainable development policies and actions,
- Designing and implementing a comprehensive social development strategy that contributes to poverty reduction.
- Creating macroeconomic conditions for sustainable growth.
- Identifying and adopting measures and appropriate legislation with an aim of encouraging sustainable trade flows.
- Promoting the use of modern technology in the agricultural sector and in different production phases.
- Further enhancing export potentials by increasing the quality of Lebanese products and their competitiveness on international markets.
- Increasing food safety for consumers and facilitating trade

Hence, the main features of the food agricultural development strategy, are to:

- Follow up the legislation on the agricultural sector
- Work to reduce the cost of production and improve product quality.
- Develop a practical mechanism to facilitate loans for agricultural projects and develop the National Bank for Agricultural Development.
- Initiate insurance risks and natural disasters that affect the agricultural sector.
- Mobilize water and rationalize its utilization
- Appropriate land use

- Efficiency of the techniques
- Improve the production lines

Food security as well as agricultural and rural development will be key policy issues also in **Morocco**. Within this context, the project established by the Union for the Mediterranean could fit into this framework. It could strengthen the position of the country which has already committed to the “Advanced Status” with the EU and to the Free Trade Area with Agadir partners agreement (Tunisia, Egypt, Jordan) and with Turkey. In addition to the areas related to water management, crop and animal production as well as the diversification of production systems, Morocco could make accessible to the South-North and South-South multilateral cooperation expertise in the areas of improved seeds, mechanization, biotechnology, food safety, artisanal fisheries, maritime safety and research and extension.

In 2008 the government initiated a plan aiming to promote a competitive agriculture over a 10-15 years time span. This project relies on (i) the development of a modern agriculture with high added value (milk, meat and poultry, citrus fruits, early fruit and vegetables, olives and cereals in particular) relying on private investment through the financing of 700 to 900 projects for a total annual cost of MAD 10 billion to MAD 15 billion; and (b) supporting and improving small-scale farming, targeting 600 000 to 800 000 farmers for an overall investment of MAD 15 billion to MAD 20 billion (African Economic Outlook, 2011).

Agro-food sector plays a substantial role in the **Syrian** economy, representing an important component of the state strategic social and economic choice for Syrian development. Food security and sustainable development are two key components of the Syrian strategy for agricultural development. Therefore, the government seeks to guarantee the sustainability of producing the main agro-food substances. To do so, the government has adopted a strategy to implementing policy promoting agro- food production, involving all agro- food stakeholders in the producing process, accelerating legislative adjustment, encouraging agro- food investment, strengthening its agro- food trade by adopting the greatest possible flexibility in the trade policy, improving the quality of agro- food products to enhance their accessibility to foreign markets, increasing integration of the Syrian trade in the global trade and strengthening the competitiveness of agro-food to prepare the sector for competition conditions which are expected when joining WTO.

Furthermore, Syria is making all possible efforts to widen and vary its agro-food export in the international markets, augment tradable agro-food products to enlarge their export, and produce new agro-food varieties for export that obtain higher returns in order to provide hard currency for agro-food import. Syria is looking forward to enhancing food security in the country, by ensuring self-sufficiency for principals agro-food commodities. This means to ensure the availability of the necessary commodities in future, considering the growth of population, which is increasing at a rate of around 400 thousand person annually and is expected to double in 2025, and then, the demand for food will grow. Therefore, the domestic production should increase at the same level. In the mean time, Syria is looking forward to increase the production of high-value exportable agro - food products.

The future plan for trade policies intend to promote trade through a wide range of measures such as encouraging the plantation of exportable commodities (cut flowers, mushrooms and organic products, etc), building up a database on production and exports, modernizing domestic markets, signing mutual agreements for enhancing trade flow and speeding up the implementation of electronic trade.

In general, the strategy for Syrian agro – food aimed at achieving a set of objectives concerning the development of food and agricultural sector, so as to achieve comprehensive and sustainable agro – food development according to the following:

- Ensuring the active participation of the agricultural sector to the GDP, promoting the agricultural sector to secure national food security and improving the situation of producers and consumers by means of production increase and generation of more productive employments.
- Improving the living conditions in rural areas, achieving rural development and poverty alleviation and providing the needed staples at reasonable prices that match with the levels of income and reduce the rural-urban gap.
- Increasing the self sufficiency in terms of main staples, filling the nutritional gap and improving the food commodity balance by means of enhancing trade
- Achieving a sort of complementarity between the agricultural sector and other economic sectors in terms of input and production integration
- Adopting a social market economy aiming at further trade liberalization with a consideration of the social dimension.

The 11th five year plan (2011-2015) included a number of objectives to promote agro – food sector including:

- Achieving food security and provide the need of basic food national consumption commodities.
- The sustainability of natural resources (land, water, forests, pastures) through their rational economic investment, and preserve them from degradation and depletion and pollution.
- Marketing of agricultural products.
- Expanding the role of the banking system, insurance and agricultural insurance.
- Reducing poverty by making a comprehensive rural development contributes in improving incomes of producers and allowing integration of development policies with other sectors.

Moreover, several sub objectives have been set to be achieved in the next five years including:

- Reduce fallow lands
- Develop agricultural production and providing its inputs to enhance its competitiveness.
- Reduce production costs.
- Use alternative and renewable energy.
- Improve the conditions of marginal producers.
- Establishment of appropriate crop combinations to get the highest return.
- Application of the results of scientific research and new technologies.
- Choosing crops with economic, social and environmental feasibility.
- Integration of plant and animal production.
- Achieve the sustainability of agricultural land.
- Rationalization of water use and increase of its efficiency.
- Forest integrated management, investment and development.
- Rangelands Integrated management, investment and development.
- Maintain the biodiversity and ecological balance.
- Achieve sustainable development depends on accurate balance of. land use
- Involvement of all society in preserving natural resources.
- Creation of organized markets working according to sophisticated mechanism of action.
- Adoption of appropriate mechanisms and procedures for granting certificates of quality.
- Adoption of mechanisms and procedures for providing certificates geographical origin.

- Production of organic products.
- Develop advanced agricultural processing.
- Adoption of appropriate financial policies to enhance the agricultural investment.
- Increasing the ability of farmers to invest.
- Establish an insurance system for agricultural products. Continue to marketing of strategic crops by the state.
- Improve the marketing the agricultural products.
- Improve the living conditions of farmers.
- Empowerment of rural women.
- Achieve comprehensive national development.

In the framework of the economical reform, Syria is accelerating the steps to liberalize its trade through the initiation of legislations and perform free trade areas with trade partners. Through last two decades, Syria has exerted great efforts to integrate more in the global economy, such efforts reflected in the liberalization of trade regime, restructure the economy and engagement in number of trade agreements. The most significant progress was made in trade liberalization is the application to join WTO. Now after the application was accepted, Syria in the next few years is preparing to strengthen its position in the negotiation through the following:

- converting non-customs restrictions imposed on some agricultural products into tariffs (import quotas - the import ban - and licensing) ;
- Studying the forms of support currently provided in the agriculture sector and looking to reallocate them to be in compatible with the WTO rules to protect the national agro-food sector;
- Studying the agreements governing the organization and mechanisms of Syrian procedure for them;
- Reviewing the sanitary and phytosanitary, TBT and property rights relating to trade with regard to review all applicable laws to determine the extent consistent with applicable in the organization;
- Determining changes to be made to the Syrian agro- food policies, and consider their impact on the sector; Furthermore, Syria has already taken steps in this direction including encouraging private companies to contribute to the development of trade with the world. The effort to support private business will continue in the future.

The outcomes of policy reforms in the agricultural sector of **Turkey** were mixed. Over the last few years, the momentum for a complete overhaul of the support system started in the late 1990s and increased in pace with the creation of ARIP (Agricultural Reform Implementation Project) in 2001, to achieve a more competitive agriculture has slowed down and policy emphasis has shifted towards forms of support which are more production- and trade-distorting. The enlargement of the scope of crop-specific deficiency payments and the ending of DIS scheme manifested a major shift in Turkish agricultural policy away from the reformed CAP. Given rising concerns with commodity price instability and food security it is important that policy measures are well targeted to meet these objectives in a cost-effective way. Efforts should continue to transform the remaining SEEs (State Economic Enterprises) and ASCUs (quasi-governmental Agricultural Sales Co-operative and Agricultural Sales Co-operative Unions) into truly commercial entities with economic viability under more competitive market conditions and to strengthen the legal and institutional framework concerning food safety. Crop insurance policy framework should ensure that such policies do not provide incentives for moral hazard and rent-seeking behaviour.

Priority should be given to building human capital and upgrading the skills of the agricultural labour force by raising educational attainment and skills. Therefore a social market reform is needed as well as the policy reform. Competitiveness of the whole agro-food chain should be the strategic objective and achievement of skilled labour force must be a part of this objective. Institutional reforms to prevent fragmentation of agricultural land resulting from the inheritance laws will be vital. The technologies appropriate for smallholders need to be identified and disseminated among them via better integrated research and extension services. Phasing-out the small, semi-subsistence and low-productivity farming which prevails in many rural areas with more efficient farm holdings is critical for fostering productivity. Post-harvest losses should be reduced through investment in storage, packaging and transport facilities that eliminate the need for the long-term storage of commodities.

Alleviation of the rural poverty should be addressed as an objective through attainment of greater integration of rural areas into the market economy. In addition, alleviation of the rural poverty should be a part of the developing integrated, multi-sectoral regional development plan. Rural development policy in Turkey was based on sectoral projects aimed at improving basic infrastructure in rural areas, including large-scale investment projects. With ARIP a more strategic sectoral approach to rural development was adopted however, this approach should have a stronger bias towards agriculture.

The agri-environmental monitoring system needs to be considerably improved, to help enhance the quality of information for policy makers to evaluate the environmental effectiveness of newly introduced agri-environmental and environmental policy measures. Apart from establishment of agri-environmental monitoring related to irrigation water use and management, and greenhouse gas emissions in some areas, for most agri-environmental issues, monitoring is weak and quality and reliability are poor. The scope of including environmental concerns in agricultural policies should be increased also. Institutions and property rights for water management in agriculture should be strengthened and especially, knowledge and information deficiencies should be addressed so as to better guide water resource management.

This sizeable rural population, together with the declining share of agricultural employment, generate pressure on urban areas in terms of the rapid migration from rural to urban parts of the country. Agriculture continues to be the main source of rural employment, particularly for women. Development disparities between urban and rural areas still prevail, as rural areas have failed to catch up with the rapid development of the urban areas. As the share of agricultural employment declines, the development of off-farm opportunities in rural areas becomes necessary not only for stimulating economic growth in these areas, but also for moderating the pace of rural-urban migration to a more manageable level.

Better co-ordination between the supply and demand of agricultural R&D activities across a wide range of government institutions and with the private sector is needed to improve the capacity to adopt and effectively use technology in the agricultural sector. The regulations have not been effective in transmitting the needs of farmers to the researchers, and, *vice versa*, in passing the research results back to the farmers. Extension services should help make farmers more responsive to market needs by diffusing information on the products with higher value-added that attract consumer demand, as well as their production technologies.

5. Concluding remarks

Agriculture constitutes a significant part of domestic economies in all MPC. Even in the countries where its contribution to the GDP is small and diminishing, agriculture remains a pillar for social cohesion and a key means to address two of the major problems that MPC are facing today, namely high unemployment rates and poverty especially in rural areas. On the other hand, MPC will also have to tackle three other aspects, namely the scarce natural resources, low productivity and high reliance on imports to meet domestic demand.

Various studies have shown that agricultural productivity in the MPC is quite low, and this is often related (at least to some extent) to the low degree of market openness (Hassine and Kandil, 2009). The gradual modernisation of the agricultural sectors in the MPC and the liberalisation of their trade policies could have a positive impact not merely on agricultural sectors, but on the whole national economies; Byerlee et al. (2009) showed that agriculture can be a driving force acting as a trigger to the whole economic growth of an emerging country, by having a favourable impact on four other pillars, i.e. poverty reduction, equity including by gender, food security and environmental sustainability.

For the past decades, agricultural sectors in the MPC relied on state protectionism and subsidies; subsidies and aid to farmers as well as consumer subsidies for staple goods. This paradigm has been changing as MPC are liberalising their economies, but the adaptation process neither concluded nor will not be an easy one; liberalisation will increase the exposure of domestic sectors to global competition, and given their generally low competitiveness, adaptation to changing market needs remains a question. As an illustration, even in the EU - which is the biggest trading partner of the MPC - the relaxation of its trade barriers (due to WTO agreements) appears to have offset the advantages of the EU–Mediterranean preferential agreements for the benefit of other, more competitive, third countries (Galanopoulos *et al.* 2009).

In the past, attempts by governments to increase self-sufficiency had limited effectiveness, as they were based on producer (and consumer) subsidies that led to resource mismanagement, while also favouring the larger producers instead of the smaller ones. With the possible exception of Turkey – where environmental pressures are not as severe and self-sufficiency is not such an immediate concern - the MPC will need to develop a new policy agenda, suitable for the reformation of their agricultural sectors. In the next years agricultural policies in the MPC will have to shift not only to a more open system, but also to a well-targeted scheme that will have certain key priorities, so as to improve infrastructures and human capital.

In a recent report (2009), the World Bank identified the following key issues that need to be addressed: weak marketing structures, land tenure, access to credit, farmer education. The recommendations made were the following:

- Analyze the trade-offs of investing in cereal production and consider improving the use of financial instruments (hedging, futures, and others) to manage exposure to international price volatility
- Make markets work by allowing price signals to reach farmers and encourage them to invest in agriculture
- Target rural investment upon disadvantaged areas, combining sectoral approaches and local development approaches
- Allocate investment in irrigation together with investments to help farmers improve their agriculture practices, linked to market opportunities, and involving farmers in irrigation-management

- Identify and removing bottlenecks in domestic and export marketing chains, in collaboration with farmer and private sector organisations, and improving the rural investment climate
- A greater role for the private sector in determining prices and shifting the crop from farm gate to table
- Involving farmers and the private sector in the provision of services to agriculture, such as research and extension.

In fact, agricultural extension and research, along with public support on infrastructures can likely have a significant impact on the productivity growth of MPC agriculture, while also achieving a minimal distortion impact on production and trade. R&D investments are quite necessary to be targeted on efficient use of fresh-water and/or re-use of treated water, new varieties, harvesting and post-harvesting techniques, etc (CEDARE 2009).

MPC have the potential to increase the competitiveness of their agricultural sectors. Not only are there abundant agricultural skills that date back centuries ago (Chaherli & El-Said, 2007), but the MPC could take advantage of their proximity to the largest food market in the world, the EU. In this respect, the actions foreseen by the Barcelona Agreement (i.e. creation of a Free trade Zone) as well as the recently introduced Union for the Mediterranean (comprised of European and Mediterranean countries) could help MPC increase their agricultural productivity growth and accelerate their catching up process with the European countries (Galanopoulos *et al.* 20011).

Conclusively, although the MPCs have introduced a series of reforms in their agricultural sectors the last few years, additional trade liberalisation is required so that they keep up with WTO expectations. An effective agro-food policy in the MPC would ultimately require tackling 3 main areas in question, namely:

- resources availability;
- self-sufficiency;
- productivity growth.

However, these are not the only problems faced by the MPC. There are several others that may not refer directly to the agricultural sector but have a considerable impact on its structure and performance. The political and social turmoil in the last couple of years, fuelled by the 2007/08 food prices crisis has given rise to social unrest to a number of MPC (mainly Tunisia, Egypt and Syria) and stressed the need for democratic governance and transparency. Agriculture in these countries will definitely be affected and predictions are difficult to make. One thing is certain though: the EU needs to further strengthen its relations with the region and introduce more mechanisms to support the transformation and modernisation of agricultural sectors in the MPC which is faced with several challenges.

Ultimately though, the main challenge that most MPC will have to face in the immediate future regarding the development of their agriculture, will be to achieve a sustainable growth of their agricultural sector's output in order to alleviate poverty, reduce dependence on imports and fuel national economic growth, preserving at the same time the valuable and scarcely available natural resources.

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ANNEX I

Tables

Table 1.1: Agriculture, value added (% of GDP)

Country	Middle East & North Africa	Algeria	Egypt, Arab Rep.	Jordan	Lebanon	Libya	Morocco	Syrian Arab Republic	Tunisia	Turkey
Code	MEA	DZA	EGY	JOR	LBN	LBY	MAR	SYR	TUN	TUR
1965		12,88	28,60	15,44					23,74	47,51
1966		9,14	27,94	11,02					20,66	48,59
1967		10,33	28,56	16,93					18,79	45,87
1968		10,85	29,44	10,57					20,01	42,84
1969		9,03	29,85	13,61					18,46	41,97
1970		9,21	29,43	11,64					19,70	40,17
1971		9,57	29,17	13,35					22,29	38,47
1972		8,42	31,08	13,30					24,61	35,40
1973		7,04	30,67	8,78					22,85	35,01
1974		7,37	30,50	16,46					21,39	37,09
1975		10,42	29,03	7,90					20,95	36,50
1976		9,93	28,29	8,82					20,44	33,60
1977		8,47	27,05	9,05					18,55	32,40
1978		8,81	25,34	11,31					17,63	32,66
1979		9,02	20,91	6,97					15,78	28,58
1980		8,51	18,26	7,89			18,48		16,33	26,50
1981		9,24	20,09	6,08			12,91		15,62	24,52
1982		8,39	19,57	6,07			15,44		14,95	22,69
1983		7,75	19,64	6,83			15,29		14,51	21,36
1984		7,53	20,05	5,52			14,96		16,30	21,69
1985		9,00	19,99	5,52			16,45	21,94	18,11	20,26
1986		10,18	20,79	6,28			19,28	24,92	14,92	20,10
1987		12,87	20,49	7,34			15,77	26,59	18,80	18,47
1988		12,17	18,96	6,91			17,73	31,79	13,54	17,85
1989		13,04	19,67	6,63			17,72	24,80	14,55	17,10
1990		11,36	19,37	8,08			18,26	29,81	17,74	18,09
1991		10,17	17,57	8,52			20,72	32,84	19,11	15,80
1992		12,13	16,54	7,89			16,10	34,44	18,60	15,56
1993		12,10	16,71	5,98			15,38	32,18	16,97	16,07
1994	11,32	10,06	16,87	5,23	7,11		19,09	31,10	14,45	16,03
1995	11,48	10,50	16,78	4,32	7,60		15,09	31,58	13,04	16,29
1996	11,39	11,77	17,26	3,83	6,89		19,60	29,95	15,69	17,39
1997	10,45	9,48	16,95	3,33	7,48		15,80	27,88	12,61	14,97
1998	11,88	12,53	17,11	3,07	6,91		20,22	30,61	11,97	13,58
1999	10,71	12,20	17,32	2,38	7,17		17,46	25,18	11,99	11,54
2000	9,47	8,88	16,74	2,35	7,11		14,94	23,75	11,33	11,31
2001	9,14	10,41	16,56	2,27	6,68		16,55	27,04	10,68	9,95
2002	8,83	10,00	16,46	2,55	6,67	5,20	16,54	26,83	9,33	11,71
2003	8,68	10,49	16,34	2,83	6,58	4,34	17,29	25,70	10,38	11,39
2004	8,38	10,19	15,18	2,81	6,37	2,99	16,32	21,80	11,01	10,92
2005	7,73	8,22	14,86	3,08	6,25	2,34	14,68	19,49	10,13	10,80
2006	7,63	7,99	14,07	2,82	7,17	1,99	16,89	19,22	10,15	9,52
2007	7,32	8,03	14,07	2,73	7,12	2,08	13,73	17,94	9,41	8,68
2008		6,92	13,22	2,58	6,94	1,87	14,64	17,00	8,54	8,61
2009		11,73	13,68	2,89	5,89		16,39	22,93	8,93	9,35
2010			13,99	2,93	6,39		15,38		8,01	9,60

Source: World Bank National Accounts data, and OECD National Accounts data files.

Table 1.2: Unemployment, total (% of total labor force)

Name	Middle East & North Africa	Algeria	Egypt, Arab Rep.	Jordan	Lebanon	Libya	Morocco	Syrian Arab Republic	Tunisia	Turkey
Code	MEA	DZA	EGY	JOR	LBN	LYB	MAR	SYR	TUN	TUR
1990		19,8	8,6				15,8			8,0
1991	12,6	20,6	9,6				17,3	6,8		8,2
1992		23,0	9,0				16,0			8,5
1993		23,2	10,9	19,7			15,9	7,4		9,0
1994		24,4	11,0					7,5		8,6
1995		27,9	11,3	14,6			22,9	7,2		7,6
1996			9,0	13,7			18,1			6,6
1997		25,4	8,4		8,5		16,9	15,2	15,9	6,8
1998			8,2				19,1			6,9
1999			8,1				13,9	7,6	16,0	7,7
2000		29,8	9,0				13,6	2,3	15,7	6,5
2001		27,3	9,4	15,8			12,5	11,6	15,1	8,4
2002	13,3	25,9	10,2	16,2			11,6	11,7	15,3	10,4
2003		23,7	10,4	15,4			11,9	10,3	14,5	10,5
2004	13,3	20,1	10,7	12,4	7,9		10,8		13,9	10,8
2005	12,4	15,3	11,2				11,0		14,2	10,6
2006	11,4	12,3	10,6				9,7		14,3	10,2
2007	10,3	13,8	8,9	13,1	9,0		9,7	8,4	14,1	10,3
2008	9,8	11,3	8,7	12,7			9,6		14,2	11,0
2009			9,4	12,9			10,0			14,0

Source: World Bank National Accounts data, and OECD National Accounts data files.

Table 1.3: Employment in agriculture (% of total employment)

Name	Middle East & North Africa	Algeria	Egypt, Arab Rep.	Jordan	Lebanon	Libya	Morocco	Syrian Arab Republic	Tunisia	Turkey
Code	MEA	DZA	EGY	JOR	LBN	LBY	MAR	SYR	TUN	TUR
1980			42,40			18,90			33,40	
1981			40,30						32,50	
1982			39,10						31,60	4,30
1983			41,00	6,70		15,30		30,60		4,80
1984			40,60					25,50		4,40
1985						16,80				45,00
1986				5,50		19,70				
1987				6,60						
1988										47,40
1989			42,40					26,50	25,80	48,20
1990			39,00				3,90			46,90
1991			31,30				3,90	28,20		47,80
1992			38,40				3,60			44,70
1993			35,30				3,20	31,10		42,20
1994			35,20				40,00	23,40		43,60
1995			34,00				6,30	28,40		43,40
1996			31,20				7,20			42,80
1997			31,30				5,10	17,80		40,80
1998			29,80				4,90			40,50
1999			28,70				5,70	27,80		41,40
2000			29,60	4,90			5,10	32,90		36,00
2001		21,10	28,50	4,10			4,90	30,60		37,60
2002			27,50	3,90			44,40	31,20		34,90
2003		21,10	29,90	3,60			43,90	27,00		33,90
2004		20,70	31,80				45,80			34,00
2005			30,90				45,40			29,50
2006	25,55		31,20				43,30			27,30
2007	23,94		31,70				42,10	19,10		23,50
2008	23,41		31,60				40,90			23,70
2009				3,00						22,90

Source: World Bank National Accounts data, and OECD National Accounts data files.

Table 1.4: Population demographics (total, rural, agricultural and economically active in agriculture)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Total Population (1000)																																
Algeria	18811	19442	20096	20763	21433	22098	22754	23398	24035	24668	25299	25931	26558	27170	27751	28292	28787	29243	29674	30099	30534	30982	31442	31913	32396	32888	33392	33907	34428	34950	35468	35980
Egypt	44952	46025	47134	48277	49453	50660	51900	53166	54434	55667	56843	57952	59004	60020	61032	62064	63120	64200	65309	66457	67648	68888	70175	71498	72845	74203	75568	76942	78323	79716	81121	82537
Jordan	2299	2383	2480	2585	2694	2803	2910	3017	3130	3260	3416	3599	3806	4019	4217	4382	4510	4607	4682	4752	4827	4910	4998	5097	5210	5342	5495	5667	5849	6026	6187	6330
Lebanon	2795	2807	2828	2852	2872	2885	2888	2885	2885	2903	2948	3026	3131	3250	3365	3463	3539	3597	3644	3690	3742	3803	3869	3935	3998	4052	4097	4135	4167	4197	4228	4259
Libya	3063	3216	3381	3549	3708	3850	3971	4074	4164	4249	4334	4422	4510	4599	4687	4775	4863	4951	5041	5134	5231	5331	5434	5541	5653	5770	5894	6023	6150	6263	6355	6423
Morocco	19567	20088	20633	21191	21747	22291	22819	23331	23828	24311	24781	25238	25680	26108	26524	26929	27324	27709	28083	28444	28793	29129	29454	29770	30082	30392	30702	31011	31321	31635	31951	32273
Syrian Ara	8907	9220	9548	9887	10231	10577	10922	11267	11615	11966	12324	12690	13063	13439	13809	14171	14519	14856	15200	15573	15989	16455	16963	17490	18005	18484	18921	19321	19694	20054	20411	20766
Tunisia	6457	6628	6801	6975	7151	7330	7511	7692	7872	8047	8215	8376	8528	8673	8809	8936	9053	9163	9265	9362	9456	9546	9634	9722	9814	9912	10018	10130	10247	10365	10481	10594
Turkey	44105	45130	46198	47286	48361	49400	50394	51349	52278	53201	54130	55069	56012	56960	57911	58865	59822	60783	61743	62693	63628	64545	65446	66339	67236	68143	69064	69993	70924	71846	72752	73640
Rural population (% of total)																																
Algeria	56,46	55,62	54,74	53,83	52,92	52,03	51,17	50,33	49,52	48,71	47,91	47,12	46,33	45,55	44,78	44,00	43,23	42,46	41,69	40,93	40,19	39,46	38,74	38,04	37,35	36,68	36,01	35,37	34,73	34,11	33,50	32,91
Egypt	56,14	56,10	56,06	56,04	56,04	56,06	56,11	56,19	56,28	56,40	56,52	56,66	56,81	56,96	57,09	57,19	57,24	57,26	57,26	57,23	57,20	57,17	57,13	57,08	57,03	56,97	56,92	56,86	56,79	56,71	56,60	56,46
Jordan	40,06	39,07	37,82	36,48	35,08	33,75	32,51	31,32	30,19	29,02	27,78	26,42	25,04	23,71	22,58	21,79	21,37	21,27	21,40	21,59	21,75	21,81	21,81	21,78	21,73	21,70	21,67	21,63	21,59	21,54	21,48	21,39
Lebanon	26,33	25,08	23,87	22,69	21,59	20,59	19,67	18,82	18,09	17,43	16,89	16,42	16,03	15,72	15,45	15,19	14,92	14,65	14,41	14,20	14,00	13,86	13,72	13,62	13,51	13,40	13,28	13,16	13,03	12,89	12,75	12,63
Libya	29,91	28,64	27,39	26,20	25,24	24,55	24,18	24,05	24,09	24,19	24,27	24,29	24,24	24,16	24,09	24,00	23,94	23,87	23,80	23,72	23,63	23,52	23,41	23,28	23,14	23,00	22,84	22,66	22,49	22,31	22,11	21,91
Morocco	58,79	58,08	57,37	56,66	55,94	55,22	54,50	53,77	53,05	52,33	51,61	50,88	50,16	49,47	48,84	48,31	47,87	47,52	47,23	46,96	46,66	46,36	46,03	45,67	45,26	44,79	44,26	43,67	43,04	42,39	41,76	41,15
Syrian Ara	53,30	53,02	52,76	52,54	52,32	52,10	51,90	51,69	51,48	51,28	51,07	50,87	50,65	50,43	50,18	49,90	49,57	49,21	48,83	48,44	48,05	47,68	47,31	46,95	46,59	46,22	45,84	45,45	45,06	44,66	44,26	43,85
Tunisia	49,43	48,84	48,21	47,57	46,89	46,17	45,39	44,57	43,72	42,87	42,06	41,26	40,49	39,77	39,11	38,52	38,03	37,62	37,26	36,92	36,57	36,20	35,82	35,44	35,04	34,65	34,27	33,88	33,49	33,10	32,72	32,33
Turkey	56,22	54,91	53,22	51,31	49,37	47,55	45,90	44,38	43,02	41,82	40,80	39,96	39,32	38,81	38,35	37,88	37,38	36,85	36,32	35,78	35,26	34,74	34,23	33,72	33,21	32,72	32,23	31,75	31,28	30,81	30,35	29,90
Agricultural population (% of total)																																
Algeria	35,37	34,42	33,50	32,59	31,69	30,78	29,96	29,14	28,32	27,49	26,68	26,54	26,28	26,05	25,79	25,50	25,21	24,94	24,70	24,44	24,16	23,84	23,53	23,22	22,88	22,52	22,15	21,89	21,56	21,22	20,88	20,52
Egypt	57,41	56,08	54,79	53,57	52,08	50,63	49,20	47,79	46,36	44,93	43,13	41,90	40,85	40,05	39,35	38,43	37,63	36,83	36,03	35,37	34,66	34,01	33,45	32,76	32,07	31,37	30,68	29,98	29,30	28,62	27,94	27,26
Jordan	16,49	16,24	16,05	15,82	15,66	15,41	15,12	14,75	14,35	13,87	13,61	13,06	12,56	12,09	11,67	11,23	10,80	10,33	9,91	9,51	9,14	8,78	8,48	8,18	7,91	7,66	7,41	7,08	6,80	6,55	6,30	6,05
Lebanon	14,06	13,40	12,69	12,03	11,32	10,64	9,94	9,25	8,56	7,85	7,16	6,68	6,26	5,85	5,47	5,11	4,78	4,48	4,17	3,90	3,63	3,39	3,18	2,97	2,75	2,57	2,39	2,25	2,09	1,95	1,82	1,69
Libya	22,43	21,14	19,88	18,62	17,39	16,21	15,03	13,89	12,73	11,56	10,36	9,77	9,18	8,65	8,15	7,69	7,26	6,87	6,49	6,12	5,77	5,42	5,08	4,76	4,44	4,16	3,87	3,67	3,45	3,24	3,04	2,86
Morocco	53,49	52,24	51,13	49,90	48,75	47,65	46,54	45,30	44,28	43,14	42,00	41,18	40,18	39,26	38,53	37,57	36,94	36,10	35,44	34,68	33,67	32,18	31,33	30,99	30,41	29,55	28,96	27,96	27,24	26,53	25,85	25,19
Syrian Ara	33,66	33,24	32,66	32,02	31,73	31,47	31,23	30,99	30,75	30,52	30,28	29,90	29,53	29,18	28,87	28,57	26,22	24,06	24,00	24,50	23,83	23,66	23,95	22,48	22,07	21,67	21,28	21,03	20,69	20,35	19,99	19,62
Tunisia	36,98	35,97	34,92	33,91	32,88	31,86	30,81	29,78	28,75	27,72	26,72	26,58	26,29	25,99	25,69	25,40	25,10	24,81	24,47	24,15	23,83	23,50	23,18	22,86	22,54	22,22	21,90	21,53	21,21	20,88	20,55	20,23
Turkey	39,94	39,24	38,73	38,25	37,76	37,35	36,99	36,73	36,46	36,39	35,40	34,62	33,50	31,29	31,66	30,88	30,07	28,93	28,32	27,89	26,49	26,05	25,71	24,81	23,66	22,87	22,34	21,70	21,08	20,48	19,89	19,32
Total economically active population in Agr (% of total)																																
Algeria	8,68	8,51	8,31	8,11	7,90	7,72	7,68	7,65	7,62	7,58	7,54	7,69	7,82	7,98	8,13	8,26	8,41	8,55	8,67	8,79	8,90	9,01	9,08	9,11	9,12	9,12	9,11	9,13	9,09	9,03	8,95	8,86
Egypt	14,26	14,31	14,34	14,43	13,95	13,54	13,16	12,83	12,47	12,11	11,43	10,77	10,48	10,45	10,37	10,16	9,91	9,67	9,43	9,58	9,37	9,15	9,19	9,10	8,99	8,86	8,71	8,62	8,47	8,32	8,16	8,00
Jordan	3,31	3,27	3,27	3,29	3,27	3,25	3,16	3,05	2,97	2,98	2,99	3,00	3,07	3,14	3,11	3,04	2,93	2,80	2,67	2,57	2,44	2,36	2,30	2,24	2,19	2,15	2,11	2,01	1,97	1,89	1,84	1,77
Lebanon	4,33	4,17	4,00	3,79	3,62	3,43	3,22	3,02	2,81	2,62	2,34	2,15	2,04	1,94	1,84	1,73	1,64	1,53	1,43	1,36	1,28	1,18	1,11	1,04	0,98	0,91	0,85	0,80	0,77	0,71	0,66	0,63
Libya	6,14	5,75	5,35	4,96	4,61	4,31	4,03	3,76	3,48	3,20	2,93	2,80	2,68	2,59	2,50	2,41	2,30	2,22	2,14	2,06	1,97	1,89	1,79	1,70	1,59	1,49	1,39	1,34	1,27	1,18	1,12	1,04
Morocco	15,85	15,66	15,37	15,04	14,71	14,40	14,12	13,88	13,64	13,41	13,17	13,00	12,84	12,69	12,55	12,43	12,34	12,26	12,20	12,14	11,71	10,93	10,66	10,85	10,86	10,56	10,42	10,04	9,83	9,62	9,42	9,21
Syrian Ara	7,57	7,42	7,28	7,14	7,45	7,47	7,50	7,54	7,59	7,66	7,74	7,82	7,91	8,02	8,15	8,28	7,36	6,58	6,80	7,11	6,98	7,40	7,85	6,83	6,84	6,83	6,81	6,76	6,70	6,63	6,55	6,46
Tunisia	10,67	10,40	10,12	9,85	9,58	9,30	9,01	8,72	8,45	8,16	7,94	7,99	7,99	7,99	8,00	8,02	8,04	8,07	8,04	8,02	7,99	7,98	7,97	7,94	7,91	7,88	7,86	7,80	7,77	7,73	7,68	7,63
Turkey	18,60	18,60	18,82	18,74	18,76	18,91	18,81	19,01	19,37	19,77	19,13	18,87	18,25	16,31	17,37	17,00	16,65	15,91	15,81	15,70	14,35	14,20	14,06	13,39	13,06	12,69	12,41	11,98	11,67	11,38	11,09	10,81

Table 1.5a: Gross Production Value (constant 2004-2006 1000 I\$) (1000 Int. \$)

	1961-70	1971-80	1981-90	1991-00	2001	2002	2003	2004	2005	2006	2007	2008	2009
Agriculture (PIN) + (Total)													
Algeria	1,977,835	1,952,600	2,509,671	3,600,907	4,057,115	4,144,704	4,830,065	5,324,779	5,383,008	5,588,501	5,067,481	5,155,511	6,359,240
Egypt	5,067,665	6,421,077	8,623,781	14,221,607	16,901,004	17,733,247	18,532,489	19,278,525	19,564,598	20,631,305	21,859,780	22,159,525	22,908,436
Jordan	321,623	232,807	412,748	700,565	700,799	912,484	866,761	974,559	954,901	1,008,528	1,016,857	1,052,185	1,074,264
Lebanon	449,593	567,170	824,128	1,284,430	1,130,497	1,232,581	1,201,668	1,300,863	1,215,750	1,232,544	1,249,783	1,289,738	1,309,228
Libya	240,598	477,566	722,225	961,364	973,079	1,055,613	1,094,616	1,061,595	1,095,500	1,075,528	1,132,693	1,111,161	1,124,843
Morocco	2,314,570	2,907,030	4,051,672	5,296,170	5,624,354	6,099,621	6,965,868	7,070,836	6,752,929	7,875,038	6,812,710	7,614,890	8,436,467
Syrian Arab Repu	1,484,255	2,240,625	3,510,918	4,692,489	5,705,456	6,651,638	6,306,332	6,596,369	6,969,382	7,287,291	6,445,881	6,014,484	6,641,955
Tunisia	988,743	1,556,605	1,882,679	2,767,435	2,505,184	2,541,298	3,748,062	3,212,303	3,470,723	3,627,488	3,595,042	3,746,994	3,540,230
Turkey	13,552,088	18,254,024	23,882,982	28,817,225	29,452,309	31,318,702	31,658,962	32,012,787	33,804,135	34,444,562	33,103,945	34,367,363	35,225,036
Cereals, Total + (Total)													
Algeria	255,302	276,035	256,004	337,521	395,430	290,608	622,374	585,502	513,187	582,153	518,325	225,866	739,260
Egypt	1,247,075	1,474,815	1,719,261	3,105,439	3,453,739	3,812,095	3,894,271	3,942,150	4,150,646	4,252,229	4,120,953	4,363,003	4,527,845
Jordan	29,219	19,173	13,342	13,646	6,686	15,677	11,401	7,358	14,412	8,798	7,170	5,354	6,963
Lebanon	12,072	9,365	7,286	13,844	23,737	21,387	21,988	25,106	26,844	28,682	22,918	26,844	28,958
Libya	18,631	28,274	41,365	28,908	31,172	31,065	30,992	31,229	33,038	29,904	30,097	29,821	28,924
Morocco	510,017	619,178	755,893	756,249	685,183	769,493	1,156,080	1,249,893	637,298	1,358,997	368,365	791,781	1,499,339
Syrian Arab Repu	219,584	315,924	394,777	694,435	1,012,746	896,671	937,122	809,507	855,794	945,262	757,411	408,959	711,988
Tunisia	127,785	161,057	179,746	249,695	214,026	87,120	360,072	329,810	322,562	247,879	302,147	188,153	379,896
Turkey	2,292,957	3,235,225	4,030,263	4,416,423	4,361,301	4,528,048	4,523,787	5,009,475	5,348,295	5,094,234	4,332,117	4,390,608	5,008,524
Crops (PIN) + (Total)													
Algeria	1,604,307	1,332,844	1,440,776	2,013,382	2,276,181	2,327,199	2,972,738	3,389,912	3,395,876	3,504,952	2,954,038	3,038,389	4,172,383
Egypt	4,337,630	5,450,331	7,160,369	10,782,650	12,876,324	13,512,284	13,685,276	14,471,256	14,780,058	15,939,410	16,297,808	16,710,389	17,448,885
Jordan	270,995	160,228	277,336	427,562	397,872	609,750	534,061	623,382	599,874	654,939	613,524	599,485	667,791
Lebanon	357,110	453,081	643,302	1,053,481	838,040	908,022	864,042	953,564	874,959	900,244	893,120	908,963	926,648
Libya	165,857	327,973	479,460	617,873	590,049	676,219	707,831	659,292	688,157	659,779	676,232	675,767	689,033
Morocco	1,691,179	2,130,057	2,893,468	3,652,770	3,707,529	4,087,921	4,967,627	5,042,325	4,574,129	5,614,268	4,471,268	5,135,026	5,923,840
Syrian Arab Repu	1,098,903	1,725,047	2,520,590	3,428,263	4,233,590	5,065,301	4,593,439	4,680,315	4,897,917	5,146,586	4,117,179	3,993,861	4,600,400
Tunisia	782,096	1,266,979	1,450,984	2,078,075	1,583,731	1,647,808	2,884,517	2,351,036	2,592,106	2,733,873	2,651,077	2,783,426	2,594,652
Turkey	9,767,644	13,618,191	17,901,163	22,126,842	22,841,323	24,932,892	24,432,990	24,605,456	26,222,886	26,607,920	24,636,351	26,034,386	26,659,139
Livestock (PIN) + (Total)													
Algeria	373,528	619,755	1,068,896	1,587,525	1,780,934	1,817,505	1,857,326	1,934,867	1,987,132	2,083,549	2,113,443	2,117,122	2,186,856
Egypt	730,035	970,746	1,463,412	3,438,957	4,024,680	4,220,963	4,847,213	4,807,270	4,784,539	4,691,896	5,561,972	5,449,136	5,459,551
Jordan	50,628	72,579	135,412	273,003	302,927	302,735	332,700	351,177	355,027	353,588	403,333	452,700	406,474
Lebanon	92,482	114,089	180,826	230,950	292,457	324,559	337,626	347,299	340,791	332,300	356,663	380,776	382,580
Libya	74,741	149,593	242,766	343,491	383,030	379,394	386,786	402,303	407,344	415,749	456,461	435,394	435,810
Morocco	623,392	776,973	1,158,204	1,643,400	1,916,825	2,011,700	1,998,241	2,028,511	2,178,801	2,260,770	2,341,443	2,479,864	2,512,627
Syrian Arab Repu	385,351	515,579	990,328	1,264,226	1,471,867	1,586,337	1,712,893	1,916,053	2,071,465	2,140,705	2,328,703	2,020,623	2,041,555
Tunisia	206,647	289,626	431,695	689,359	921,453	893,490	863,545	861,267	878,617	893,615	943,965	963,568	945,577
Turkey	3,784,444	4,635,833	5,981,818	6,690,383	6,610,986	6,385,810	7,225,972	7,407,331	7,581,250	7,836,643	8,467,595	8,332,977	8,565,897
Non Food (PIN) + (Total)													
Algeria	27,264	37,229	53,483	48,059	47,144	47,134	47,154	50,406	58,782	49,947	54,343	58,009	61,484
Egypt	680,887	682,099	584,913	451,250	501,047	437,475	304,890	443,273	315,301	319,544	342,336	167,333	166,587
Jordan	6,468	5,433	9,682	11,449	5,408	10,488	7,322	6,922	7,879	7,877	8,424	8,344	8,515
Lebanon	12,304	12,792	6,762	15,283	23,797	18,921	19,287	21,374	18,233	17,443	19,001	18,409	18,600
Libya	8,380	14,723	15,895	17,369	20,935	21,199	21,788	20,539	20,591	19,400	19,572	19,700	20,227
Morocco	45,753	52,626	77,829	87,449	91,304	92,423	90,636	98,594	109,212	99,392	106,508	107,787	111,013
Syrian Arab Repu	249,117	255,290	301,978	471,329	579,556	452,262	509,212	594,150	606,907	469,892	438,018	451,207	455,319
Tunisia	13,295	20,560	30,246	27,638	25,841	25,297	24,472	23,944	27,616	26,313	26,017	26,129	25,230
Turkey	1,062,957	1,538,698	1,685,083	2,016,430	2,068,199	2,166,804	2,052,741	2,153,686	2,107,376	2,184,556	1,945,813	1,690,308	1,621,325

Source: FAO

Table 1.5b: Gross Production Value (% of total agricultural value)

	1961-70	1971-80	1981-90	1991-00	2001	2002	2003	2004	2005	2006	2007	2008	2009
Agriculture (PIN) + (Total)													
Algeria	1,977,835	1,952,600	2,509,671	3,600,907	4,057,115	4,144,704	4,830,065	5,324,779	5,383,008	5,588,501	5,067,481	5,155,511	6,359,240
Egypt	5,067,665	6,421,077	8,623,781	14,221,607	16,901,004	17,733,247	18,532,489	19,278,525	19,564,598	20,631,305	21,859,780	22,159,525	22,908,436
Jordan	321,623	232,807	412,748	700,565	700,799	912,484	866,761	974,559	954,901	1,008,528	1,016,857	1,052,185	1,074,264
Lebanon	449,593	567,170	824,128	1,284,430	1,130,497	1,232,581	1,201,668	1,300,863	1,215,750	1,232,544	1,249,783	1,289,738	1,309,228
Libya	240,598	477,566	722,225	961,364	973,079	1,055,613	1,094,616	1,061,595	1,095,500	1,075,528	1,132,693	1,111,161	1,124,843
Morocco	2,314,570	2,907,030	4,051,672	5,296,170	5,624,354	6,099,621	6,965,868	7,070,836	6,752,929	7,875,038	6,812,710	7,614,890	8,436,467
Syrian Arab Repu	1,484,255	2,240,625	3,510,918	4,692,489	5,705,456	6,651,638	6,306,332	6,596,369	6,969,382	7,287,291	6,445,881	6,014,484	6,641,955
Tunisia	988,743	1,556,605	1,882,679	2,767,435	2,505,184	2,541,298	3,748,062	3,212,303	3,470,723	3,627,488	3,595,042	3,746,994	3,540,230
Turkey	13,552,088	18,254,024	23,882,982	28,817,225	29,452,309	31,318,702	31,658,962	32,012,787	33,804,135	34,444,562	33,103,945	34,367,363	35,225,036
Cereals, Total + (Total)													
Algeria	12.91	14.14	10.20	9.37	9.75	7.01	12.89	11.00	9.53	10.42	10.23	4.38	11.62
Egypt	24.61	22.97	19.94	21.84	20.44	21.50	21.01	20.45	21.22	20.61	18.85	19.69	19.76
Jordan	9.08	8.24	3.23	1.95	0.95	1.72	1.32	0.76	1.51	0.87	0.71	0.51	0.65
Lebanon	2.69	1.65	0.88	1.08	2.10	1.74	1.83	1.93	2.21	2.33	1.83	2.08	2.21
Libya	7.74	5.92	5.73	3.01	3.20	2.94	2.83	2.94	3.02	2.78	2.66	2.68	2.57
Morocco	22.04	21.30	18.66	14.28	12.18	12.62	16.60	17.68	9.44	12.62	5.41	10.40	17.77
Syrian Arab Repu	14.79	14.10	11.24	14.80	17.75	13.48	14.86	12.27	12.28	12.97	11.75	6.80	10.72
Tunisia	12.92	10.35	9.55	9.02	8.54	3.43	9.61	10.27	9.29	6.83	8.40	5.02	10.73
Turkey	16.92	17.72	16.88	15.33	14.81	14.46	14.29	15.65	15.82	14.79	13.09	12.78	14.22
Crops (PIN) + (Total)													
Algeria	81.11	68.26	57.41	55.91	56.10	56.15	61.55	63.66	63.09	62.72	58.29	58.93	65.61
Egypt	85.59	84.88	83.03	75.82	76.19	76.20	73.84	75.06	75.54	77.26	74.56	75.41	76.17
Jordan	84.26	68.82	67.19	61.03	56.77	66.82	61.62	63.97	62.82	64.94	60.34	56.98	62.16
Lebanon	79.43	79.88	78.06	82.02	74.13	73.67	71.90	73.30	71.97	73.04	71.46	70.48	70.78
Libya	68.94	68.68	66.39	64.27	60.64	64.06	64.66	62.10	62.82	61.34	59.70	60.82	61.26
Morocco	73.07	73.27	71.41	68.97	65.92	67.02	71.31	71.31	67.74	71.29	65.63	67.43	70.22
Syrian Arab Repu	74.04	76.99	71.79	73.06	74.20	76.15	72.84	70.95	70.28	70.62	63.87	66.40	69.26
Tunisia	79.10	81.39	77.07	75.09	63.22	64.84	76.96	73.19	74.68	75.37	73.74	74.28	73.29
Turkey	72.07	74.60	74.95	76.78	77.55	79.61	77.18	76.86	77.57	77.25	74.42	75.75	75.68
Livestock (PIN) + (Total)													
Algeria	18.89	31.74	42.59	44.09	43.90	43.85	38.45	36.34	36.91	37.28	41.71	41.07	34.39
Egypt	14.41	15.12	16.97	24.18	23.81	23.80	26.16	24.94	24.46	22.74	25.44	24.59	23.83
Jordan	15.74	31.18	32.81	38.97	43.23	33.18	38.38	36.03	37.18	35.06	39.66	43.02	37.84
Lebanon	20.57	20.12	21.94	17.98	25.87	26.33	28.10	26.70	28.03	26.96	28.54	29.52	29.22
Libya	31.06	31.32	33.61	35.73	39.36	35.94	35.34	37.90	37.18	38.66	40.30	39.18	38.74
Morocco	26.93	26.73	28.59	31.03	34.08	32.98	28.69	28.69	32.26	28.71	34.37	32.57	29.78
Syrian Arab Repu	25.96	23.01	28.21	26.94	25.80	23.85	27.16	29.05	29.72	29.38	36.13	33.60	30.74
Tunisia	20.90	18.61	22.93	24.91	36.78	35.16	23.04	26.81	25.32	24.63	26.26	25.72	26.71
Turkey	27.93	25.40	25.05	23.22	22.45	20.39	22.82	23.14	22.43	22.75	25.58	24.25	24.32
Non Food (PIN) + (Total)													
Algeria	1.38	1.91	2.13	1.33	1.16	1.14	0.98	0.95	1.09	0.89	1.07	1.13	0.97
Egypt	13.44	10.62	6.78	3.17	2.96	2.47	1.65	2.30	1.61	1.55	1.57	0.76	0.73
Jordan	2.01	2.33	2.35	1.63	0.77	1.15	0.84	0.71	0.83	0.78	0.83	0.79	0.79
Lebanon	2.74	2.26	0.82	1.19	2.11	1.54	1.61	1.64	1.50	1.42	1.52	1.43	1.42
Libya	3.48	3.08	2.20	1.81	2.15	2.01	1.99	1.93	1.88	1.80	1.73	1.77	1.80
Morocco	1.98	1.81	1.92	1.65	1.62	1.52	1.30	1.39	1.62	1.26	1.56	1.42	1.32
Syrian Arab Repu	16.78	11.39	8.60	10.04	10.16	6.80	8.07	9.01	8.71	6.45	6.80	7.50	6.86
Tunisia	1.34	1.32	1.61	1.00	1.03	1.00	0.65	0.75	0.80	0.73	0.72	0.70	0.71
Turkey	7.84	8.43	7.06	7.00	7.02	6.92	6.48	6.73	6.23	6.34	5.88	4.92	4.60

Source: FAO

Table 1.6: Agricultural areas (1000 Ha)

	1985-90	1991-99	2000-05	2006-10
Agricultural area				
Algeria	38,795	39,391	40,374	41,267
Egypt	2,569	3,187	3,411	3,576
Jordan	1,126	1,072	1,029	995
Lebanon	603	609	621	688
Libya	15,440	15,512	15,495	15,550
Morocco	29,785	30,769	30,369	29,986
Syrian Arab Republic	13,750	13,717	13,790	13,895
Tunisia	8,672	9,359	9,709	9,820
Turkey	39,146	39,817	40,953	39,508
Arable land				
Algeria	18.15	19.14	18.70	18.13
Egypt	89.55	86.37	83.23	74.78
Jordan	24.23	19.15	18.60	17.11
Lebanon	31.66	28.91	21.28	21.05
Libya	11.65	12.05	11.57	11.25
Morocco	27.61	29.11	28.01	26.88
Syrian Arab Republic	35.79	34.73	33.63	33.78
Tunisia	34.28	30.81	28.70	28.10
Turkey	63.19	61.55	58.07	55.60
Permanent crops				
Algeria	1.44	1.33	1.72	2.24
Egypt	10.45	13.63	16.77	25.22
Jordan	5.51	7.10	8.46	8.30
Lebanon	18.56	21.52	22.79	20.79
Libya	2.21	2.21	2.16	1.93
Morocco	2.22	2.75	2.84	3.09
Syrian Arab Republic	4.83	5.39	6.12	6.88
Tunisia	21.84	21.67	22.07	22.45
Turkey	7.60	6.89	6.45	7.40
Permanent meadows and pastures				
Algeria	80.40	79.53	79.58	79.63
Egypt	0.00	0.00	0.00	0.00
Jordan	70.26	73.76	72.94	74.60
Lebanon	49.78	49.57	55.94	58.16
Libya	86.14	85.74	86.26	86.82
Morocco	70.17	68.14	69.15	70.03
Syrian Arab Republic	59.38	59.89	60.25	59.34
Tunisia	43.88	47.52	49.22	49.45
Turkey	29.21	31.56	35.48	37.00

Source: FAO

Table 1.7: Harvested areas of main crops (ha)

	1985-90	1991-99	2000-05	2006-10
Cereals				
Algeria	2,600,272	2,557,723	2,259,735	2,639,310
Egypt	1,998,558	2,595,766	2,761,246	3,034,620
Jordan	107,485	82,947	53,435	53,483
Lebanon	36,121	44,165	58,025	68,087
Libya	429,891	275,902	365,166	340,662
Morocco	5,252,166	5,288,539	5,375,275	5,250,163
Syrian Arab Republic	3,266,569	3,456,120	3,112,534	2,925,097
Tunisia	1,262,265	1,333,723	1,138,096	1,086,545
Turkey	13,670,764	13,948,854	13,783,822	12,208,561
Fibre Crops Primary				
Algeria	101	96	127	170
Egypt	447,080	352,094	281,694	185,649
Jordan	0	0	0	0
Lebanon	0	0	0	0
Libya	0	0	0	0
Morocco	17,372	5,217	2,962	3,936
Syrian Arab Republic	154,772	217,905	234,072	189,966
Tunisia	200	1,702	2,000	2,189
Turkey	659,409	676,354	647,918	502,987
Fruit excl Melons				
Algeria	321,970	295,900	359,834	475,159
Egypt	271,979	363,293	412,262	482,610
Jordan	17,953	20,893	22,398	21,360
Lebanon	70,948	76,368	70,786	73,343
Libya	50,477	58,447	57,544	62,068
Morocco	233,739	276,935	288,862	306,406
Syrian Arab Republic	214,716	184,413	176,231	187,048
Tunisia	146,645	182,318	204,016	211,387
Turkey	1,016,408	1,022,366	1,024,677	1,053,420
Oilcrops Primary				
Algeria	202,880	184,237	229,102	304,063
Egypt	532,434	483,201	448,746	415,865
Jordan	35,428	54,848	64,404	61,411
Lebanon	41,384	49,127	59,841	61,212
Libya	68,258	104,896	152,430	212,231
Morocco	458,716	584,085	625,463	664,751
Syrian Arab Republic	545,125	690,245	770,816	852,314
Tunisia	1,355,014	1,431,507	1,613,545	1,966,460
Turkey	2,119,951	1,987,052	1,947,902	1,950,396
Pulses				
Algeria	136,304	94,036	65,814	66,103
Egypt	188,230	177,823	145,972	115,311
Jordan	8,679	8,920	3,479	2,899
Lebanon	14,287	16,751	9,418	8,327
Libya	9,776	10,937	6,557	4,990
Morocco	514,921	386,284	391,832	385,649
Syrian Arab Republic	242,258	240,702	283,304	257,242
Tunisia	108,929	103,059	92,704	114,033
Turkey	1,975,913	1,865,910	1,469,239	1,023,864
Roots and Tubers				
Algeria	100,945	85,659	82,097	101,025
Egypt	85,425	100,854	106,995	143,363
Jordan	2,003	3,562	4,018	4,852
Lebanon	12,016	13,960	16,722	20,915
Libya	16,667	13,131	11,020	14,997
Morocco	48,333	61,320	61,846	52,070
Syrian Arab Republic	21,543	22,274	24,947	34,445
Tunisia	15,400	18,733	22,610	24,500
Turkey	195,051	202,623	188,827	148,595
Treenuts				
Algeria	22,158	25,780	36,754	41,865
Egypt	1,567	2,119	6,548	6,711
Jordan	579	412	480	346
Lebanon	2,025	4,774	7,804	7,412
Libya	52,827	56,379	51,306	52,000
Morocco	104,792	133,575	141,044	139,759
Syrian Arab Republic	30,344	39,068	69,330	77,960
Tunisia	167,567	199,009	203,504	224,305
Turkey	449,194	468,541	523,637	600,696
Vegetables&Melons				
Algeria	215,122	233,903	256,843	285,026
Egypt	416,382	439,146	608,442	746,725
Jordan	30,317	30,819	30,932	36,091
Lebanon	37,507	43,347	27,496	26,751
Libya	52,149	54,282	56,173	60,300
Morocco	138,502	158,180	180,049	195,252
Syrian Arab Republic	217,030	129,811	120,088	140,760
Tunisia	111,374	130,676	126,307	133,961
Turkey	786,905	903,452	1,037,362	1,048,856

Source: FAO

Table 1.8: Production of main crops (t)

	1985-90	1991-99	2000-05	2006-10
Cereals, Total + (Total)				
Algeria	2,010,034	2,502,004	2,895,748	3,819,276
Egypt	10,112,839	16,280,795	20,464,545	21,975,271
Jordan	95,784	101,154	75,842	61,564
Lebanon	63,536	90,145	150,838	178,396
Libya	278,840	195,231	220,908	214,989
Morocco	6,522,822	5,613,863	5,457,903	7,070,991
Syrian Ara	2,919,551	4,823,072	5,584,380	4,685,135
Tunisia	1,259,991	1,729,361	1,612,942	1,718,297
Turkey	28,287,853	29,819,965	32,309,294	31,895,416
Fibre Crops Primary + (Total)				
Algeria	21	25	25	20
Egypt	379,483	318,094	268,085	164,346
Jordan	0	0	0	0
Lebanon	0	0	0	0
Libya	0	0	0	0
Morocco	10,637	3,674	2,105	1,614
Syrian Ara	157,559	260,898	311,983	228,800
Tunisia	97	1,020	1,037	780
Turkey	587,674	725,608	917,735	725,332
Fruit excl Melons, Total + (Total)				
Algeria	1,069,378	1,222,581	1,812,988	2,786,046
Egypt	3,714,657	5,756,526	7,736,744	9,632,669
Jordan	185,347	268,101	276,714	271,655
Lebanon	1,010,699	1,195,415	886,496	949,073
Libya	286,532	324,852	355,475	367,711
Morocco	1,990,256	2,427,932	2,574,804	2,947,037
Syrian Ara	1,203,240	1,633,452	1,755,556	2,133,984
Tunisia	679,224	835,064	1,027,268	1,171,837
Turkey	8,569,847	9,866,806	11,205,301	13,136,437
Oilcrops Primary + (Total)				
Algeria	64,145	61,154	69,369	91,461
Egypt	152,188	197,518	230,231	255,686
Jordan	8,540	15,645	28,372	29,867
Lebanon	12,597	19,571	30,844	25,422
Libya	22,614	40,498	43,785	46,219
Morocco	149,805	156,459	152,620	224,874
Syrian Ara	128,510	198,356	279,318	275,502
Tunisia	126,063	196,925	159,230	226,805
Turkey	818,131	787,001	901,097	1,012,640
Pulses, Total + (Total)				
Algeria	51,616	48,329	44,553	53,387
Egypt	453,234	487,431	439,347	359,840
Jordan	7,161	6,736	4,357	3,075
Lebanon	20,220	31,177	13,223	11,309
Libya	11,010	14,784	10,161	8,102
Morocco	392,021	231,121	204,681	251,115
Syrian Ara	175,833	195,871	270,686	232,908
Tunisia	64,545	71,796	67,272	106,753
Turkey	1,956,152	1,751,130	1,519,720	1,306,339
Roots and Tubers, Total + (Total)				
Algeria	873,169	1,045,535	1,573,522	2,356,988
Egypt	1,845,988	2,183,688	2,606,953	3,663,419
Jordan	45,806	84,852	127,260	138,170
Lebanon	219,926	301,061	393,599	504,241
Libya	124,167	172,778	216,116	296,266
Morocco	844,882	1,067,614	1,332,606	1,486,957
Syrian Ara	354,800	416,851	514,693	678,924
Tunisia	180,667	250,444	320,833	357,800
Turkey	4,185,543	4,917,322	4,960,160	4,357,612
Treenuts, Total + (Total)				
Algeria	10,019	21,948	33,428	43,799
Egypt	4,308	6,111	32,184	31,259
Jordan	1,135	1,302	1,958	1,850
Lebanon	12,740	28,851	29,783	33,888
Libya	28,297	29,218	26,982	27,600
Morocco	42,976	56,404	80,712	106,108
Syrian Ara	54,820	73,842	177,106	162,744
Tunisia	42,993	48,652	41,061	60,321
Turkey	605,210	727,881	781,005	997,231
Vegetables&Melons, Total + (Total)				
Algeria	1,695,101	2,445,153	3,354,704	4,141,894
Egypt	9,548,792	10,949,105	15,031,424	19,513,118
Jordan	670,596	811,188	1,028,758	1,396,704
Lebanon	636,719	1,017,830	840,409	808,499
Libya	647,716	775,362	877,217	883,888
Morocco	2,408,231	3,022,586	4,145,007	5,405,543
Syrian Ara	2,432,683	1,789,550	2,451,399	2,917,092
Tunisia	1,326,529	1,681,112	2,191,524	2,624,510
Turkey	16,840,195	21,071,935	25,371,282	26,198,753

Source: FAO

Table 1.9: Gross Production Value for selected commodities (constant 2004-2006 1000 I\$)

	2004	2005	2006	2007	2008	2009
Barley						
Algeria	144,159	122,887	147,048	141,191	47,108	262,160
Egypt	19,404	19,872	18,192	21,220	17,757	17,403
Jordan	2,496	3,783	2,193	1,578	1,229	2,030
Lebanon	2,832	3,451	3,784	3,938	3,451	4,045
Libya	10,114	11,898	11,898	11,898	11,898	11,779
Morocco	328,431	131,134	301,629	90,730	161,011	452,132
Syrian Arab Republic	62,727	91,309	143,064	93,339	31,066	100,619
Tunisia	46,998	55,327	42,120	63,667	30,221	101,135
Turkey	1,070,838	1,130,329	1,136,397	869,378	704,730	868,569
Cotton lint						
Algeria	39	34	29	27	29	29
Egypt	417,328	288,699	300,133	317,283	142,920	142,920
Morocco	100	90	77	74	100	100
Syrian Arab Republic	473,067	475,782	343,009	302,420	316,712	320,571
Tunisia	1,628	1,474	1,258	1,208	1,031	1,036
Turkey	1,337,632	1,234,404	1,395,675	1,240,143	961,854	912,190
Dates						
Algeria	226,038	263,673	250,852	269,101	282,299	306,778
Egypt	595,573	597,524	678,583	670,912	677,260	689,450
Jordan	2,078	1,591	2,025	3,336	3,798	4,944
Libya	76,606	77,709	76,606	76,606	76,606	81,764
Morocco	35,443	24,258	23,222	37,945	37,128	36,771
Syrian Arab Republic	1,788	1,805	1,665	1,762	1,780	921
Tunisia	62,306	57,710	63,838	63,327	64,859	74,052
Turkey	8,682	9,193	9,855	12,110	12,411	12,911
Maize						
Algeria	96	163	348	233	144	82
Egypt	883,443	1,003,723	903,015	884,446	927,005	934,989
Jordan	2,097	4,363	2,047	2,125	2,726	2,799
Lebanon	468	482	439	439	482	510
Libya	510	510	435	435	425	418
Morocco	31,751	7,100	42,128	13,438	17,134	21,250
Syrian Arab Republic	29,773	26,520	22,515	25,080	39,850	25,961
Turkey	424,995	594,993	539,885	500,786	605,476	602,076
Olives						
Algeria	375,370	253,414	211,973	167,309	203,432	380,480
Egypt	252,376	248,218	400,352	405,999	384,394	400,352
Jordan	128,703	90,536	117,566	100,111	75,321	112,674
Lebanon	133,958	61,254	141,965	61,014	66,458	66,859
Libya	144,127	142,433	144,127	144,127	144,127	136,829
Morocco	400,352	600,527	505,412	527,743	612,842	616,541
Syrian Arab Republic	822,482	490,209	953,461	396,596	662,208	709,376
Tunisia	520,457	840,738	975,256	799,102	947,232	600,527
Turkey	1,281,125	960,844	1,414,642	861,436	1,172,429	1,033,427
Oranges						
Algeria	80,618	84,113	91,692	94,873	97,207	120,997
Egypt	357,533	345,739	409,717	397,074	413,269	425,168
Jordan	7,939	8,534	8,877	6,090	6,934	8,271
Lebanon	45,222	45,532	44,643	44,198	44,198	44,449
Libya	8,571	8,771	8,310	8,697	8,996	9,992
Morocco	139,011	161,370	152,326	173,932	240,529	231,910
Syrian Arab Republic	95,759	87,469	107,084	116,521	127,106	133,300
Tunisia	19,519	19,596	24,447	27,249	33,047	32,854
Turkey	251,235	279,258	296,808	275,773	275,810	326,591
Sugar beet						
Egypt	123,044	147,518	167,968	234,779	220,773	220,813
Lebanon	3,648	3,407	1,506	1,329	1,592	1,592
Morocco	137,215	142,012	109,758	106,847	125,846	125,846
Syrian Arab Republic	52,376	47,161	61,850	58,777	47,526	31,517
Turkey	581,420	653,004	621,647	534,006	666,214	743,054
Sugar cane						
Egypt	532,958	535,811	546,943	558,699	540,822	558,229
Morocco	28,640	25,688	32,739	30,665	29,967	29,967
Tobacco, unmanufactured						
Algeria	12,105	10,353	10,973	9,625	10,152	12,213
Jordan	3,233	3,345	3,286	3,259	3,108	3,123
Lebanon	17,520	14,335	13,698	14,972	14,276	14,351
Libya	2,389	2,416	2,373	2,354	2,244	2,255
Morocco	3,929	3,007	3,186	3,010	3,010	3,186
Syrian Arab Republic	41,320	45,983	39,660	38,332	32,779	31,666
Tunisia	3,162	4,855	5,575	4,113	4,055	2,548
Turkey	213,292	215,417	156,309	118,795	148,769	135,385
Wheat						
Algeria	430,855	381,001	424,107	365,890	175,301	465,949
Egypt	1,132,537	1,284,497	1,305,525	1,164,273	1,258,635	1,344,776
Jordan	2,077	5,422	3,618	3,313	1,236	1,970
Lebanon	21,585	22,673	24,204	18,334	22,673	24,141
Libya	19,723	19,723	16,409	16,409	16,409	15,778
Morocco	874,087	480,143	998,249	249,711	594,751	1,009,805
Syrian Arab Republic	715,930	736,645	778,181	637,613	337,543	584,074
Tunisia	271,701	256,664	197,322	227,648	145,002	260,908
Turkey	3,313,422	3,392,313	3,157,218	2,719,215	2,805,680	3,250,309

Source: FAO

Table 1.10: Yield (Hg/Ha)

	1961-65	1966-70	1970-75	1976-80	1981-85	1986-90	1991-95	1996-00	2001-05	2006-10
Cereals										
Algeria	6,201	5,986	6,193	6,019	6,558	7,239	8,758	9,835	12,962	14,027
Egypt	33,168	36,757	39,523	39,886	43,024	51,314	58,544	68,697	74,325	72,393
Jordan	6,642	5,476	6,452	4,617	5,878	9,363	12,747	16,386	13,841	12,105
Lebanon	10,357	9,240	11,673	10,392	12,348	18,008	21,832	20,371	26,361	26,242
Libya	2,536	2,800	4,617	3,848	6,503	6,586	7,009	7,033	5,987	6,313
Morocco	8,226	8,735	9,779	9,432	8,676	12,643	9,511	9,506	11,386	13,283
Syrian Arab Republic	7,985	6,830	7,858	9,331	9,155	9,454	13,568	13,864	19,262	16,037
Tunisia	6,717	6,458	8,380	7,253	8,885	9,273	12,541	11,847	14,994	15,837
Turkey	11,451	12,597	14,347	18,314	19,182	20,959	21,135	21,966	23,505	26,125
European Union	21,902	25,903	31,224	33,772	38,836	41,949	41,971	46,115	47,699	48,976
World	14,423	16,869	18,992	21,202	23,905	25,882	27,553	30,342	31,963	34,715
Fibre Crops Primary										
Algeria	1,979	1,626	2,624	2,468	2,100	2,080	2,509	2,556	1,933	1,170
Egypt	6,280	7,039	7,593	8,690	9,929	8,169	9,307	8,918	9,331	8,710
Morocco	3,796	4,008	4,486	4,561	6,034	6,175	7,512	7,274	7,123	4,121
Syrian Arab Republic	5,497	5,409	6,968	8,341	9,810	10,208	11,163	12,773	13,442	12,123
Tunisia	3,915	3,609	943	0	0	2,867	6,577	5,194	5,219	3,612
Turkey	4,303	6,291	7,410	7,720	8,036	9,139	10,264	11,640	14,381	14,308
European Union	5,399	6,479	7,082	7,693	8,141	9,165	10,270	10,523	11,408	15,139
World	4,157	4,367	4,581	4,659	5,552	6,129	6,348	6,395	7,282	8,048
Fruit excl Melons, Total										
Algeria	45,924	38,732	37,609	29,688	30,215	33,255	38,547	45,532	50,533	58,458
Egypt	137,600	122,475	137,362	131,601	144,051	136,015	151,069	167,594	191,780	200,284
Jordan	43,704	57,762	55,084	73,205	118,156	105,901	146,266	111,333	128,111	127,034
Lebanon	88,982	109,160	137,360	130,542	130,142	142,857	164,695	139,807	126,312	129,558
Libya	160,194	209,672	178,119	164,125	149,974	56,973	55,336	56,601	62,224	59,232
Morocco	121,310	155,878	182,050	199,070	183,840	87,049	86,559	90,317	88,071	96,240
Syrian Arab Republic	31,263	28,895	30,583	36,000	45,811	56,944	80,030	101,335	100,098	114,038
Tunisia	48,131	38,166	43,994	46,055	45,474	47,064	44,272	48,465	50,064	55,398
Turkey	42,511	50,347	54,663	61,034	77,139	85,627	93,423	101,875	109,619	124,642
European Union	72,082	83,716	89,284	92,038	98,425	89,998	89,693	95,993	98,639	99,538
World	74,626	81,924	84,428	88,491	91,273	85,703	87,144	93,467	98,166	106,010
Oilcrops Primary										
Algeria	72,414	40,921	2,342	1,861	2,686	3,182	2,882	3,733	2,956	2,966
Egypt	2,082	2,117	2,310	2,642	3,053	2,829	3,878	4,620	5,040	6,189
Jordan	2,319	2,927	1,540	2,133	2,229	2,571	2,934	3,147	4,358	4,859
Lebanon	4,109	3,464	3,509	3,903	2,794	3,167	3,811	4,851	4,688	4,147
Libya	16,866	38,481	40,752	43,914	40,980	3,029	3,591	3,848	3,068	2,178
Morocco	1,954	1,962	2,034	2,077	2,672	3,359	2,434	2,794	2,566	3,312
Syrian Arab Republic	1,682	1,657	1,983	2,460	2,394	2,441	2,595	3,359	3,529	3,243
Tunisia	805	890	1,188	886	828	935	1,175	1,448	958	1,154
Turkey	2,042	2,601	2,920	3,459	3,309	3,966	3,761	4,380	4,531	5,188
European Union	5,824	6,461	6,535	6,633	5,684	6,116	6,080	6,734	7,410	8,226
World	2,316	2,578	2,751	3,001	3,414	3,874	4,255	4,754	5,356	6,117
Pulses										
Algeria	4,531	4,944	5,663	5,871	3,436	3,827	4,870	5,140	7,363	8,029
Egypt	16,776	18,614	21,440	20,245	20,274	24,822	27,014	28,625	30,298	31,166
Jordan	5,902	6,265	6,942	4,632	7,075	8,634	7,641	8,731	12,536	10,533
Lebanon	10,387	8,161	8,095	9,002	9,948	14,444	19,236	16,253	13,993	13,720
Libya	3,479	4,337	11,810	10,874	10,982	11,254	12,233	15,492	15,628	16,235
Morocco	6,012	7,692	8,582	6,211	6,253	7,651	5,672	5,553	5,644	6,453
Syrian Arab Republic	7,653	7,316	6,863	7,732	8,083	7,350	8,392	7,357	10,122	9,180
Tunisia	4,492	3,734	5,019	5,779	5,644	5,867	6,634	7,123	7,453	9,304
Turkey	10,381	10,835	11,244	11,536	10,448	9,899	9,345	9,252	10,818	12,801
European Union	5,757	6,791	7,453	8,695	13,052	23,899	27,873	26,577	24,991	24,789
World	6,439	6,442	6,633	6,883	7,253	8,046	7,950	8,161	8,392	8,650
Vegetables&Melons										
Algeria	88,539	73,402	66,980	56,172	61,871	80,709	99,233	111,249	132,955	145,269
Egypt	181,046	180,778	179,702	189,006	211,199	229,389	248,893	248,172	248,471	261,209
Jordan	85,729	84,410	88,096	114,708	148,575	238,207	267,796	267,210	335,964	388,896
Lebanon	116,619	110,998	118,752	131,599	157,377	170,680	199,744	302,335	304,261	302,171
Libya	98,079	106,962	95,912	104,568	127,275	124,774	135,076	147,833	164,783	146,541
Morocco	82,898	97,343	116,557	130,306	135,708	177,924	182,596	200,561	234,732	277,093
Syrian Arab Republic	70,297	66,762	92,538	105,856	116,989	114,889	127,300	161,640	206,534	207,152
Tunisia	90,748	87,474	101,959	106,131	114,474	119,471	124,693	140,139	174,706	196,060
Turkey	132,511	143,634	147,813	173,168	184,435	215,608	228,566	239,995	244,142	250,381
European Union	114,303	143,838	163,559	171,989	194,048	202,472	212,709	233,524	253,263	262,704
World	96,623	107,995	116,243	125,138	134,780	142,081	149,724	157,891	170,506	184,462

Source: FAO

Table 1.11: Gross Production Value per agricultural worker (constant 2004-2006 1000 I\$)

	1980-85	1986-90	1990-95	1996-2000	2001-05	2006-09	% change
Algeria	1,848	2,191	2,260	2,139	2,279	2,468	33.54
Egypt	1,310	1,668	2,457	3,178	3,540	4,106	213.50
Jordan	5,476	6,559	7,607	8,083	10,552	12,569	129.54
Lebanon	8,055	14,121	23,601	29,567	37,941	50,497	526.92
Libya	5,076	7,135	9,860	13,341	15,544	19,681	287.73
Morocco	1,344	1,882	1,948	2,182	2,659	3,246	141.44
Syria	6,027	5,251	4,895	6,258	6,572	6,662	10.53
Tunisia	3,088	3,778	4,475	5,139	5,152	5,752	86.28
Turkey	3,135	3,182	3,385	3,855	4,338	5,102	62.73
World	1,730	1,770	1,828	1,979	2,124	2,315	33.77
Europe	10,670	12,399	14,557	16,783	19,803	22,803	113.72

Source: FAOSTAT

Table 1.12: Livestock Gross Production Value (constant 2004-2006 1000 I\$)

	1961-70	1971-80	1981-90	1991-00	2000-09	% change
Algeria	373,528	619,755	1,068,896	1,587,525	1,986,526	431.8
Egypt	730,035	970,746	1,463,412	3,438,957	4,871,913	567.4
Jordan	50,628	72,579	135,412	273,003	362,296	615.6
Lebanon	92,482	114,089	180,826	230,950	343,895	271.8
Libya	74,741	149,593	242,766	343,491	411,363	450.4
Morocco	623,392	776,973	1,158,204	1,643,400	2,192,087	251.6
Syrian Ara	385,351	515,579	990,328	1,264,226	1,921,133	398.5
Tunisia	206,647	289,626	431,695	689,359	907,233	339.0
Turkey	3,784,444	4,635,833	5,981,818	6,690,383	7,601,607	100.9

Source: FAOSTAT

Table 1.13: Production (in tonnes) of main livestock products

	1961-70	1971-80	1981-90	1991-00	2001-10	%change 1980-2010
Meat, Total						
Algeria	93,382	150,860	325,535	507,614	578,505	178
Egypt	331,246	402,411	643,143	1,062,141	1,527,310	237
Jordan	14,681	28,685	58,402	110,674	160,466	275
Lebanon	50,175	44,281	81,673	116,408	193,504	237
Libya	28,243	85,386	135,640	155,592	157,429	116
Morocco	172,097	214,214	322,673	527,148	777,255	241
Syrian Ara	61,963	101,799	210,627	276,248	409,144	194
Tunisia	55,496	85,492	127,340	196,561	258,347	203
Turkey	500,636	667,613	1,012,542	1,210,686	1,665,763	165
Beef and Buffalo Meat						
Algeria	25,680	44,814	66,701	104,375	121,650	182
Egypt	189,406	230,100	261,569	434,258	610,613	233
Jordan	1,549	1,560	1,505	3,820	13,168	875
Lebanon	15,606	8,761	15,107	31,054	50,699	336
Libya	3,852	20,994	31,560	24,920	7,839	25
Morocco	76,977	91,780	124,294	131,410	164,400	132
Syrian Ara	10,276	15,745	31,614	37,427	56,080	177
Tunisia	16,900	26,940	35,865	50,530	55,450	155
Turkey	120,199	132,097	311,609	335,074	344,278	110
Poultry Meat						
Algeria	20,762	38,600	147,612	218,156	261,210	177
Egypt	77,586	97,991	235,150	442,243	722,141	307
Jordan	3,464	19,607	48,780	93,651	130,103	267
Lebanon	14,411	24,012	54,264	70,540	127,628	235
Libya	1,078	14,647	47,611	88,568	108,225	227
Morocco	27,548	45,380	96,580	221,060	416,642	431
Syrian Ara	11,717	26,461	76,453	93,821	170,125	223
Tunisia	9,707	25,696	45,567	80,333	128,575	282
Turkey	77,089	176,600	324,281	501,719	996,015	307
Sheep and Goat Meat						
Algeria	40,657	59,113	101,739	174,998	184,372	181
Egypt	37,911	44,580	74,830	84,715	66,885	89
Jordan	9,025	6,662	7,540	12,786	16,805	223
Lebanon	19,722	10,809	10,032	11,058	13,940	139
Libya	14,634	41,516	48,469	35,652	36,753	76
Morocco	61,312	69,002	83,584	131,135	141,467	169
Syrian Ara	39,695	59,015	101,849	144,187	181,918	179
Tunisia	25,439	29,241	40,475	54,600	63,285	156
Turkey	296,100	353,094	372,200	369,900	322,563	87
Milk						
Algeria	411,572	677,728	901,080	1,179,071	1,874,485	208
Egypt	1,278,420	1,781,895	2,098,986	3,028,375	4,988,367	238
Jordan	49,481	47,165	58,663	166,616	292,442	499
Lebanon	92,918	92,190	113,516	196,737	258,081	227
Libya	46,529	90,000	135,190	169,256	221,238	164
Morocco	428,103	602,748	863,900	1,059,783	1,570,135	182
Syrian Ara	504,312	620,974	1,165,344	1,483,355	2,214,472	190
Tunisia	172,110	231,557	340,287	644,776	1,001,255	294
Turkey	7,129,181	8,446,086	9,549,650	10,277,225	11,297,528	118
Eggs Primary						
Algeria	9,950	16,685	71,800	106,800	172,054	240
Egypt	46,818	70,037	130,577	155,008	271,558	208
Jordan	5,181	10,299	25,386	48,482	44,795	176
Lebanon	18,770	27,178	44,720	33,928	45,252	101
Libya	1,397	7,867	22,705	45,199	61,234	270
Morocco	39,825	58,970	116,680	198,120	229,914	197
Syrian Ara	13,315	35,105	79,603	107,925	166,761	209
Tunisia	9,875	20,940	49,360	66,045	84,575	171
Turkey	76,502	160,087	294,786	623,975	757,669	257
Cheese (All Kinds)						
Algeria	253	671	952	1,164	1,540	162
Egypt	166,540	199,660	245,225	362,125	748,767	305
Jordan	2,560	2,112	2,051	3,989	6,260	305
Lebanon	6,962	6,974	8,587	15,183	19,856	231
Libya						
Morocco	3,975	4,986	6,345	16,577	34,303	541
Syrian Ara	28,055	32,410	58,465	76,148	115,460	197
Tunisia	1,203	1,154	1,931	2,937	3,885	201
Turkey	83,968	112,450	136,806	137,559	140,662	103

Source: FAOSTAT

Table 1.14: Breakdown of agricultural labour by gender

	1980-89	1990-99	2000-05	2006-10		1980-89	1990-99	2000-05	2006-10
Total economically active population in Agr (1000)					Male economically active population in Agr (% male active population)				
Algeria	1,728	2,288	2,871	3,120	Algeria	22.4	17.3	16.2	15.5
Egypt	6,767	6,282	6,453	6,620	Egypt	40.9	29.5	24.4	21.2
Jordan	87	123	115	115	Jordan	10.4	7.4	4.6	3.3
Lebanon	100	60	42	32	Lebanon	9.7	4.7	2.7	1.9
Libya	166	116	95	77	Libya	11.9	4.9	2.4	1.4
Morocco	3,199	3,348	3,234	3,089	Morocco	41.8	30.3	23.3	19.1
Syrian Ara	778	1,054	1,226	1,316	Syrian Ara	24.2	18.2	13.5	10.9
Tunisia	679	708	769	796	Tunisia	28.2	21.8	20.4	19.4
Turkey	9,245	9,956	8,967	8,295	Turkey	41.9	33.7	26.5	22.2
Male economically active population in Agr (1000)					Female economically active population in Agr (% female active population)				
Algeria	959	1,133	1,384	1,486	Algeria	63.3	50.9	41.5	35.1
Egypt	4,615	4,056	4,007	3,976	Egypt	71.4	55.7	47.1	41.3
Jordan	52	69	54	46	Jordan	49.6	35.8	28.5	23.8
Lebanon	70	40	28	21	Lebanon	15.3	7.2	4.1	2.7
Libya	103	58	36	24	Libya	45.3	21.2	13.6	9.7
Morocco	2,191	2,036	1,835	1,644	Morocco	67.8	59.8	54.4	50.5
Syrian Ara	503	570	580	548	Syrian Ara	73.4	66.0	60.9	57.3
Tunisia	475	464	504	528	Tunisia	47.5	37.4	30.5	26.1
Turkey	5,195	5,157	4,448	4,000	Turkey	85.2	79.3	73.1	68.2
Female economically active population in Agr (1000)					Female economically active population in Agr (% total active in agriculture)				
Algeria	769	1,155	1,487	1,634	Algeria	44.5	50.5	51.8	52.4
Egypt	2,152	2,226	2,446	2,644	Egypt	31.8	35.4	37.9	39.9
Jordan	36	53	61	69	Jordan	40.7	43.6	53.2	59.9
Lebanon	30	19	14	10	Lebanon	29.9	32.4	33.2	32.9
Libya	63	58	60	53	Libya	37.9	49.7	62.7	68.4
Morocco	1,007	1,312	1,399	1,445	Morocco	31.5	39.2	43.3	46.8
Syrian Ara	275	484	646	769	Syrian Ara	35.3	45.9	52.7	58.4
Tunisia	204	244	266	267	Tunisia	30.0	34.5	34.5	33.6
Turkey	4,050	4,799	4,518	4,295	Turkey	43.8	48.2	50.4	51.8
					Female economically active population (% total active)				
					Algeria	22.1	25.7	29.6	32.7
					Egypt	21.1	22.5	24.0	25.4
					Jordan	12.5	13.7	15.5	17.1
					Lebanon	21.3	23.8	25.1	25.8
					Libya	13.8	18.6	22.6	24.3
					Morocco	22.1	24.6	24.6	24.9
					Syrian Ara	15.3	19.0	19.8	21.0
					Tunisia	20.3	23.5	26.0	27.3
					Turkey	27.7	28.3	26.9	25.9

Source: FAOSTAT

Table 1.15a: Agricultural machinery, tractors per 100 sq. km of arable land

	1961-69	1970-79	1980-89	1990-99	2000-08	% change
Algeria	51.1	62.5	97.0	124.3	132.4	159.4
Egypt	56.5	86.7	205.9	282.6	350.7	520.3
Jordan	65.4	123.4	181.1	305.6	320.0	389.1
Lebanon	88.1	124.9	149.9	276.3	n.a	n.a
Libya	18.1	69.0	150.6	193.9	218.9	1111.2
Morocco	13.0	22.7	40.0	46.4	n.a	n.a
Syria	11.7	29.4	85.1	167.2	224.7	1823.2
Tunisia	46.4	71.0	84.7	105.2	129.0	177.8
Turkey	25.8	92.4	226.9	322.9	427.9	1556.4
EU	374.2	572.6	735.6	768.5	752.9	101.2
World	113.3	149.1	190.4	189.7	n.a	n.a

Source: World Bank

Table 1.15b: Agricultural machinery , in use number

	1961-69	1970-79	1989.00	1980-89	1990-99	2000-08
Agricultural tractors						
Algeria	31,933	41,699	79,809	67,454	93,099	99,642
Egypt	14,552	22,275	55,000	47,439	76,903	96,298
Jordan	1,815	3,591	5,800	5,129	6,105	n.a
Lebanon	1,795	2,905	3,000	3,000	4,698	n.a
Libya	3,102	12,025	29,696	26,843	36,068	n.a
Morocco	8,849	16,748	36,700	31,764	41,483	n.a
Syria	7,006	15,666	58,919	42,735	79,765	n.a
Tunisia	14,679	23,800	25,131	25,993	30,310	35,890
Turkey	62,016	232,822	670,350	560,195	791,261	n.a
Combine harvesters - threshers						
Algeria	3,350	3,852	9,000	6,594	9,349	n.a
Egypt	1,450	1,924	2,250	2,177	2,274	2,289
Jordan	52	58	70	66	75	n.a
Lebanon	46	84	95	93	111	n.a
Libya	1,100	2,050	3,410	3,040	341	n.a
Morocco	2,680	2,790	4,700	4,181	3,155	n.a
Syria	1,350	1,856	2,815	2,760	4,491	n.a
Tunisia	2,102	2,325	3,136	2,746	2,886	2,742
Turkey	6,969	11,514	11,551	12,725	11,912	n.a

Source: FAOSTAT

Table 1.16: Fertilisers consumption in nutrients (tonnes)

	2002	2003	2004	2005	2006	2007	2008	2009
Nitrogen Fertilizers (N total nutrients)								
Algeria	28,036	17,076	104,717	4,086	43,847	36,626	23,102	21,006
Egypt	1,070,036	1,598,386	1,378,793	1,468,102	1,038,377	1,106,359	1,562,670	1,205,636
Jordan	88,819	56,317	21,529	21,884	11,650	36,936	22,219	5,149
Lebanon	19,678	16,791	17,487	8,724	7,990	21,728	5,530	930
Libya	76,120	32,363	47,060	75,580	36,940	68,680	42,840	47,493
Morocco	248,163	207,532	231,504	337,370	321,350	304,810	275,060	142,572
Syria	221,594	241,249	226,386	266,418	275,613	263,314	270,223	210,362
Tunisia	37,462	52,620	42,989	57,855	64,447	46,702	60,774	73,133
Turkey	1,198,855	1,340,566	1,366,302	1,372,053	1,406,323	1,355,443	1,132,804	1,413,479
Phosphate Fertilizers (P2O5 total nutrients)								
Algeria	23,463	6,377	57,820	32,499	31,784	52,394	20,760	19,018
Egypt	142,179	178,384	235,207	207,978	195,019	167,175	228,134	226,682
Jordan	199,170	105,840	38,841	42,969	5,660	16,481	n.a.	n.a.
Lebanon	18,760	n.a.	n.a.	34,484	32,010	25,684	1,210	1,210
Libya	39,200	21,599	36,800	36,800	36,800	36,800	3,680	21,806
Morocco	233,163	219,476	109,074	114,410	101,700	112,850	97,002	0
Syria	91,510	101,520	112,530	121,897	109,639	109,023	131,201	86,428
Tunisia	24,795	39,222	47,834	107,750	30,995	34,868	38,697	41,290
Turkey	474,244	545,948	590,148	601,606	605,316	516,224	328,670	580,886
Potash Fertilizers (K2O total nutrients)								
Algeria	21,266	21,578	25,501	19,221	23,441	22,728	20,369	18,811
Egypt	57,701	47,473	39,266	48,520	48,585	64,328	49,595	17,830
Jordan	22,150	0	39,225	80,190	114,450	87,975	28,229	483,689
Lebanon	8,102	1,212	1,911	1,252	510	12,728	1,350	750
Libya	5,000	6,060	6,539	5,094	300	1,200	1,200	1,167
Morocco	69,461	73,835	61,364	66,300	62,150	56,800	61,350	24,572
Syria	840	8,031	9,207	8,807	9,555	9,797	12,057	8,730
Tunisia	7,614	9,547	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Turkey	73,567	83,621	87,565	93,816	98,875	109,376	89,474	65,450
Fertilisers (total) intensity (per 1000 ha of arable land)								
Algeria	8.87	5.46	22.67	6.67	11.83	13.32	7.62	6.98
Egypt	370.89	535.13	475.35	489.53	362.86	378.14	519.59	393.10
Jordan	1,095.90	n.a.	337.61	535.21	477.39	638.92	n.a.	n.a.
Lebanon	171.73	n.a.	n.a.	157.10	140.17	209.47	28.19	10.03
Libya	55.96	27.92	43.36	56.34	36.12	52.04	23.28	34.37
Morocco	59.33	50.71	44.46	57.63	54.24	52.95	48.26	n.a.
Syria	57.91	64.04	61.88	71.40	70.67	67.24	72.98	53.94
Tunisia	14.24	20.57	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Turkey	65.72	75.70	76.86	77.71	81.56	79.60	63.29	84.79

Source: FAOSTAT & World Resources Institute

Table 1.17: Consumption (in tonnes) of pesticides)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Insecticides															
Algeria	4,514	1,602	1,784	283	1,049							473			
Egypt															
Jordan	232	255	264	191	102	61		846	1,110	752	1,199	1,039	1,010	385	334
Lebanon		87	255												
Morocco										9,510	9,975	7,775			
Syria			444	1,092	1,114	1,219	994								
Tunisia			145												762
Turkey	14,639	15,138	15,161	14,325	13,505	13,910	13,169	13,086	11,913	13,768	16,032	14,947	12,344	10,827	
Herbicides															
Algeria	1,601	213	241	203	372							791			
Egypt															
Jordan	53	123	85	66	23	116	103	402	155	440	413	379	358	105	30
Lebanon		319	534												
Morocco										1,137	1,014	1,662			
Syria			618	1,263	619	815	705								
Tunisia			167												279
Turkey	4,842	5,955	7,810	5,075	8,851	6,960	5,964	6,295	9,866	8,707	11,716	8,170	6,545	9,920	
Fungicides&Bactericides															
Algeria	4,999	923	178	359	1,055							827			
Egypt															
Jordan	339	406	383	376	283	300	1,132	958	732	136	1,103	575	709	629	380
Lebanon		723	988												
Morocco										3,468	2,977	3,965			
Syria			421	1,266	2,077	721	1,248								
Tunisia			569												1,075
Turkey	4,937	6,765	9,034	7,549	7,159	7,777	4,046	8,534	11,296	6,356	12,584	10,721	6,674	13,167	
Rodenticides															
Algeria															
Egypt															
Jordan	1	14	38	10	0	0		7	13	15	19	16	51	4	8
Lebanon		92	39												
Morocco										949		295			
Syria			15	62	29	30	12								
Tunisia			10												20
Turkey			59	0	3	14	6								

Source: FAOSTAT & World Resources Institute

Libya: Data not available

Algeria: Data refer to sales for use in the agricultural sector expressed in Formulated Products.

Jordan: In the period 2001-2007 data are expressed in Formulated Products.

Syria: Data are expressed in Formulated Products

Table 1.18: Gross Capital Stock (constant 2005 prices) (USD million)

	1975-79	1980-89	1990-99	2000-2007
Algeria	8,645	10,461	12,947	13,915
Egypt	24,343	24,096	30,907	35,035
Jordan	794	991	1,402	1,457
Lebanon	2,521	2,575	2,739	2,832
Libya	4,326	5,467	7,263	7,342
Morocco	22,344	22,765	23,631	25,952
Syria	10,549	12,797	19,006	24,222
Tunisia	7,119	7,808	9,130	9,894
Turkey	88,061	104,391	114,757	126,659
NFIDC	583,650	639,929	763,026	881,108
EU	673,176	713,715	723,536	704,962
World	4,382,480	4,783,627	5,073,211	5,203,216

Source: FAOSTAT

NFIDC: Net Food Importing Developing Countries

Table 3.1: Agricultural products (total) trade

	1961-69	1970-79	1980-89	1990-99	2000-09	1961-69	1970-79	1980-89	1990-99	2000-09
Import Value (1000 \$)						Agric. Products trade as % of total Merchandise trade				
Algeria	193,776	855,940	2,335,268	2,732,782	4,300,122	Imports				
Egypt	275,104	1,035,258	3,243,513	3,112,120	4,562,030	Algeria	26.5	18.7	24.3	29.9
Jordan	49,527	214,092	583,029	796,153	1,499,249	Egypt	33.5	35.7	37.6	26.1
Lebanon	134,911	300,042	582,131	1,098,049	1,537,493	Jordan	32.1	26.5	21.2	22.8
Libya	56,325	470,844	1,097,750	1,155,293	1,416,797	Lebanon	29.4	21.2	21.4	18.9
Morocco	147,859	486,628	805,619	1,322,661	2,633,208	Libya	14.9	17.2	17.9	20.7
Syrian Arab Republic	57,745	289,455	633,638	807,187	1,543,438	Morocco	30.8	24.0	18.9	16.0
Tunisia	60,233	224,391	523,118	744,347	1,330,772	Syrian Ara	22.4	18.5	17.9	20.1
Turkey	74,157	177,970	728,129	2,756,252	5,267,062	Tunisia	25.1	17.7	15.4	10.6
Export Value (1000 \$)						Turkey	11.3	5.1	6.5	8.3
Algeria	210,859	156,296	58,165	65,705	72,832	Exports				
Egypt	400,284	688,832	662,294	478,809	1,426,495	Algeria	31.2	3.9	0.5	0.6
Jordan	13,194	54,928	150,080	235,693	623,737	Egypt	71.6	52.1	22.7	11.9
Lebanon	47,823	109,152	148,914	121,182	282,210	Jordan	52.9	33.5	18.7	15.6
Libya	3,135	2,451	628	39,549	15,002	Lebanon	44.1	22.6	21.4	17.2
Morocco	191,599	353,220	445,775	723,345	1,209,645	Libya	0.3	0.0	0.0	0.4
Syrian Arab Republic	145,700	229,522	274,795	768,278	1,172,516	Morocco	46.3	29.9	17.5	14.8
Tunisia	66,269	147,205	167,266	429,539	907,763	Syrian Ara	87.1	30.3	14.7	21.5
Turkey	396,154	1,011,838	2,477,401	4,115,939	6,358,792	Tunisia	49.7	19.6	7.8	9.0
Trade Balance (1000 \$)						Turkey	88.8	69.0	33.0	20.6
Algeria	17,083	-699,644	-2,277,102	-2,667,077	-4,227,290					
Egypt	125,180	-346,426	-2,581,219	-2,633,311	-3,135,535					
Jordan	-36,333	-159,164	-432,949	-560,460	-875,513					
Lebanon	-87,088	-190,890	-433,217	-976,867	-1,255,283					
Libya	-53,190	-468,394	-1,097,122	-1,115,743	-1,401,795					
Morocco	43,741	-133,408	-359,844	-599,316	-1,423,563					
Syrian Arab Republic	87,956	-59,933	-358,843	-38,909	-370,922					
Tunisia	6,036	-77,186	-355,852	-314,808	-423,008					
Turkey	321,997	833,868	1,749,272	1,359,687	1,091,730					

Source: FAOSTAT

Table 3.2: Agricultural trade, main commodities (1000 \$)

		1961- 69	1970- 79	1980-89	1990-99	2007	2008	2009	2000-09
Total Meat									
<i>Imports</i>	Algeria	11,973	8,903	47,420	37,431	155,129	227,690	173,315	129,137
	Egypt	5,893	35,254	264,897	162,254	521,547	335,752	497,940	300,526
	Jordan	1,083	12,047	75,594	63,107	142,964	213,538	234,204	109,677
	Lebanon	3,048	27,520	45,797	52,968	123,263	174,587	215,937	101,343
	Libya	2,612	13,210	34,313	10,384	53,109	134,473	81,201	45,357
	Morocco	113	1,883	5,569	11,480	37,592	42,682	45,555	16,093
	Syrian Arab Republic	703	5,490	19,943	2,139	11,811	10,907	11,908	4,292
	Tunisia	257	2,542	16,200	15,135	20,818	24,580	24,172	15,968
	Turkey	14	0	11,577	22,856	773	2,460	2,031	828
<i>Exports</i>	Algeria	178	200	2	21	0	0	0	61
	Egypt	46	194	543	6,249	1,188	3,317	13,604	2,903
	Jordan	0	665	1,236	7,748	25,148	77,262	104,963	29,388
	Lebanon	173	173	0	305	10,357	14,847	14,475	6,654
	Libya	0	0	0	69	0	0	0	0
	Morocco	339	3,097	2,979	519	1,814	16,573	2,313	2,438
	Syrian Arab Republic	151	74	23	190	2,158	1,233	1,275	618
	Tunisia	630	339	234	473	337	707	1,187	742
	Turkey	558	10,864	84,233	20,860	38,122	96,994	169,461	46,105
<i>Balance</i>	Algeria	-11,796	-8,702	-47,418	-37,410	-155,129	-227,690	-173,315	-129,077
	Egypt	-5,847	-35,060	-264,354	-156,005	-520,359	-332,435	-484,336	-297,622
	Jordan	-1,083	-11,382	-74,358	-55,359	-117,816	-136,276	-129,241	-80,289
	Lebanon	-2,874	-27,347	-45,797	-52,663	-112,906	-159,740	-201,462	-94,689
	Libya	-2,612	-13,210	-34,313	-10,315	-53,109	-134,473	-81,201	-45,357
	Morocco	225	1,214	-2,589	-10,961	-35,778	-26,109	-43,242	-13,656
	Syrian Arab Republic	-552	-5,416	-19,920	-1,948	-9,653	-9,674	-10,633	-3,675
	Tunisia	373	-2,202	-15,966	-14,662	-20,481	-23,873	-22,985	-15,226
	Turkey	544	10,864	72,656	-1,996	37,349	94,534	167,430	45,278
Cereals									
<i>Imports</i>	Algeria	43,242	281,052	789,584	989,356	1,829,017	3,737,050	2,315,958	1,655,379
	Egypt	140,295	505,115	1,424,869	1,187,940	2,541,672	3,509,878	2,435,376	1,786,048
	Jordan	13,671	48,506	134,972	245,748	679,167	897,789	533,741	413,430
	Lebanon	27,678	72,974	92,869	117,696	223,685	320,383	247,088	171,177
	Libya	12,666	90,228	242,952	381,598	675,390	825,256	799,591	556,109
	Morocco	31,079	155,534	301,028	431,927	1,727,639	2,253,767	1,109,458	1,012,582
	Syrian Arab Republic	14,962	71,548	210,996	184,693	393,996	915,172	962,280	402,196
	Tunisia	21,900	62,712	186,227	231,325	932,034	1,216,742	468,365	521,349
	Turkey	29,031	59,758	152,176	408,626	973,273	2,137,842	1,203,323	683,097
<i>Exports</i>	Algeria	6,404	1,579	0	78	509	9,630	1,759	1,810
	Egypt	62,029	63,714	20,998	71,634	410,121	123,086	524,533	243,864
	Jordan	452	1,277	10,899	2,367	4,518	8,607	12,008	3,887
	Lebanon	592	4,907	3,390	1,487	3,906	21,656	8,657	5,662

	Libya	16	8	0	0	193	193	193	144
	Morocco	10,296	8,337	6,102	7,537	43,947	37,000	28,260	27,399
	Syrian Arab Republic	14,863	7,061	18,250	64,259	230,745	36,671	36,671	104,744
	Tunisia	4,446	1,362	335	12,868	20,325	19,523	11,463	20,904
	Turkey	3,172	51,504	144,562	282,786	370,804	679,085	801,223	378,580
			-			-	-	-	-
<i>Balance</i>	Algeria	-36,838	279,473	-789,584	-989,279	1,828,508	3,727,420	2,314,199	1,653,570
			-			-	-	-	-
	Egypt	-78,265	441,401	1,403,871	1,116,306	2,131,551	3,386,792	1,910,843	1,542,183
	Jordan	-13,219	-47,230	-124,073	-243,381	-674,649	-889,182	-521,733	-409,543
	Lebanon	-27,086	-68,068	-89,479	-116,209	-219,779	-298,727	-238,431	-165,515
	Libya	-12,650	-90,221	-242,952	-381,598	-675,197	-825,063	-799,398	-555,965
			-			-	-	-	-
	Morocco	-20,783	147,197	-294,926	-424,391	1,683,692	2,216,767	1,081,198	-985,183
	Syrian Arab Republic	-99	-64,486	-192,746	-120,434	-163,251	-878,501	-925,609	-297,453
							-		
	Tunisia	-17,454	-61,351	-185,893	-218,458	-911,709	1,197,219	-456,902	-500,445
							-		
	Turkey	-25,859	-8,254	-7,614	-125,840	-602,469	1,458,757	-402,100	-304,517
Dairy Products+Eggs									
<i>Imports</i>	Algeria	30,052	95,546	411,566	508,491	1,070,099	1,225,299	861,559	740,479
	Egypt	3,491	38,988	207,864	165,689	174,836	486,199	432,970	208,707
	Jordan	2,816	18,585	57,224	78,698	135,100	232,821	209,551	123,595
	Lebanon	10,540	26,194	61,707	127,208	213,369	225,163	252,123	182,296
	Libya	5,145	37,274	103,806	99,110	285,739	318,979	324,648	178,094
	Morocco	10,276	27,350	49,353	73,510	208,738	284,650	192,624	139,524
	Syrian Arab Republic	3,648	33,682	56,619	31,466	150,604	189,316	128,868	88,525
	Tunisia	3,890	18,935	44,120	41,602	42,777	66,071	34,536	36,769
	Turkey	1,666	3,630	9,114	28,750	110,381	122,771	116,524	71,372
<i>Exports</i>	Algeria	0	0	198	500	426	456	2,275	2,551
	Egypt	146	52	1,608	5,630	41,234	86,015	473,269	74,892
	Jordan	187	815	9,522	12,114	28,465	87,078	86,513	51,051
	Lebanon	3,771	8,460	6,129	1,634	8,491	10,036	8,630	4,993
	Libya	2	22	0	807	167	171	171	146
	Morocco	292	0	6	7,134	98,222	96,014	95,895	63,079
	Syrian Arab Republic	1,613	455	1,241	7,758	185,954	92,883	102,287	55,070
	Tunisia	106	34	284	3,646	38,440	34,355	29,845	16,411
	Turkey	236	268	32,115	23,637	121,112	233,595	245,333	91,650
						-	-		
<i>Balance</i>	Algeria	-30,052	-95,546	-411,368	-507,992	1,069,673	1,224,843	-859,284	-737,928
	Egypt	-3,345	-38,936	-206,256	-160,059	-133,602	-400,184	40,299	-133,816
	Jordan	-2,629	-17,771	-47,703	-66,584	-106,635	-145,743	-123,038	-72,544
	Lebanon	-6,769	-17,734	-55,578	-125,574	-204,878	-215,127	-243,493	-177,303
	Libya	-5,143	-37,252	-103,806	-98,303	-285,572	-318,808	-324,477	-177,948
	Morocco	-9,984	-27,350	-49,347	-66,376	-110,516	-188,636	-96,729	-76,445
	Syrian Arab Republic	-2,035	-33,227	-55,377	-23,708	35,350	-96,433	-26,581	-33,456

	Republic								
	Tunisia	-3,784	-18,901	-43,837	-37,956	-4,337	-31,716	-4,691	-20,357
	Turkey	-1,430	-3,362	23,000	-5,113	10,731	110,824	128,809	20,278
Fruit + Vegetables									
<u>Imports</u>	Algeria	13,739	55,412	159,494	158,616	486,068	542,233	554,324	340,562
	Egypt	6,028	31,896	97,520	149,366	350,771	569,136	633,265	335,516
	Jordan	7,999	53,030	112,711	72,354	221,741	260,122	287,628	158,193
	Lebanon	17,077	29,386	78,594	164,858	236,709	272,297	266,233	196,145
	Libya	6,395	53,830	73,711	98,764	174,198	264,397	246,304	126,760
	Morocco	5,304	11,584	11,009	48,637	168,673	207,779	236,131	120,261
	Syrian Arab								
	Republic	12,861	43,843	46,868	62,105	185,377	227,495	305,861	133,361
	Tunisia	2,068	7,279	18,227	35,169	103,726	62,463	84,662	59,816
	Turkey	171	579	7,519	100,218	453,776	800,699	608,710	323,610
<u>Exports</u>	Algeria	68,751	32,669	9,176	46,496	32,664	28,493	35,478	24,157
	Egypt	30,432	94,803	145,657	155,014	602,043	1,015,176	2,037,717	545,824
	Jordan	9,455	35,763	76,216	100,239	453,539	490,718	485,483	274,792
	Lebanon	24,326	61,264	101,545	70,308	148,041	175,304	179,738	112,341
	Libya	354	17	0	14,343	310	212	461	984
	Morocco	135,287	281,589	372,547	562,473	1,105,297	1,430,101	1,324,174	863,050
	Syrian Arab								
	Republic	10,220	22,809	44,865	305,524	893,765	336,611	347,999	334,727
	Tunisia	13,992	27,317	53,419	80,746	250,355	311,379	287,759	171,356
	Turkey	115,371	386,956	1,125,541	2,007,231	3,558,332	5,308,553	5,355,135	3,383,648
<u>Balance</u>	Algeria	55,012	-22,743	-150,318	-112,120	-453,404	-513,740	-518,846	-316,405
	Egypt	24,404	62,907	48,138	5,648	251,272	446,040	1,404,452	210,308
	Jordan	1,456	-17,267	-36,495	27,885	231,798	230,596	197,855	116,599
	Lebanon	7,249	31,877	22,951	-94,550	-88,668	-96,993	-86,495	-83,805
	Libya	-6,041	-53,813	-73,711	-84,421	-173,888	-264,185	-245,843	-125,776
	Morocco	129,983	270,005	361,538	513,836	936,624	1,222,322	1,088,043	742,789
	Syrian Arab								
	Republic	-2,641	-21,035	-2,004	243,419	708,388	109,116	42,138	201,367
	Tunisia	11,925	20,038	35,192	45,577	146,629	248,916	203,097	111,540
	Turkey	115,200	386,376	1,118,022	1,907,013	3,104,556	4,507,854	4,746,425	3,060,038
Olive Oil									
<u>Imports</u>	Algeria	77	0	687	352	916	1,308	1,490	741
	Egypt	174	294	709	1,427	1,435	1,827	4,317	1,419
	Jordan	898	6,948	15,888	7,325	1	6,246	18,627	2,490
	Lebanon	33	1,119	2,725	6,685	5,813	2,596	8,214	2,348
	Libya	2,401	28,511	71,626	20,444	34	15	15	5,532
	Morocco	0	0	507	2,024	19,300	23,630	47,883	15,408
	Syrian Arab								
	Republic	86	499	3,786	1,893	55	7	3,450	527
	Tunisia	92	325	1,620	15	9,148	5,457	6,992	3,675
	Turkey	0	5	5,358	694	48	125	52	863
<u>Exports</u>	Algeria	2,569	1,433	33	28	179	100	218	218
	Egypt	0	0	0	387	2,393	3,012	28,340	4,441
	Jordan	447	1,399	2,585	1,001	8,250	6,855	7,251	5,464
	Lebanon	240	905	64	2,330	10,200	9,887	10,266	5,510

	Libya	196	0	0	296	0	0	0	0
	Morocco	4,404	15,364	3,256	21,371	12,848	15,093	13,395	30,525
	Syrian Arab Republic	1,031	1,521	0	4,629	268,092	45,738	21,270	72,824
	Tunisia	23,611	81,154	73,923	218,550	567,560	645,746	416,626	400,277
	Turkey	7,210	16,810	40,410	60,478	105,339	77,204	100,376	124,562
Balance	Algeria	2,492	1,433	-654	-324	-737	-1,208	-1,272	-522
	Egypt	-174	-294	-709	-1,040	958	1,185	24,023	3,022
	Jordan	-451	-5,549	-13,303	-6,324	8,249	609	-11,376	2,974
	Lebanon	207	-214	-2,662	-4,356	4,387	7,291	2,052	3,162
	Libya	-2,205	-28,511	-71,626	-20,148	-34	-15	-15	-5,532
	Morocco	4,404	15,364	2,749	19,347	-6,452	-8,537	-34,488	15,117
	Syrian Arab Republic	945	1,022	-3,786	2,736	268,037	45,731	17,820	72,297
	Tunisia	23,519	80,829	72,302	218,535	558,412	640,289	409,634	396,602
	Turkey	7,210	16,805	35,051	59,784	105,291	77,079	100,324	123,699
Textile Fibres									
Imports	Algeria	2,182	17,810	56,173	43,903	13,734	26,239	14,665	16,211
	Egypt	16,278	34,495	47,210	58,127	76,845	153,817	149,806	69,726
	Jordan	279	513	3,307	3,629	675	514	512	901
	Lebanon	8,455	8,028	6,119	1,909	296	508	562	616
	Libya	106	378	853	1,094	121	120	129	153
	Morocco	7,336	28,093	50,501	80,747	64,666	86,441	58,224	57,366
	Syrian Arab Republic	336	4,492	4,279	2,963	1,479	1,650	1,309	2,350
	Tunisia	2,211	13,481	29,237	47,047	41,917	59,059	20,716	37,531
	Turkey	15,159	21,055	102,316	407,400	1,394,744	1,090,263	1,047,823	921,950
Exports	Algeria	493	375	37	3	9	9	28	26
	Egypt	289,471	460,132	419,678	140,034	171,694	204,587	105,388	239,445
	Jordan	69	78	240	2,061	873	970	998	796
	Lebanon	4,160	3,058	1,476	339	42	17	29	95
	Libya	41	858	628	1,898	2,006	1,562	1,562	1,397
	Morocco	6,651	6,579	6,446	2,786	1,394	1,534	2,971	1,432
	Syrian Arab Republic	83,490	156,082	147,290	202,182	118,574	50,245	68,278	161,335
	Tunisia	99	232	259	1,696	1,595	1,754	1,001	1,240
	Turkey	112,248	273,567	232,260	128,597	150,679	214,022	135,989	135,653
Balance	Algeria	-1,688	-17,435	-56,136	-43,900	-13,725	-26,230	-14,637	-16,185
	Egypt	273,193	425,637	372,468	81,908	94,849	50,770	-44,418	169,720
	Jordan	-210	-435	-3,067	-1,569	198	456	486	-105
	Lebanon	-4,295	-4,971	-4,643	-1,571	-254	-491	-533	-521
	Libya	-65	480	-225	804	1,885	1,442	1,433	1,244
	Morocco	-684	-21,515	-44,056	-77,961	-63,272	-84,907	-55,253	-55,934
	Syrian Arab Republic	83,154	151,590	143,011	199,219	117,095	48,595	66,969	158,985
	Tunisia	-2,112	-13,249	-28,978	-45,351	-40,322	-57,305	-19,715	-36,291
	Turkey	97,090	252,512	129,944	-278,802	1,244,065	-876,241	-911,834	-786,296
Tobacco									

<i>Imports</i>	Algeria	2,377	14,738	36,127	39,714	77,543	190,180	201,070	75,723
	Egypt	16,859	60,907	144,537	159,135	231,139	295,050	242,398	229,823
	Jordan	2,049	4,633	12,479	15,393	67,962	63,114	71,079	56,723
	Lebanon	3,676	16,002	47,892	168,665	132,132	163,748	183,432	135,154
	Libya	2,441	11,802	28,722	17,571	12,969	15,512	16,752	63,982
	Morocco	3,704	15,106	41,858	66,895	95,154	113,467	119,829	80,743
	Syrian Arab Republic	989	17,206	8,884	15,889	81,772	108,237	145,326	65,984
	Tunisia	1,819	9,036	21,326	52,351	81,110	84,578	135,834	69,168
	Turkey	0	4	77,604	288,561	302,126	391,693	399,816	294,133
	<i>Exports</i>	Algeria	1,411	1,799	680	157	20	23	79
Egypt		1,187	1,437	2,822	505	347	347	81,417	9,658
Jordan		1,299	3,255	8,992	4,247	51,853	52,240	36,690	41,872
Lebanon		2,331	8,264	9,100	9,123	34,339	33,838	19,236	27,138
Libya		64	13	0	0	158	158	158	135
Morocco		76	107	427	1,048	110	13,606	17,644	3,265
Syrian Arab Republic		933	13,728	8,684	11,867	2,668	3,070	1,754	2,628
Tunisia		105	768	2,192	33,305	39,415	47,003	38,434	33,462
Turkey		92,483	164,535	309,920	505,843	467,031	704,550	757,072	525,573
<i>Balance</i>		Algeria	-966	-12,939	-35,446	-39,557	-77,523	-190,157	-200,991
	Egypt	-15,672	-59,470	-141,715	-158,630	-230,792	-294,703	-160,981	-220,166
	Jordan	-750	-1,378	-3,487	-11,146	-16,109	-10,874	-34,389	-14,852
	Lebanon	-1,345	-7,738	-38,792	-159,542	-97,793	-129,910	-164,196	-108,016
	Libya	-2,377	-11,789	-28,722	-17,571	-12,811	-15,354	-16,594	-63,847
	Morocco	-3,628	-14,999	-41,431	-65,847	-95,044	-99,861	-102,185	-77,479
	Syrian Arab Republic	-56	-3,478	-201	-4,022	-79,104	-105,167	-143,572	-63,356
	Tunisia	-1,714	-8,268	-19,133	-19,046	-41,695	-37,575	-97,400	-35,706
	Turkey	92,483	164,531	232,316	217,283	164,905	312,857	357,256	231,441

Source: FAOSTAT

Table 3.3: Competitiveness Profile of Food Sector, Algeria

	Indicator's Description	Fresh food	Fresh food	Processed food	Processed food
		(Value)	(Rank)	(Value)	(Rank)
General Profile	Number of exporting countries for the ranking in the sector	183		166	
	Value of exports (in thousand US\$)	52,235		64,766	
	Export growth in value, p.a. (%)	4%	122	26%	13
	Share in national exports (%)	0%		0%	
	Share in national imports (%)	9%		8%	
	Relative trade balance (%)	-97%		-96%	
	Relative unit value (world average = 1)	1		0.9	
	Net exports (in thousand US\$)	-3,448,708	172	-2,961,498	158
	Per capita exports US\$/inhabitant	1.5	180	1.9	142
	Share in world market (%)	0.01%	146	0.01%	118
Position in 2009 for Current Index	Product diversification (N° of equivalent products)	6	87	6	97
	Product concentration (Spread)		102		99
	Market diversification (N° of equivalent markets)	8	69	7	78
	Market concentration (Spread)		71		84
	Relative change of world market share p.a (%)	-0.04%		0.15%	
Change 2005 - 2009 for Change Index	Competitiveness effect, p.a. (%)	-0.07%	159	0.06%	27
	Initial geographic specialisation, p.a. (%)	-0.02%	150	0.01%	73
	Initial product specialisation, p.a. (%)	0.03%	38	-0.03%	132
	Adaptation effect, p.a. (%)	0.02%	46	0.12%	6
	Matching with dynamics of world demand		17		121
	Absolute change of world market share (% points p.a)	0.00%	103	0.00%	55
	Indicators included in chart	Average Index: Current Index		159	
Average Index: Change Index			13		95

Source: ITC

Table 3.4: Competitiveness Profile of Food Sector, Egypt

	Indicator's Description	Fresh food (Value)	Fresh food (Rank)	Processed food (Value)	Processed food (Rank)
General Profile	Number of exporting countries for the ranking in the sector	183		166	
	Value of exports (in thousand US\$)	2,976,286		1,590,957	
	Export growth in value, p.a. (%)	35%	10	55%	3
	Share in national exports (%)	12%		7%	
	Share in national imports (%)	12%		6%	
	Relative trade balance (%)	-30%		-25%	
	Relative unit value (world average = 1)	1.8		1.1	
	Net exports (in thousand US\$)	-2,539,781	166	-1,040,855	139
	Per capita exports US\$/inhabitant)	36.5	111	19.5	109
	Share in world market (%)	0.57%	34	0.30%	44
Position in 2009 for Current Index	Product diversification (N° of equivalent products)	14	36	20	29
	Product concentration (Spread)		36		28
	Market diversification (N° of equivalent markets)	22	4	17	10
	Market concentration (Spread)		4		9
Change 2005 - 2009 for Change Index	Relative change of world market share p.a (%)	0.26%		0.61%	
	Competitiveness effect, p.a. (%)	0.15%	12	0.39%	5
	Initial geographic specialisation, p.a. (%)	0.04%	26	0.01%	55
	Initial product specialisation, p.a. (%)	0.00%	87	0.04%	23
	Adaptation effect, p.a. (%)	0.07%	19	0.17%	4
	Matching with dynamics of world demand		166		137
	Absolute change of world market share (% points p.a)	0.06%	6	0.05%	8
Indicators included in chart	Average Index: Current Index		53		51
	Average Index: Change Index		110		76

Source: ITC

Table 3.5: Competitiveness Profile of Food Sector, Jordan

	Indicator's Description	Fresh food (Value)	Fresh food (Rank)	Processed food (Value)	Processed food (Rank)
General Profile	Number of exporting countries for the ranking in the sector	183		166	
	Value of exports (in thousand US\$)	598,437		442,659	
	Export growth in value, p.a. (%)	20%	26	5%	108
	Share in national exports (%)	9%		7%	
	Share in national imports (%)	9%		8%	
	Relative trade balance (%)	-35%		-46%	
	Relative unit value (world average = 1)	1.5		1.3	
	Net exports (in thousand US\$)	-652,377	146	-746,813	131
	Per capita exports US\$/inhabitant)	101.3	71	75	73
	Share in world market (%)	0.11%	79	0.08%	78
Position in 2009 for Current Index	Product diversification (N° of equivalent products)	9	57	19	32
	Product concentration (Spread)		56		32
	Market diversification (N° of equivalent markets)	8	65	3	136
	Market concentration (Spread)		63		128
Change 2005 - 2009 for Change Index	Relative change of world market share p.a (%)	0.09%		-0.03%	
	Competitiveness effect, p.a. (%)	0.05%	37	0.05%	33
	Initial geographic specialisation, p.a. (%)	0.08%	9	-0.02%	154
	Initial product specialisation, p.a. (%)	-0.02%	109	0.01%	53
	Adaptation effect, p.a. (%)	-0.03%	145	-0.07%	147
	Matching with dynamics of world demand		110		74
	Absolute change of world market share (% points p.a)	0.01%	36	0.00%	122
Indicators included in chart	Average Index: Current Index		74		90
	Average Index: Change Index		95		86

Source: ITC

Table 3.6: Competitiveness Profile of Food Sector, Lebanon

	Indicator's Description	Fresh food (Value)	Fresh food (Rank)	Processed food (Value)	Processed food (Rank)
General Profile	Number of exporting countries for the ranking in the sector	183		166	
	Value of exports (in thousand US\$)	136,926		305,780	
	Export growth in value, p.a. (%)	5%	118	14%	51
	Share in national exports (%)	4%		9%	
	Share in national imports (%)	7%		8%	
	Relative trade balance (%)	-78%		-63%	
	Relative unit value (world average = 1)	1.2		1.2	
	Net exports (in thousand US\$)	-997,742	150	-1,037,508	138
	Per capita exports US\$/inhabitant)	32.7	115	72.9	74
	Share in world market (%)	0.03%	120	0.06%	85
Position in 2009 for Current Index	Product diversification (N° of equivalent products)	18	26	33	10
	Product concentration (Spread)		25		10
	Market diversification (N° of equivalent markets)	14	21	14	19
	Market concentration (Spread)		21		16
Change 2005 - 2009 for Change Index	Relative change of world market share p.a (%)	-0.03%		0.04%	
	Competitiveness effect, p.a. (%)	0.02%	59	0.05%	32
	Initial geographic specialisation, p.a. (%)	0.04%	28	0.01%	62
	Initial product specialisation, p.a. (%)	0.06%	13	0.04%	20
	Adaptation effect, p.a. (%)	-0.15%	174	-0.07%	148
	Matching with dynamics of world demand		159		131
	Absolute change of world market share (% points p.a)	0.00%	114	0.00%	48
Indicators included in chart	Average Index: Current Index		82		49
	Average Index: Change Index		141		116

Source: ITC

Table 3.7: Competitiveness Profile of Food Sector, Libya

	Indicator's Description	Fresh food (Value)	Fresh food (Rank)	Processed food (Value)	Processed food (Rank)
General Profile	Number of exporting countries for the ranking in the sector	183		166	
	Value of exports (in thousand US\$)	14,456		4,113	
	Export growth in value, p.a. (%)	-11%	172	8%	89
	Share in national exports (%)	0%		0%	
	Share in national imports (%)	4%		7%	
	Relative trade balance (%)	-96%		-99%	
	Relative unit value (world average = 1)	1.5		0	
	Net exports (in thousand US\$)	-796,114	147	-1,288,905	143
	Per capita exports US\$/inhabitant)	2.3	175	0.7	155
	Share in world market (%)	0.00%	171	0.00%	155
Position in 2009 for Current Index	Product diversification (N° of equivalent products)	12	43	6	103
	Product concentration (Spread)		63		132
	Market diversification (N° of equivalent markets)	8	64	6	98
	Market concentration (Spread)		108		118
Change 2005 - 2009 for Change Index	Relative change of world market share p.a (%)	-0.11%		-0.01%	
	Competitiveness effect, p.a. (%)	-0.07%	158	0.15%	14
	Initial geographic specialisation, p.a. (%)	0.00%	103	-0.01%	130
	Initial product specialisation, p.a. (%)	-0.04%	145	-0.03%	126
	Adaptation effect, p.a. (%)	0.00%	72	-0.12%	156
	Matching with dynamics of world demand		5		45
	Absolute change of world market share (% points p.a)	0.00%	108	0.00%	81
Indicators included in chart	Average Index: Current Index		150		162
	Average Index: Change Index		25		70

Source: ITC

Table 3.8: Competitiveness Profile of Food Sector, Morocco

	Indicator's Description	Fresh food (Value)	Fresh food (Rank)	Processed food (Value)	Processed food (Rank)
General Profile	Number of exporting countries for the ranking in the sector	183		166	
	Value of exports (in thousand US\$)	2,093,869		1,304,370	
	Export growth in value, p.a. (%)	7%	95	8%	86
	Share in national exports (%)	15%		9%	
	Share in national imports (%)	7%		6%	
	Relative trade balance (%)	-2%		-16%	
	Relative unit value (world average = 1)	1.1		1.9	
	Net exports (in thousand US\$)	-78,815	107	-510,677	119
	Per capita exports US\$/inhabitant)	66.2	86	41.3	93
	Share in world market (%)	0.40%	42	0.25%	49
Position in 2009 for Current Index	Product diversification (N° of equivalent products)	15	34	8	81
	Product concentration (Spread)		34		79
	Market diversification (N° of equivalent markets)	6	96	16	13
	Market concentration (Spread)		91		12
Change 2005 - 2009 for Change Index	Relative change of world market share p.a (%)	-0.01%		-0.01%	
	Competitiveness effect, p.a. (%)	0.03%	52	-0.01%	105
	Initial geographic specialisation, p.a. (%)	-0.02%	148	0.00%	98
	Initial product specialisation, p.a. (%)	0.00%	70	0.00%	80
	Adaptation effect, p.a. (%)	-0.02%	143	0.01%	51
	Matching with dynamics of world demand		52		11
	Absolute change of world market share (% points p.a)	-0.01%	144	0.00%	118
Indicators included in chart	Average Index: Current Index		57		61
	Average Index: Change Index		59		7

Source: ITC

Table 3.9: Competitiveness Profile of Food Sector, Syria

	Indicator's Description	Fresh food (Value)	Fresh food (Rank)	Processed food (Value)	Processed food (Rank)
General Profile	Number of exporting countries for the ranking in the sector	183		166	
	Value of exports (in thousand US\$)	576,478		259,340	
	Export growth in value, p.a. (%)	-7%	169	-3%	140
	Share in national exports (%)	10%		4%	
	Share in national imports (%)	13%		9%	
	Relative trade balance (%)	-56%		-69%	
	Relative unit value (world average = 1)	1.6		0.9	
	Net exports (in thousand US\$)	-1,460,683	157	-1,164,416	142
	Per capita exports US\$/inhabitant)	28	122	12.6	118
	Share in world market (%)	0.11%	82	0.05%	89
Position in 2009 for Current Index	Product diversification (N° of equivalent products)	15	32	18	33
	Product concentration (Spread)		31		33
	Market diversification (N° of equivalent markets)	7	85	5	100
	Market concentration (Spread)		78		91
Change 2005 - 2009 for Change Index	Relative change of world market share p.a (%)	-0.10%		-0.08%	
	Competitiveness effect, p.a. (%)	-0.11%	172	-0.09%	140
	Initial geographic specialisation, p.a. (%)	0.04%	31	-0.01%	127
	Initial product specialisation, p.a. (%)	-0.03%	128	-0.04%	143
	Adaptation effect, p.a. (%)	-0.01%	110	0.06%	20
	Matching with dynamics of world demand		170		78
	Absolute change of world market share (% points p.a)	-0.02%	166	-0.01%	137
Indicators included in chart	Average Index: Current Index		95		99
	Average Index: Change Index		181		101

Source: ITC

Table 3.10: Competitiveness Profile of Food Sector, Tunisia

	Indicator's Description	Fresh food	Fresh food	Processed food	Processed food
		(Value)	(Rank)	(Value)	(Rank)
General Profile	Number of exporting countries for the ranking in the sector	183		166	
	Value of exports (in thousand US\$)	451,434		931,716	
	Export growth in value, p.a. (%)	7%	94	4%	113
	Share in national exports (%)	3%		6%	
	Share in national imports (%)	5%		4%	
	Relative trade balance (%)	-38%		11%	
	Relative unit value (world average = 1)	1.5		1.1	
	Net exports (in thousand US\$)	-545,690	141	191,517	36
	Per capita exports US\$/inhabitant	43.7	103	90.2	71
	Share in world market (%)	0.09%	89	0.18%	56
Position in 2009 for Current Index	Product diversification (N° of equivalent products)	6	88	6	102
	Product concentration (Spread)		83		95
	Market diversification (N° of equivalent markets)	9	62	9	55
	Market concentration (Spread)		59		54
	Relative change of world market share p.a (%)	-0.01%		-0.03%	
Change 2005 - 2009 for Change Index	Competitiveness effect, p.a. (%)	0.00%	93	0.02%	66
	Initial geographic specialisation, p.a. (%)	-0.03%	172	0.00%	97
	Initial product specialisation, p.a. (%)	0.02%	50	-0.04%	135
	Adaptation effect, p.a. (%)	0.00%	99	-0.01%	112
	Matching with dynamics of world demand		45		48
	Absolute change of world market share (% points p.a)	0.00%	118	-0.01%	141
Indicators included in chart	Average Index: Current Index		97		46
	Average Index: Change Index		55		69

Source: ITC

Table 3.11: Competitiveness Profile of Food Sector, Turkey

	Indicator's Description	Fresh food	Fresh food	Processed food	Processed food
		(Value)	(Rank)	(Value)	(Rank)
General Profile	Number of exporting countries for the ranking in the sector	183		166	
	Value of exports (in thousand US\$)	5,614,527		5,268,416	
	Export growth in value, p.a. (%)	7%	96	9%	82
	Share in national exports (%)	5%		5%	
	Share in national imports (%)	4%		2%	
	Relative trade balance (%)	4%		28%	
	Relative unit value (world average = 1)	1.6		1.3	
	Net exports (in thousand US\$)	471,109	41	2,283,384	17
	Per capita exports US\$/inhabitant	76	79	71.3	78
	Share in world market (%)	1.07%	25	1.00%	25
Position in 2009 for Current Index	Product diversification (N° of equivalent products)	21	17	27	19
	Product concentration (Spread)		17		19
	Market diversification (N° of equivalent markets)	19	8	17	8
	Market concentration (Spread)		7		7
	Relative change of world market share p.a (%)	-0.01%		0.00%	
Change 2005 - 2009 for Change Index	Competitiveness effect, p.a. (%)	0.01%	75	0.00%	77
	Initial geographic specialisation, p.a. (%)	0.01%	66	0.00%	93
	Initial product specialisation, p.a. (%)	-0.03%	131	-0.02%	113
	Adaptation effect, p.a. (%)	-0.01%	109	0.01%	54
	Matching with dynamics of world demand		152		119
	Absolute change of world market share (% points p.a)	-0.01%	159	0.00%	124
Indicators included in chart	Average Index: Current Index		16		15
	Average Index: Change Index		160		124

Source: ITC

Table 4.1 SWOT Chart of Egyptian Agro-Food Sector Outlook

	Positives	Negatives
Internal Factors	<p>Strengths:</p> <ol style="list-style-type: none"> 1- Agricultural land potentiality and reclamation 2- The participation of village leaders 3- Human resource availability 4- Availability of Institutions of agriculture 5- Egyptian quota of Nile and underground water 	<p>Weaknesses:</p> <ol style="list-style-type: none"> 1- Urban demand for agricultural land 2- Water- use efficiency. 3- Agricultural productivity and quality 4- Agricultural finance and investment 5- Agricultural Cooperatives System
External factors	<p>Opportunities:</p> <ol style="list-style-type: none"> 1- Opportunities of fair Nile agreements with INDIGO 2- Foreign funds to finance investments for agricultural development programs 3- Foreign trade agricultural policies 	<p>Threats:</p> <ol style="list-style-type: none"> 1- Water quality & quantity limits. 2- Imposing unfair Nile-water agreement by INDIGO 3- Conditions of the foreign funds to finance investments 4- Deficit in agricultural trade balance 5- High proportion of imported of subsistent food commodities

Table 4.2: TWOS Chart of the Egyptian Agro-Food Policies Evolution Outlook

<p>Internal Factors</p> <p>External Factors</p>	<p>Weaknesses</p> <ol style="list-style-type: none"> 1- Urban demand for agricultural land 2- Water- use efficiency 3- Agricultural productivity and quality 4- Agricultural finance and investment 5- Agricultural Cooperatives System 	<p>Strengths</p> <ol style="list-style-type: none"> 1- Agricultural land potentiality and reclamation 2- The participation of village leaders 3- Human resource availability 4- Availability of Institutions of agriculture 5- Egyptian quota of Nile and underground water
<p>Opportunities</p> <ol style="list-style-type: none"> 1- Opportunities of fair Nile agreements with INDIGO 2- Foreign funds to finance investments for agricultural development programs 3- Foreign trade agricultural policies 	<p>W&O policies</p> <ol style="list-style-type: none"> 1- To Raise Water Use Efficiency for Irrigation 2- Improving Agricultural Productivity 3- Agricultural commodity marketing policy 4- Reforming the Agricultural Cooperatives System 	<p>S&O policies</p> <ol style="list-style-type: none"> 1- Maintaining and protecting agricultural land. 2- Human resources development Via training and research. 3- Proper management of agricultural institutes
<p>Threats</p> <ol style="list-style-type: none"> 1- Water quality & quantity limits. 2- Imposing unfair Nile-water agreement by INDAGO. 3- Conditions of the foreign funds to finance investments. 4- Deficit in agricultural trade balance. 5- High proportion of imported of subsistent food commodities. 	<p>W&T policies</p> <ol style="list-style-type: none"> 1-Food Security Policies. 2-Improving Opportunities for Agricultural Investment. 4- Reforming civil society organizations dealing with rural development. 	<p>S&T policies</p> <ol style="list-style-type: none"> 1- Institutional reform of Agricultural Sector. 2- Development of Agricultural extension system

Table 4.3 SWOT Chart of Lebanese Agro-Food Sector Outlook

<p style="text-align: center;"><u>Strengths</u></p> <ul style="list-style-type: none"> ▪ The Investment Development Authority of Lebanon initiated an Export Plus program in 2001 to contribute to supporting agricultural exports (vegetables, fruit, flowers and eggs). Therefore, farmers received support for complying with certain standards, ▪ The Government of Lebanon started to oversee quality control of agricultural products in order to expand the country’s exports of high-quality processed food products to the EU, the Gulf countries and the United States (The Government has hired three international companies for this purpose), ▪ The government has expanded a subsidy program on interest rates targeted at reducing the cost of borrowing for small-and medium-sized businesses, ▪ The geographical Location of Lebanon as a centre of trade between the East and West, ▪ Availability of skilled human resources that can be instrumental in developing and implementing the needed technologies, ▪ The Lebanese are known for their entrepreneurship and exposure to foreign market trends and the ability of Lebanese growers to take risks. 	<p style="text-align: center;"><u>Threats</u></p> <ul style="list-style-type: none"> ▪ Ratification of regional and international agreements leading to open markets ▪ High cost of living in Lebanon makes locally produced products less competitive in the region ▪ Countries in the region have economies of scale and cheaper labour costs for similarly produced agricultural commodities (mainly Syria and Turkey)
<p style="text-align: center;"><u>Challenges</u></p> <ul style="list-style-type: none"> ▪ liberalization policies that are not backed by training schemes, ▪ Increased urbanization is blocking the growth of agricultural production. ▪ High costs of production in comparison to other Arab Countries, ▪ Inefficient institutional quality control or lack of knowledge and training. <p>Technical barriers to exports (even customs barriers)</p>	

Table 4.4 SWOT Chart of Syrian Agro-Food Sector Outlook

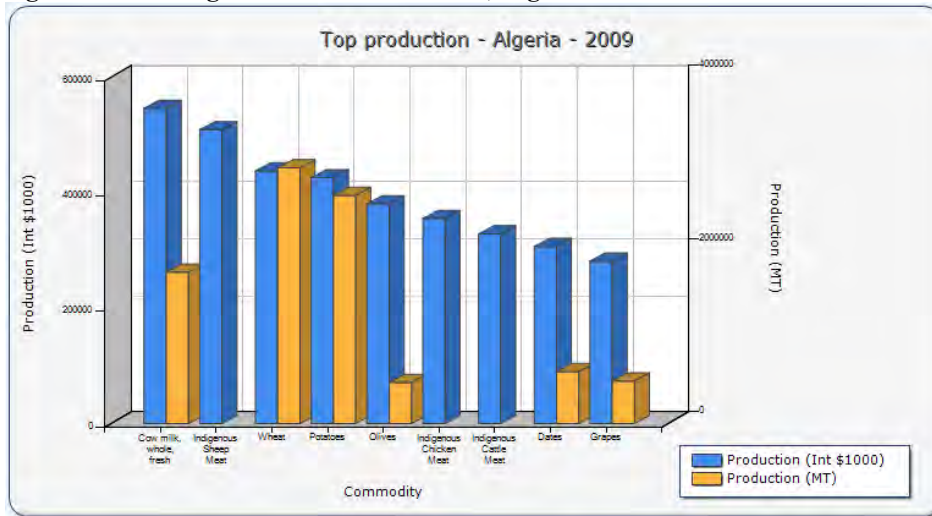
<p>The strength in the Syrian agro-food sector</p> <ul style="list-style-type: none"> - The existence of suitable agricultural infrastructure, fertile soil, multiple sources of water (springs and rivers) and variable climatic conditions. - Availability of relatively cheap labor. - The presence of industrial cities and free zones strengthen food processing and export - Diversity of agro- food products, which includes more than 30 kinds of main agriculture distributed to crops, vegetables and fruits in addition to the various livestock products - Syrian geographical location at the crossroads between Asia and Europe helps the development of the Syrian trade and increases the goods flow - Reform of trade policy provides an appropriate framework for agricultural trade improvement as well as the existence of policies to encourage agricultural investment - There is strong public research and extension services disseminate information to the breeders - Input supply arrangements prove to be satisfactory - Natural resources and wealth, human capital - Syrian exports to GAFTA and Turkey are now exempted from custom fees 	<p>The weakness in the Syrian agro-food sector</p> <ul style="list-style-type: none"> - Low investment in the agricultural sector due to the length of the period of capital recovery and the risk factors related to agricultural investments - Fragmentation of agricultural land holdings, which prevent implementation of large investment projects - Erosion and degradation of the soil by the wind in the rangeland area - The weakness of agro- food competitiveness due to lack of marketing information system and weak marketing services (sorting - packaging - grading - storage - refrigeration - transport and manufacturing). - Weak of agricultural finance - Limited incentive for quality improvement on the market with quality control function that not carried out in an efficient way
<p>The opportunities for the Syrian agro-food sector</p> <ul style="list-style-type: none"> - The possibility of increasing exports through applying preferential trade agreements - The application of modern irrigation systems helps the expansion of irrigated crops - The possibility to enhance the competitiveness of the agricultural sector to increase agricultural exports and modify the negative agricultural trade balance - Increasing investment in the sector 	<p>The challenges for the Syrian agro-food sector</p> <ul style="list-style-type: none"> - Limited natural resources, especially land and water where traditional irrigation constitutes 85% of the total irrigated area.

Table 4.5 SWOT Chart of Turkish Agro-Food Sector Outlook

Strengths
<p>With its young and growing population, both consumption and production of food and beverage is increasing in Turkey.</p> <p>The Turkish food industry has important export opportunities due to the diverse agricultural products available in the country.</p> <p>Being a developing country, the GDP per capita is expected to increase in coming years which will also have an increasing affect on consumer spending.</p> <p>Agricultural sector lends itself to a thriving export industry and reduces domestic processor dependence on imports.</p> <p>Turkey enjoys an open and increasingly liberal trade and investment climate.</p> <p>Large, young and growing population, which is interested in new products, western food and drink products, and cafés.</p> <p>Turkey benefits from membership in a customs union with the EU, making it a very attractive platform for export-orientated manufacturers.</p> <p>Sufficient varieties and quantities of agricultural production (as raw materials).</p> <p>Relatively cheap labour force.</p> <p>Presence of widespread local communication networks and infrastructures.</p> <p>Sufficient educated and specialized work force for food industry.</p>
Opportunities
<p>Developing markets close to Turkey.</p> <p>Perspective for EU accession.</p> <p>An interested young population is open to trying new brands and products.</p> <p>Growth in the tourism sector also benefits consumption in the food and beverage industry.</p> <p>Since the market is still not mature, there are many opportunities for new products to enter Turkey.</p> <p>Disposable incomes are expected to grow considerably over the coming years, which should strengthen per capita food consumption considerably.</p> <p>The packaged and processed food industries are set to experience considerable growth owing to an interested youthful population that, with higher disposable incomes, is finding itself increasingly time-poor, particularly as more women enter the workforce.</p> <p>The government's desire to improve the competitiveness of the agricultural sector makes it an attractive opportunity for both foreign and international investors, who are likely to find liberal and flexible legislation in place. Much less affected by the global economic slowdown on the consumer side than some other high profile emerging markets, Turkey should continue to attract strong interest from multinational companies.</p>
Weaknesses
<p>Per capita food consumption remains fairly low.</p> <p>A significant proportion of the population still has low disposable incomes, making them highly price-conscious, and limiting audience size for interested investors.</p> <p>The economically volatile environment affected by the global economic crisis may hinder consumer spending.</p> <p>Low level of alcoholic drinks when compared with the European countries due to Islamic traditions and the high Special Consumption Tax on alcoholic drinks.</p>
Threats
<p>Insufficient integration and cooperation between agriculture and agro-industry.</p> <p>Some quality and safety problems in agriculture.</p> <p>Need to improve the official food control system in line with the EU legislation.</p> <p>Rather low investments in research and development.</p> <p>Some technology and capacity utilization problems of food producing SMEs.</p> <p>The unstable regulatory environment in agriculture also affects the food industry.</p> <p>High energy and raw material costs have a negative effect on the food and beverage manufacturers' performance. Ongoing discontent in the global economy could weigh on foreign investment and the export sector.</p>

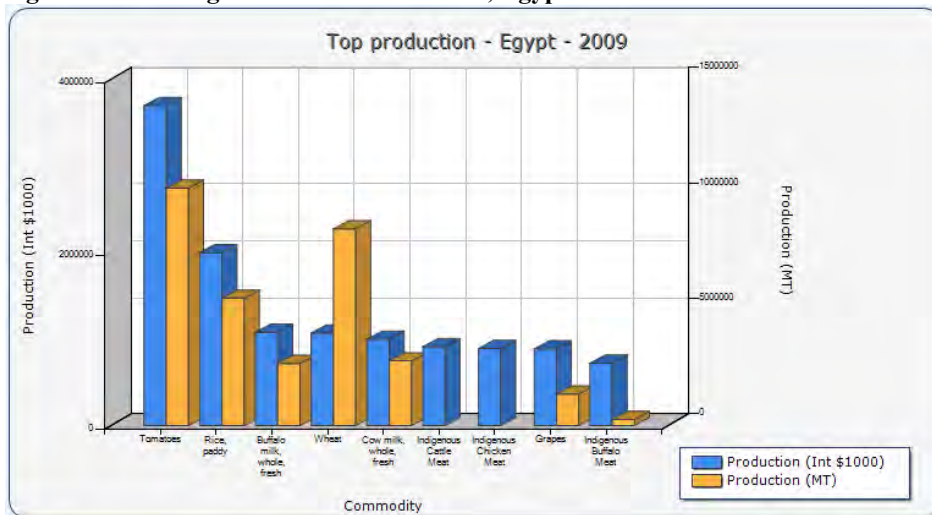
Figures

Figure 1: Main Agricultural Commodities, Algeria



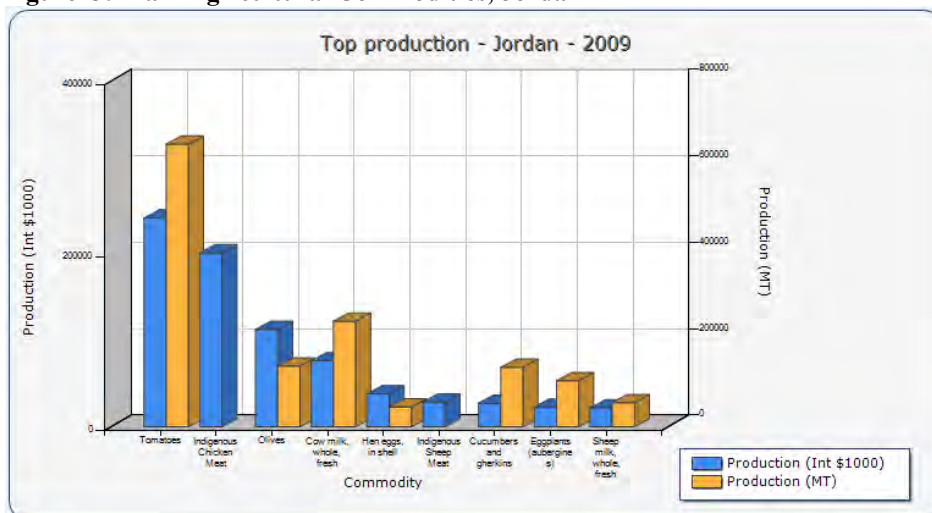
Source: FAOSTAT

Figure 2: Main Agricultural Commodities, Egypt



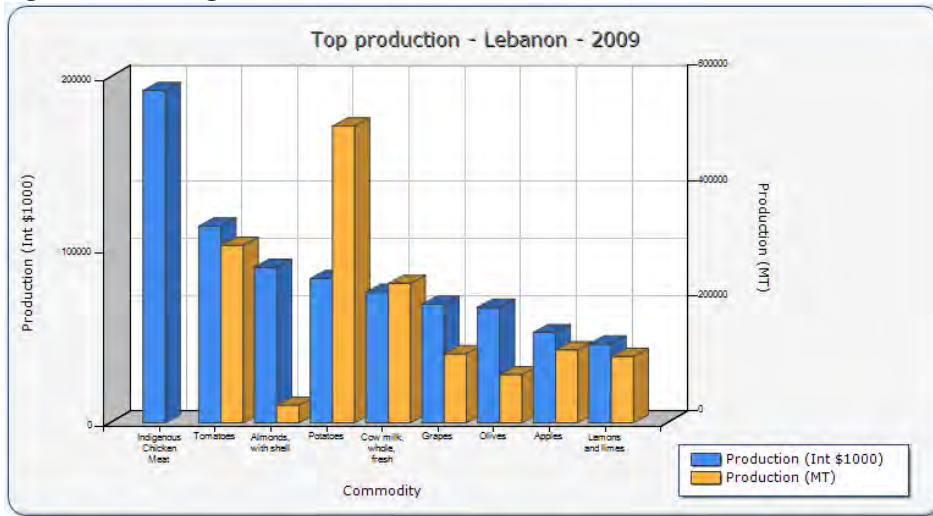
Source: FAOSTAT

Figure 3: Main Agricultural Commodities, Jordan



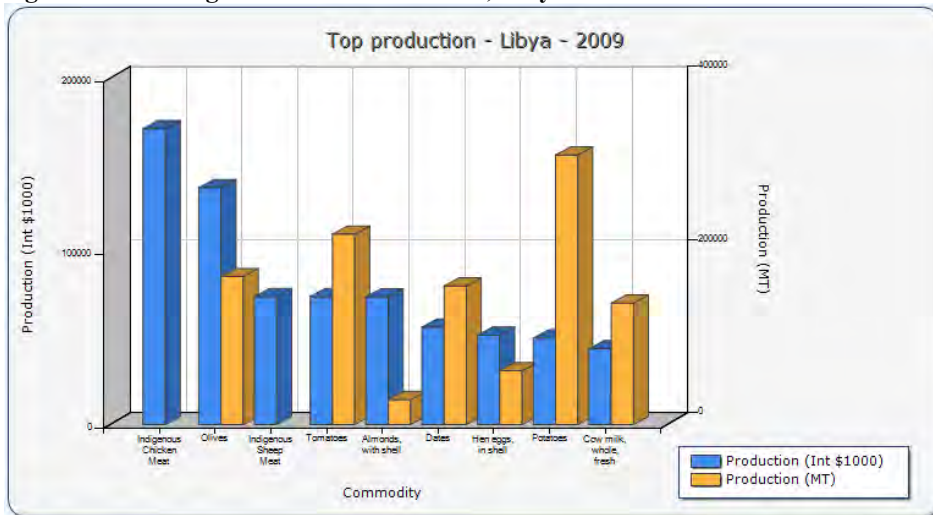
Source: FAOSTAT

Figure 4: Main Agricultural Commodities, Lebanon



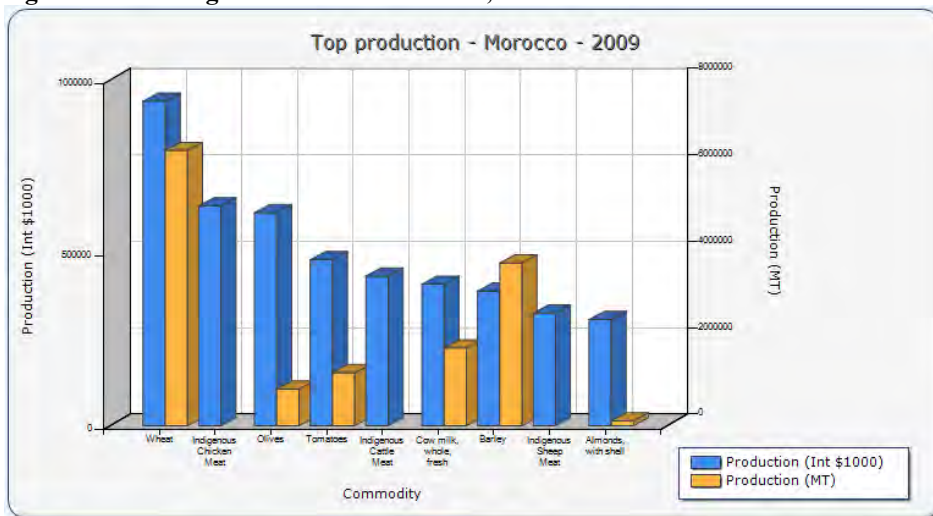
Source: FAOSTAT

Figure 5: Main Agricultural Commodities, Libya



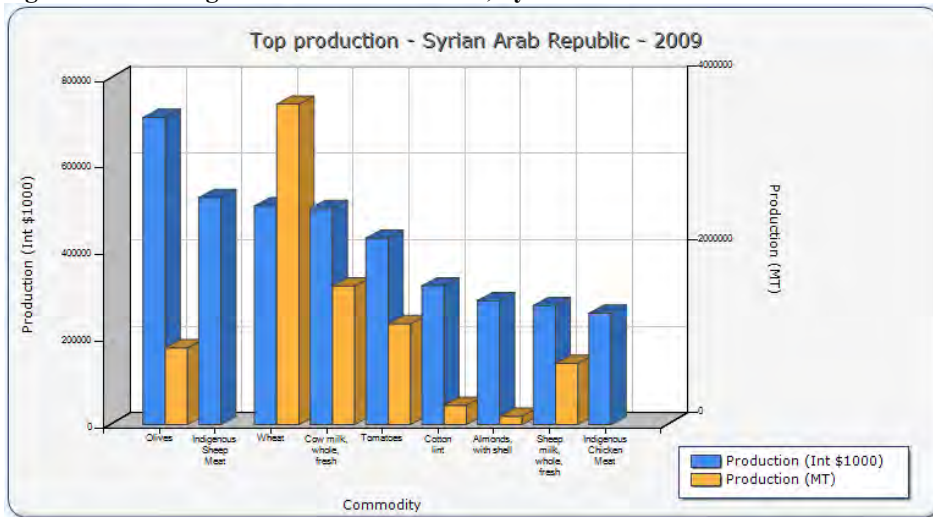
Source: FAOSTAT

Figure 6: Main Agricultural Commodities, Morocco



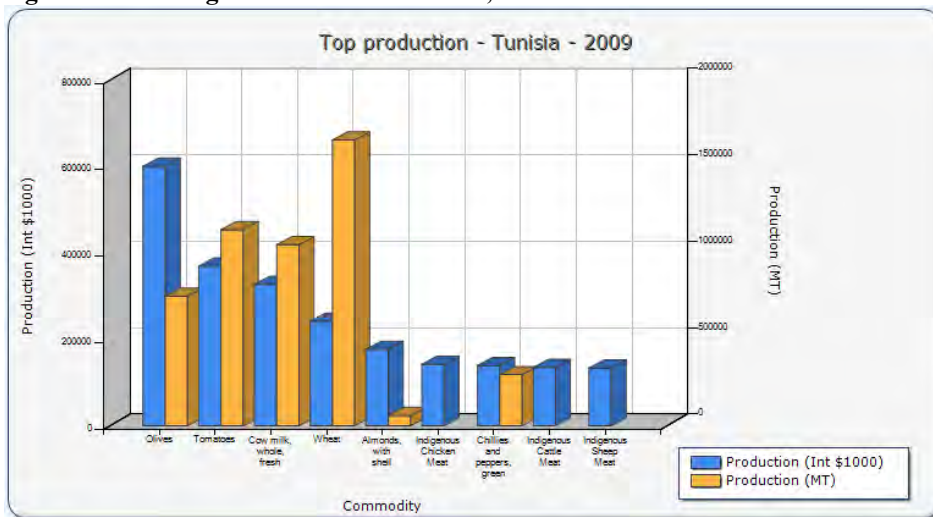
Source: FAOSTAT

Figure 7: Main Agricultural Commodities, Syria



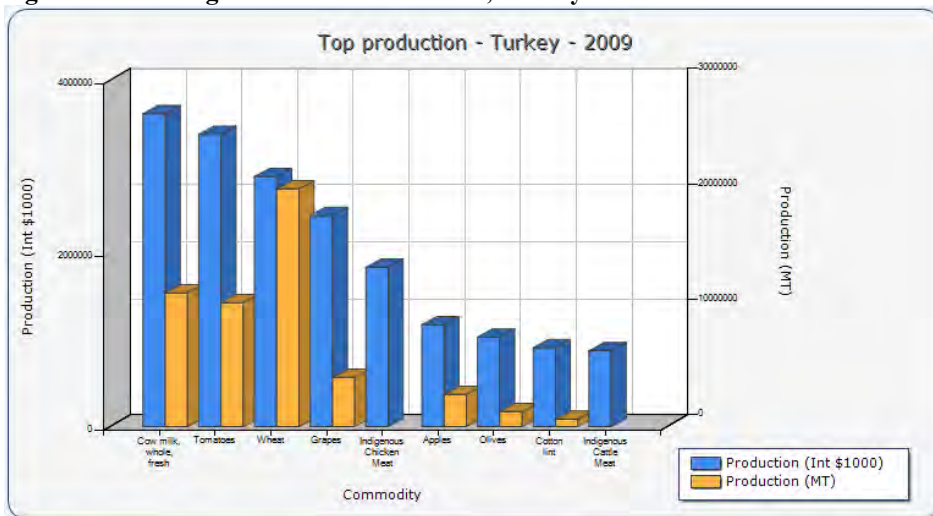
Source: FAOSTAT

Figure 8: Main Agricultural Commodities, Tunisia



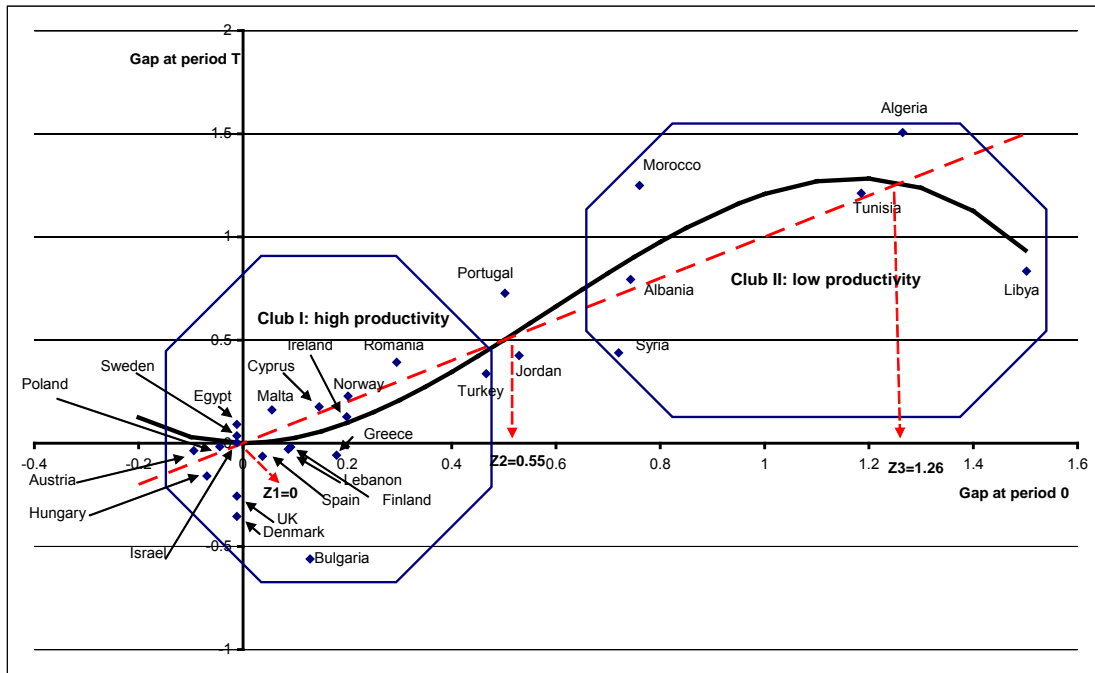
Source: FAOSTAT

Figure 9: Main Agricultural Commodities, Turkey



Source: FAOSTAT

Figure 10: Agricultural TFP growth: Equilibrium points and convergence clubs



Source: Galanopoulos *et al.* 2011

ANNEX II

A review of the national and international agro-food policies and institutions in:

- 1. Egypt (Profs. Ibrahim Soliman, Ahmed Mashhour and Mohamed Gaber)**
- 2. Jordan (Profs. Ibrahim Soliman and Ahmed Mashhour)**
- 3. Libya (Prof. Boubaker Thabet)**
- 4. Morocco (Prof. Akka Ait El Mekki)**
- 5. Syria & Lebanon (National Agriculture Policy Center of Syrian Arab Republic)**
- 6. Tunisia (Prof. Boubaker Thabet)**
- 7. Turkey (Prof. Selim Çağatay)**

A REVIEW OF THE NATIONAL AND INTERNATIONAL AGRO-FOOD POLICIES AND INSTITUTIONS IN EGYPT

By

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INTRODUCTION

The study presents an analytical profile for the performance and policies of the agro-food sector in the Egyptian economy and rural society, the agro-food industry, the agro-food production and consumption, the agricultural sector Structure and policies. In addition, the study concerned the agro-food trade performance and policies. The caudal part of the study concerned a future perspective view of the Egyptian agricultural sector

1 DESCRIPTION OF AGRO-FOOD SECTOR

1-1 Importance and Role of Agro-Food Sector

1-1-1 Relative Size to national economy

Agricultural sector is a major sector in Egypt's national economy. It is responsible for achieving food security, by using human and natural resources with technology and capital in intensive way. The economic reform program has been significant although unequal across sectors. Agriculture has received closer attention than manufacturing and some services, which are only being liberalized gradually. Reform in agriculture, which began in the 1980s, has reduced government control over production, pricing, and distribution (Soliman, 1998). As a result, there appear to be no major remaining restrictions on annual production and most agricultural products appear to be freely tradable. While reforms in the manufacturing sector have continued, they have not been as rapid. All import and export bans and quotas have been abolished (World Bank, 2008).

The annual average of the period (1995-2007) showed that agricultural sector provided about 31% employment opportunities of the total workforce (Table 1), contributed approximately by 16% of GDP, and by nearly 9% of total exports (Table 2). The agricultural sector has achieved a steady increase in the volume of investments directed to such sector. Agricultural investments reached about 1.13 billion US\$ in 2005/2006 and rose to approximately 1.5 billion US\$ in 2006/2007 even though it had not passed 6.3% of total public investment (Al Bahnasawy, 2009). While 35% of the economically active population was employed in agriculture in 1995 (Table 4), the agricultural share in total Egyptian GDP was only 17%, the same year, (Table 2). Such role of agricultural sector declined to 27% of employment, (Table 1) and 15% of GDP (Table 2), in 2007.

In wards, there was a low growth rate of the Egyptian agricultural production, over the last decade (**Table 3**), associated with imbalance between a low share of this sector in GDP and relatively higher share in total employment. Such imbalance implied lower productivity, in terms of average value of agricultural output per agricultural worker, comparing with the national level, (Table 1), where the agricultural labor productivity reached only 50% of the national one. Egypt has remained a net importer of agricultural products, although its agricultural trade deficit has decreased in recent years (Table 2).

1-1-2 Agro-Food Sector and the society

Agriculture is not only a vital economic sector; it is mainly, a style of life. Even though modern agricultural systems have been developed to simulate, in numerous activities, the production relations of industries, agriculture cannot grow without being enveloped by a satisfactory living of the rural population.

1.1.2.1 Rural Standard of Living Indicators

The standard of living of rural community is a major criterion of rural communities. Therefore, this study has utilized the data t of two modern successive household budget surveys, conducted by the central Agency of Statistics and Public Mobilization (CAPMAS) of Egypt in 2000 and 2005, in order to estimate some major indicators of the standard of living in rural regions of Egypt and compare them with urban regions of the country, (Table 5). From that table, while the food price level raised at 9.4% annually between the year

2000 and 2005, it raised annually at 2.1% in urban region. This shows how government for urban much more than rural biased the food price subsidy policy and market control function.

Table 6, also, shows that although the ratio of Rural annual per capita income (total expenditure) to urban level at current price raised from 55% in the year 2000 to 84% in the year 2005, at real level (constant price of 2000) such ration decreased to only 39%. This was due to a decrease in the real annual rural per capita income at 9% while such decrease was only 2% in urban areas. Consequently, , the standard of living in rural regions is less than urban region at current prices and has gotten worsen at constant price level. Interpretation of such performance is due to less economic growth and less food subsidy policy in rural than urban.

1.1.2.2 Agriculture Share in Rural Household Income

Table 6, presents the household's income structure in both rural and urban regions in Egypt. While agricultural activities were the main source of income in rural area, i.e. around 62% such activities were only 16% in urban regions. While income from wages and salaries was almost one third of urban household's income it was only 18% in rural regions. The rest of income sources was derived from residential building rent, commercial projects and financial activities. Such sources represent about one-half of urban household's income and only one-fifth of the household in rural regions. In words, the opportunities for non-agricultural sources of income in rural areas are much more less than urban. Accordingly, the increase in non-agricultural population in rural areas is going to be an abundant burden on the national economy in Egypt over time, as will be seeing in the following section.

1-1-2-3 Non- Agricultural Rural Population

The demographic changes in population structure (Table 4) show a very important issue that has affected much the performance of the Egyptian Economy. While the total population size grew from about 52 million inhabitants in 1986 to around 83 millions in 2009, and the urban population grew at almost the same rate, the rural population has shown vital demographic changes over that period. The share of agricultural population in rural society declined from almost one-half of the rural regions in 1986 to only 29% at a decline annual rate of 0.3%. On the other hand, the non-agricultural rural population increased from only 7% of the rural communities to more than 29% of such communities at annual growth rate of 8.2%. The resultant was a growth of total non-agricultural population, either living in rural or urban regions from 51% of the total population to more than 71% along the last three decades. It seems that the newly urbanized population has shifted from food producer to only consumer, but simulating the high urban propensity to consume, either quantity wise or quality wise. In addition, such abundant non-agricultural population usually has not satisfactory opportunity income and/or employment either in rural or urban regions. They have made extra pressure upon the demand for agro-food sector, without sharing in expanding its supply, (Soliman, et al, 2000).

Either the non-agricultural population stayed in rural communities or migrated to new urban community, they are always suffering from lacking of satisfactory jobs to cover their ambitious acquired desire to improve their consumption attitudes. Accordingly, they have become a main source of expanding the population categories under the poverty line and the enlargement in the food and other services subsidies.

The expelling factors surpassed the attracting ones in rural societies, particularly with the liberalization of the agricultural market by 1986/1987. This was due to the lack of integrated rural development programs, until the onset of the 21 century in Egypt. Since 1994, Egypt's Human Development Reports and the growing number of indicators of well-being have consistently shown the persistent level of deprivation of rural communities. They are deprived in terms of physical infrastructure facilities as well as education access and outcomes. Moreover, the quantity and diversity of job opportunities is far more

restricted in rural Egypt and can explain the strong tendency for rural-urban migration and the very fast expansion of informal Slums (Ashwaiyat) which offer intermediate earnings and living conditions between rural and urban regions.

1.1.2.4 Poverty in Rural Versus Urban Communities.

Where the gross national product (GNP) per capita expresses a national average of wealth, it does not provide an insight into the levels of actual wealth distribution to individuals within the state. Accordingly, Ginny coefficient provides a useful language to show the principal factors that characterize equality and inequality for nation states and communities inside states. By focusing on social equity the Ginny coefficient provides a useful guide (Litchfield A, 1999). In Egypt Lorenz Curves and Ginny Coefficients are estimated from the Household expenditure surveys conducted in Egypt since 1958/1959 till now. The estimates are for urban and rural regions. Ginny coefficients can be used usefully, as one means to discuss economic and social reform, to forecast upon trends towards civil violence, organized crime and migration rates.

The poverty rates as shown in (Table 7) indicates to the concentration of the poor in rural areas and particularly those in Upper Egypt. Even though rural regions are poorer than urban, inequality in income distribution is less in rural than urban regions of Egypt, (Table 7). However, more income distribution equality associated with much less income level than urban, is a disadvantage, as it means that poverty is wide expanded and more deeper in rural than in urban

1.1.2. 5 Does Migration Reduce Unemployment and Poverty in Egyptian Rural

Migration broadens young people's opportunities and offers them a way to earn higher income and gain skills, (The World Bank, 2004). However, many Egyptian youths aspire to migrate; few actually succeed to do so. According to SYPE (2010), 15% of Egyptian youth, 18-29 years old, aspire to go live or work abroad, but only 1.6% had managed to do so. By now, It is well established that migration from Egypt is mostly made up of temporary migration to other Arab countries, whereas the proportion of return youth migrants from European destination countries is almost negligible, perhaps because those who go there do not return (UN Department of Social and Economic Affairs, 2009)

. Education appears to be a powerful motivator for migration of both young men and young women. Surprisingly, both the aspiration and actual migration rates increase steadily with education. It ranges from 4.5% for those with no school certificates to 20.9% for those with university education (ILO and Ministry of Manpower and Migration, 2009). University-educated young men are nearly 3.5 times as likely to migrate as men with no school certificate are, and university-educated women are more than 8 times more likely to migrate than their counterparts with no school certificate are. It, apparently, means that the higher the education level in Egypt, the less is the opportunity to be employed, (Migration (DRC), 2007). However, El-Kogali S. and Al-Bassusi N, (2001) add that the increase in both migration level aspirations as well as actual migration with education level reflects the role of education in in facilitating migration. Men from urban slums milieu and from rural areas are much more likely to migrate than men from urban non-slum areas (El-Kogali, S., and E. Suleiman, 2001). Absence of job opportunities (51%), poor living conditions (33.9%), the relatively low income in Egypt compared to other countries (33.0%), the need to assist their families financially (14.7%), and the need to earn money (12.7%) are motivations behind migration.

Table 8, shows high proportion of Cairo and Giza population are from internal migration. The majority of migrants are from Upper Egypt rural areas where is relatively the lowest income communities. This may be behind the increase in the numbers of slum dwellers in Cairo and Giza, which amounted to more than 6 million people, representing about 50% of slum dwellers in Egypt in January 2008. (ILO, 2008). According to data from the Central Agency for Public Mobilization and Statistics some studies point to the negative impact on the educational process of these massive immigrations into peril-urban metropolitan

region "Cairo and Giza" (El-Kogali, S., and E. Suleiman, 2001). In addition, the three cities along the western bank of Suez Canal, Port Said, Ismailia and Suez, have showed the highest rate of migration among their populations. However, the reasons were mainly due to dual migration (out from and to) during wars at Suez Canal borders over the period 1967-1973, (UN, 2009).. Most of rural immigrants to the Arab countries and their job opportunities are mostly in the farming and construction sectors as unskilled labor were from rural areas of Egypt, (These opportunities have been the main source of savings in the form of remittances which are subsequently used to engage in projects as young entrepreneurs (Zohry, A. and Harrell-Bond, B., 2003)

1-2 Main Agricultural Commodities

1. 2. 1 Crops

The total agricultural area was around 3,689 million hectares in 2009. The major component of the agricultural land is the Nile delta and its valley until the Southern border of Egypt, which is called the old land. It represents 70% of the total. The rest is reclaimed desert land called new land (Table 9). Most of agricultural land (97.6%) is surface irrigated by Nile water. The rest is 2% underground water and 0.4% rain fed, concentrated at the north west of Mediterranean shore. More than 80% of water resources in Egypt are utilized for agriculture, (Soliman, 2010). The permanent crops share was 22% of the agricultural area, (Table 9).

As shown from (Table 9) the cropped area is about 176% of the agricultural land. This means that the Intensification factor of Egyptian agricultural system in land is closer to two crops a year per hectare (Cropped Area/ Agricultural Area). The intensification rates of old and new land are 189% and 147%, respectively. To identify the main crops, it should be noted that, there are three cultivated seasons (winter: October-May), (summer: May-August), and (Nile: August-October). The area of the winter season, occupies by 78%, followed by summer season (62%), and the fourth category is Nile season crops, which occupies around 8% of the total agricultural land. Accordingly, the main crops are going to be identified by season beside, the main permanent crops.

1.2.1.1 Permanent crops

Permanent crops last for more than one year on land. They compose of perennial crops (Sugar cane, and alfalfa) and trees (forestry, fruit trees, and Date palm). Date palm areas are concentrated, mainly, in the new (reclaimed) land. Sugar cane and alfalfa occupy together about 20% of the total permanent crops area. It should be mentioned, that most of alfalfa area is in new land as it biologically enrich, directly and indirectly, the new land soil fertility. Forestry (wood trees) acreage is almost nil of 1.2% of the total permanent crops area and located, entirely, in new land regions, which was originally desert area, (Table 10). Two thirds of Permanent acreage is allocated for fruits, which, also is mainly concentrated in new land where 50% of such acreage is for fruit trees. In addition, Date-palm area is concentrated, mainly, in the new (reclaimed) land.

Fruits are not only the main permanent crop, but they have also a significant share in Egyptian agricultural exports, 583 thousand tons of fruits, i.e. 6% of production, were exported in 2009. Citrus (Lemon, Limes, Mandarin and Oranges) are the main producing fruits in Egypt. Table 11 shows that the total production of this category among fruits production was more than one third in 2009. Citrus, also, represent one-half of the exported quantity of fruits in the same year, where the bulk was oranges. Citrus represent one third of fruits consumption. However, the share of fruits in daily calories intake is around 5% and 2% of protein intake, (Table 12). Even though, the average productivity of oranges in Egypt has reached only 61% of the world average in (Table 13).

Date palm as the second category among permanent crops in Egypt, occupying 20% of the permanent crops area (Table 10), provides about 1.3 million tons of production (Table 11). However, dates

almost recognize self-sufficiency in Egypt. Only 5,000 tons are exported and one ton of special quality is imported from Saudi Arabia (Table 11). Egyptian per capita consumption of dates reaches around 15 kg per year, which provides 2% of the daily per capita calories food intake, (Table 12). Dates yield per hectare in Egypt is one of the highest levels in the world, around 15 tons per hectare, while the world average is around 5.75 tons per hectare, (Table 13). Surprisingly, that Egyptian agriculture holds such large acreage, big quantity of production and high yield of dates and exports only 0.4% of its total production.

1.2.1.2 Winter Crops

The main crops in winter are wheat and clover (Berseem). The later is the main fodder crop in Egypt. They occupy 6 month (Oct. – May). The first occupies about 55% of winter and the second occupies around 26% of winter area, (Table 14). Since the last decade, within the economic reform era, the government has provided a guarantee wheat price higher than the international price of wheat. This policy instrument encouraged farmers to deliver their wheat for being processed as subsidized common bread and to raise the wheat self-sufficiency as basic strategic crop. Such incentive p has lead to decrease the Berseem area, as competitive crop, from one third to less than one-fifth of agricultural area in Egypt. The area taken from under berseem allocated mainly for wheat and opened, relatively, a place for sugar beat area to expand, (Table 14). The changes in price policies would explain to some extend such changes in cropping pattern.

Wheat production reached about 7.4 million tons in 2009. Even though, it hardly covered 56% of consumption in that year, (Table 11). Egypt is the first importer of wheat in the world market, where. Wheat imports surpassed 5.9 million tons in 2009. The shortage of wheat production to cover consumption is not due to low productivity, as the Egyptian wheat yield reached 2.2 folds the world average in 2009, (Table 13), which put Egypt at the top of the world's countries in wheat productivity. However, as Egyptian Agriculture is fully surface irrigated with suitable weather and intensive fertilization the potential wheat productivity is at least 50% higher than the existing level. It seems that, limits of available agricultural land in winter are the constraint, which is also associated with water limitation.

Wheat is not only the main imported item but it is also the main food item. It provides one third of daily diet calories intake and 36% of the daily protein intake, (Table 12) .Therefore, it is the main item of the subsidized food package in Egypt. Almost 60% of wheat flower in Egypt reaches the market as subsidized "Baladi" bread, (Soliman and Eid, 1995). Therefore, using wheat as feed is unfavorable trend. The actual quantity utilizes, as feed is not known. The food balance sheet showed that 221 thousand tons were used as feed in 2009 (Table 11). Such quantity represented about 5% of domestic production. However, some older studies from field surveys should that the wheat quantity used for feed reached three times such estimate (Soliman and Abdul Zaher, 1984).

1.2.1.3 Summer and Nili Crops

The summer season crops are numerous as shown in (Table 15). However, the two most important ones are maize and rice, which represent about 40% and 32% of the aggregate total summer cropped area, respectively. They are concentrated in old land. In general, the summer crops are concentrated in old land region, because in summer, weather is hot and new land usually is much poorer land, close to sandy. Therefore, cultivating such crops in new land consumes more water and more fertilizers. Water charge is more costly in new land; due to not only more quantity, but also it is of the higher cost of irrigation network, using electricity power, sprinkle, and/or drip irrigation.

It should be mentioned, that a policy to raise the rate of self-reliance on domestic resources in preparing the common popular subsidized bread (Baladi) in Egypt had been followed until few years ago. Such policy intended to add 20% of maize flower to the flower delivered for processing the common bread, even though, the production of maize (5.5 million tons in 2009) covered only 58% of the total consumption

(Table 11). Such policy, also, activated the demand for maize cultivation. This extra demand compensated the decrease in the demand for maize for livestock and poultry, where imported corn has become a main poultry and livestock feed ingredient. In addition, the demand for maize to make bread in villages has diminished to great extent associated with socio-economic development over decades (Soliman and Gaber, 1997).

Egyptian rice is a main exportable agro-food commodity. The exported quantity surpassed 27% of production in 2009. About 4% of domestic supply, i.e. 138 thousand tons were used for feed. This quantity was the broken grains. The yellow corn has recently introduced to the Egyptian agricultural cropping pattern, to replace partially the imported quantity for poultry and livestock feeding. The self-sufficiency of maize was 58%, i.e. 42% imported in 2009, (Table 11). Therefore, 6.2% of the cropped area in summer was allocated for corn, (Table 15). Such area was mainly, at the expenses of sorghum and maize acreage. The expansion in yellow corn area is a promising option to fulfill the gap in corn market for poultry feed, (Fawzy, 2009). The average yield per hectare of maize and rice reached in 2009 more than two folds the world average (Table 13). Even though, there is a probability to expand area and production of both crops. However, the limited water resource in Egypt is a constraint to expand rice area. Rice and maize are the second important food items in the Egyptian diet after wheat. Together they provide 28% of calories and 23% of protein in the daily food intake, (Table 12)

Egyptian cotton, historically, was the main crop in the cropping pattern. However, empirically, cotton now is occupying not more than 6.5% of summer-cropped area (Table 15). Dramatic changes of Egyptian economy and contradicted Policies as well as lack of proper management of related institutional framework in Egyptian economy has led to rapid deterioration in the area, yield, and associated domestic industry of cotton. Even though, cotton is still occupying almost, value-wise, the front of agro-food exports bill, (Soliman and Owaida, 2005). The Egyptian cotton still has a higher yield per hectare than the world average, and has unique quality of extra-long staple at the highest price in the international market.

The Nili seasonal crops are cultivated as late summer season. Therefore, almost the same summer crops are cultivated during this short period (August-October). The main crop is maize which occupies 80% of the Nili cropped area, of which 69% in old land and 7% in new land in 2009, (**Table 16**). The feasibility of the Nili season is to utilize the short time left after early picking of cotton or after short season rice. In addition, a large area of it is cut as green maize, which is used for livestock feeding in summer to partially fulfill the lack of green fodders in this season.

1.2.1.4 Vegetables

Similar to field crops vegetables are cultivated along the three agricultural seasons in Egypt. This is because of the moderate Egyptian climate, as a main factor that generates competitiveness. Investigation of the vegetable yield per hectare in Egypt in comparison with the world yield average of comparable vegetable in (Table 13) shows that the Egyptian level is several folds the world average. This is an additional advantage, which enlarges the opportunity of Egyptian agriculture to approach comparative advantage in vegetables in the world market (Soliman and Gaber, 2004).

The most important vegetable crops are Tomatoes, Potatoes, Onion, and Green beans, in winter season. They occupy 32%, 19%, 15% and 8% of winter vegetable cropped area, respectively, (Table 17). Water melon for seeds, Strawberry, Tomatoes and Potatoes,, occupy 19%, 19%, 13% and 11% of summer vegetable cropped area, respectively, (Table 18). During Nili Season Tomatoes, Potatoes, Egg plant and Green pepper occupy 29%, 26%, 8% and 7% of vegetable cropped area, respectively, (**Table 19**)

The main exportable vegetables from domestic Egyptian production are tomatoes, onion, potatoes, strawberry and green beans. Even though, the total quantity exported of vegetables was 930 thousand tons, it was less than 4.3% of production in 2009. This could be an evidence of the poor competitiveness of

Egyptian production in the world market for many obstacles facing vegetables export (Soliman and Gaber, 2004). While the share of potatoes in total production of vegetables was 13%, its share in vegetables exports was 47% and while the share of tomatoes in vegetables production was 41% its share in vegetables export was 5% in 2009, (Table 11)

1-2 -2.Livestock

1-2-2-1 Livestock in the Egyptian National Economy

Livestock development is necessary in Egypt for four reasons. First, Egypt is a net importer of red meat to great extent and to some extent of dairy products, particularly butter and ghee (Table 11). Secondly, The Egyptian agricultural system is highly intensive with abundant by-products, which are economically utilized by livestock as feeds. Thirdly, the intensive farming system and the ambitious land reclamation program, associated with the absence of the silt after stopping the Nile Flood by establishing the high dam, in Aswan –south of Egypt- has dictated renewing the soil fertility with organic fertilizer from livestock.

The forth reason stems from the lack of sufficient animal protein in the Egyptian food consumption pattern. The main feature of male nutrition in Egyptian diet is animal protein. The average per capita daily intake is about 20.5 grams, i.e. 22% of the daily gross protein (Table 12). The nutritional recommended allowance, suppose to be at least 35 grams (Soliman and Eid, 1995b). Such deficit in animal protein, on average level, supposes to be more severing among low-income categories of the population (El Asfahani. and Soliman, 1989). The main share of animal protein in the daily Egyptian diet is red meat, followed by fish, then poultry and at the end dairy products (Table 12). This pattern does not reflect the recommended pattern and/or the economic efficiency of resources use. The ranking of animal protein produce on base of the least cost net protein utilized of the Egyptian diet in ascending order is: Fish (from fish farming), Table Eggs, Milk (from dairy buffalo), broiler meat and the highest cost is the protein of red meat (cattle and buffalo meat), (Soliman, 1994). As the percentage of nutritionally vulnerable groups in Egypt is high (children, elderly people, pregnant and Brest feeder women) red meat is not the recommended source of protein to them. In addition, red meat is a source of raising the unfavorable cholesterol rate in blood (Soliman and Shapouri, 1984). Therefore, towards a feasible nutrition plan in Egypt based on health allowance recommendation and matches the economic principal of comparative advantage, priorities of investment should be given to table eggs, milk production from dairy buffalo and fish farming.

Table 25 and Table 26 show the relationship between farm size holding and livestock holding size. The most important noticed result is that 12.15% and 17.3% of cattle and buffalo holders are landless. 75% of cattle and 89% of buffaloes are with farmers who are holding less than 5 hectares. About two thirds of cattle and buffalo holding of less than five heads are with farmers who are holding less than 4 hectares. This means that the smaller the farm size the smaller also is livestock herd size on farm. The farmer usually determines the livestock herd size according to the available land holding, as it, in turn, determines the possible area of green fodder (Berseem) with other subsistence crops, mainly, wheat

1-2-2-2 Livestock Production Systems

The major livestock production system is the traditional mixed agriculture farming system (buffaloes and native cows) which is characterized by very small herd size -typically just one or two animals (Soliman et al., 1982). Traditional mixed farms produce crops and livestock for both home consumption and sales. Livestock, under this system, is relatively intensive and concentrated on smaller, subsistence-oriented farms in the irrigated cropping region. This intensive village-based system predominates for cattle, buffalo, and small ruminants and produce 80 % of all beef, 90% of all milk and dairy products, and 70% of all mutton. Then, the success or failure of Egypt's livestock development program depends upon their ability

to influence traditional smaller farmer's decisions on investment in livestock. The traditional system still accounts for an estimated 75 percent of total milk production (Mashhour, 1995).

The other principal production system is the commercial buffalo dairy herd. These units, up to mid of eighties were known commonly as "Zaraba herds" or "flying herds". They are located on the outskirts of major urban centers, such as Cairo and Alexandria. Normally, there is no breeding or production of replacement animals from within these herds themselves. Rather, lactating buffalo cows are purchased from outlying rural villages, and these animals are sold for slaughter once they have completed lactation.

Recently, another transaction system has been raised. The dairy buffalo operator replaces his buffalo cow during the year, through agents, in order to keep his milk supply stable over the entire year. The culled buffalo usually returns to traditional herd, where the breeding system is found. This system composes of, relatively, small commercial dairy herds. Herds of 15 to 30 animals are common, while somewhat larger herds also exist. Most feeds are purchased and consist of clover, crop residues from nearby farms as well as food processing wastes and feed concentrates purchased through private and government channels. These herds account for an estimated 11 percent of milk animals and 13 percent of milk production (Soliman; Mashhour, 2000).

The public sector had a minor role in domestic milk supply in eighties, i.e. (less than 1 percent). It has disappeared since nineties. The share of foreign cattle and crossbred cattle seems little. However, recently, there has been substantial expansion in foreign dairy cattle as private sector enterprising, including a few large herds of these breeds as commercial dairies (Mashhour, 2005).

The extensive Bedouin system provides 30% of all mutton, which is destined primarily for export. The intensive commercial dairy system operates large and medium scale farms that, with 30,000 to 40,000 Holstein cattle in production, contribute 10% of all milk and dairy products (Winrok International Institute for Agricultural Development, 1993).

1-2-2-3 Comparative Advantage of Egypt in Meat and Milk from Cattle and Buffalo

Livestock production and productivity indicators concerning Milk, Meat, Hides, and Skins are presented in (Table 20). The productivity criteria are the producing animals as a percent of the total stock and the average yield per producing animal. Both were compared with the world average.

The milk production is mainly from dairy buffalo and cattle, i.e. 98%. Almost sheep and goat milk are devoted for rearing lambs and kids. Dairy buffalo in Egypt surpasses cattle in milk yield in comparison with the world average. Socio-economic studies have shown that Egypt has comparative advantage in milk production from dairy buffalo (Soliman, 2004 and Soliman, 2008). The percent of milking buffalo and cattle in the stock are higher than the world average

The main source of meat in Egypt is buffalo and cattle, (85% of the total meat production). The milk yield and carcass weight of buffalo surpass the world average, but both criteria of the Egyptian cattle are less than the world average.

The Egyptian consumer taste does not give mutton and lamb meat a high priority. Therefore, sheep and Goats meat are of minor important in domestic supply. Such types are mainly demanded during religion occasions along the year (Soliman, 1985). Hide and skin productivity is much less per head than the world average.

Soliman, (2008) used the "Nominal protection Coefficient" as an indicator to estimate the comparative advantage of Egypt in milk and meat production from buffalo and cattle.

The "Nominal protection Coefficient (NPC)" is estimated from the following equation:

$$(NPC)_{ij} = P_{ij0}/P_{ija}$$

Where:

(NPC)_{ij} = The nominal protection coefficient of the commodity (i) produced by resource j

P_{ij0} = Farm Price of the commodity (i) produced by resource j in the domestic (0)

P_{ija} = Farm Price of the commodity (i) produced by resource j in the alternative market (a)

Where in our model:

i = m for milk and r for red meat,

j = (b) for buffalo and (c) for cattle

The farm price is used as the closest one to the costs of production value. The data were extracted from (FAOSTAT internet-site), using the statistical database of FAO over the period 1990-2005. The domestic market is the Egyptian market and the alternative one that supposes to perform competitive conditions is the average world market. It is assumed that the aggregate average of the world market reflects the fair free competitive market conditions. Accordingly, the judgment on the Egyptian market is concluded from the result of the following criteria:

If $(NPC)_{ij} \leq 1$ ~ Egypt has a comparative advantage in producing Commodity i by livestock type j, other wise it has not such advantage.

If cattle and buffaloes under Egyptian market conditions have shown comparative advantage performance in producing both commodities (milk and meat), another indicator should be used to judge which type of livestock should have the first priority in food security plan, given the deficit in feed availability in Egypt. Such indicator is presented by the following equation:

If $(NPC)_{bj} / (NPC)_{cj} \leq 1$ ~ buffalo production of commodity j (milk or meat) is more economical in utilizing resources under Egyptian market conditions.

Investigation of the results of calculating the nominal protection coefficient for milk and meat production in Egypt by buffalo and cattle, (Table 21 and Table 22) showed that Egypt has apparent comparative advantage in milk production from both types of livestock, because the estimated (NPC) was less than one in all concerned years. However, the estimated (NPC) for milk and meat produced by buffalo was less than that estimated for cattle in all investigated years (1990-2005). The estimated coefficient for buffaloes was not only less than that for cattle but it also decreased gradually over time at speedier rate than cattle. This result gives buffaloes more economic advantage in Egypt than cattle, along with further involvement of the Egyptian economy in free market system.

In lights of what shown above about the implication of comparative advantage, the nominal protection coefficient for milk production by buffalo was less than the estimated one for meat, particularly from the year 1994 until 2005. The results, also, showed that the farm gate price of milk and meat from buffalo was less than the international market. However, it was much lesser for milk than meat. Therefore, the development plan should focus upon raising buffalo milk productivity, particularly that milk price projection, would reach 2.5 folds its current level due to speed demand increase and slow production growth, (Soliman, 2008). Among the major targets towards raising milk productivity from the Egyptian buffaloes herd are the annual milk yield per milking head and the herd structure, particularly the proportion of milking herd in the stock. The same study showed that, although the proportion of the milking buffaloes in the total herd of Egypt was significantly higher than the world average along the last two decades, it has had a rate of decrease by about -0.6% a year. In addition, the optimum milking heads proportion in total herd structure should be 50%, (Soliman, 2004). Accordingly, as the percentage of milking buffaloes in the Egyptian stock reached 41% in the year 2009 (Table 20), such percentage should be raised by 19% above its current level to approach 50%.

Therefore, if the development plan oriented the credit policies, veterinary care programs, and feeding plan towards reaching the target improvement of buffalo milk productivity, the total milk production of Egypt would raise by about 29%, as calculated from the following equation (Soliman, 2008):

$$r_{mp} = r_{mb} + r_{my}$$

Where:

r_{mp} = growth rate in national milk production

r_{mb} = growth in milking buffaloes number

r_{my} = growth in milk yield

Such increase would raise the self-sufficiency ratio from domestic milk production and shrink the speed of its price increase. There would be not only positive economic impacts but there would also be social impacts on nutritionally vulnerable groups by raising per capita consumption, particularly in rural regions.

.1-2-3 Poultry Production Systems

Poultry are represented by two distinct systems These are traditional farmyards and commercial farms. The commercial, industrialized system has varying degrees of vertical integration, is a high technology industry geared towards domestic and export markets, represents a L.E. 30 billions capital investment, employs 2 million people, and produce 70% of both broiler output and table eggs (Farid, 2006). Poultry kept on small farms are of wide structure and typology. Chickens are kept mainly for eggs, while pigeons, ducks, turkeys, and gees, along with rabbits, provide meat for the household. Farmyard poultry flocks consist of small, domestic breeds that command a premium price for their meat and eggs. Growth of these farm flocks is limited by the availability of household food and crop residues as their major feed source. Commercial chicken production depends more on imported feeds and other inputs, a dependency that has spread to a lesser extent to production of ducks, geese, rabbits, and turkeys for the urban markets. The following Tableau shows th profile of these main systems

A Profile of Poultry Production Systems in Egypt

Production Unit	Broilers	Table Eggs
Small farm village	Farmyard flocks, medium scale farms (27%)	Farmyard flocks, medium scale farms (30-40%)
Extensive Bedouin	N. A.	N. A.
Intensive commercial	Vertically integrated commercial producers (73%)	Commercial farms (65-70%)

Source: (1) Goueli, A.; Soliman, I., (1984) "Productive Efficiency of the broiler Industry in Egypt "Proceedings of 17th World’s Poultry Congress and Exhibition, pp.653-655, the World Poultry Science Association, Held at Helsinki, Finland. (2) Goueli, A. Soliman, I., and Mashhour, A., (1988) "Economic Efficiency of Family-Farm Small Scale Enterprise for Table-Egg Production Versus Layer Scale Enterprise" Proceedings of 18th World’s Poultry Congress and Exhibition, pp 1399-1401. Organized by World Poultry Science Association, Held at Nagoya, Japan. (3) Winrok International Institute for Agricultural Development, (1993) "Animal Protein Food System" The Government of The Arab Republic of Egypt and USAID, Project No. 263-0202, December 1993.

In 2005, the total number of broiler (Exotic "Commercial" and improved native "Baladi") herd was reported to be 25,935 with an estimated annual production potential of 962 million broilers. The actual number of operative herd in 2005 was 20,512 i.e. only 80% of the total number while the actual production was 415 million birds, i.e. 43% of total potential production capacity. The total number of commercial laying hens in 2005 was 2,839 millions with an annual production potential capacity of 6.6 billion eggs. The actual operative number of laying hens was 2,075 millions in 2005, i.e. 73% of the total volume, which produced 2.5 billion eggs, i.e. 38% of their total production potential (El Nagar, 2007).

The Poultry food products are meat and table eggs. Egypt through expanded private sector investments in both broiler and commercial hen egg industries over three decades has almost reached self-sufficiency in both products, (Table 11). Productivity of laying hens surpassed world average by 40%, while it is below the world average by 10% to 20% with respect to broiler, (Table 23). Higher mortality rate and less fed efficiency below the international norms were behind such lower productivity of broiler productivity (Goueili and Soliman, 1984).

1-3 Agricultural sector Structure

1.3.1 Farm Structure

In general, the Egyptian farming system has two major features. It is so intensive in production and too fragmented in farm size pattern. The first Egyptian law of land reform was released in September 1953. It limited the land holding by 84 hectares for a family (parents and children less than 21 years old) and by 41 hectares for a single person. The second law was in 1969, which reallocated the land holding size to be one-half of the first law limits, i.e. 40 hectares per family holder and 20 hectares per a single holder. Between the two law eras there were other presidential decrees package named nationalization decrees in 1961 that put all companies and firms under the state management including the agricultural sector. The land market was completely liberalized in 1997 when the land reform law was cancelled, which had dramatic impacts on the land holding pattern.

Table 27 and Table 28 present the relative frequency distribution of the agricultural land holding in Egypt over the period before the July 1952's Egyptian Revolution till the year 2000, which covered all structural changes in the land holding policy in Egypt. Unfortunately, no recent data on farm structure is available beyond 2000.

Estimates of Gini Coefficient and drawing Lorenz Curve are two parameters for assessment of the equality and Justice of wealth and resources in an economy. Gini coefficient provides a useful language to show the principal factors that characterize equality and inequality for nation states and communities inside states. When focusing on social equity, the Gini coefficient provides a useful guide (Litchfield A, 1999). As percentage, Gini coefficient ranges between Zero, which means full equality of the probability distribution of the concerned variable and 100%, i.e. full inequality (Lui, Hon-kwong, 1997). Therefore, Gini coefficient was estimated by this study for the frequency distribution of farm holdings of agricultural land in Egypt over the period (before 1992 till 2000)

Investigation of Table 27 and Table 28 showed that the Gini Coefficient was about 61.1% before the first land reform law (during the royal era of Egypt. After the first land holding law the Gini coefficient decreased to 49.4%, i.e. had moved towards more equality. After the nationalization decrees in 19961, the Gini coefficient had decreased more to be 43.3%, due to the absence of economic incentives to establish a large farm and due to the stagnation in the land market. The absence of incentives was due to several reasons. Among those reasons that the land reform law prevented the owners from taken the land from the land tenants, once they were paying regularly the rent. However, the rent was fixed and too low, only 7 times the land tax, which was in itself very low 7-10 US\$ per hectare. By definition, the Gini coefficient had decreased more to 40.3% by the second land reform law in 1969. It should be mentioned, that the less is the Gini coefficient the more is the fragmentation in the land holding size, rather than, more equality. In the year 2000, i.e. three years after liberalization of land market and cancelling the land ownership limitation as well as freeing the land rent and leave it to the market mechanism have raised the Gini coefficient slightly to be around 45%. However, if recent data were available after two decades of such dramatic changes in 1997, the land holding pattern would be much different towards higher centralization of larger farm size. (Figure 1) shows the changes in the curvature of Lorenz curve of the agricultural land holdings distribution over the concerned periods.

1.3.2 Agricultural Labor

The total population of Egypt surpassed 82 million inhabitants in 2009, (Table 4) of which about 27 millions are economically active, i.e. around on third, (Table 30). While the agricultural male labor was round 10% of the labor force the non-agricultural male labor was 59% in 2009 (Table 30). In addition, the share of female agricultural labor was 10% of the total labor force. The non-agricultural female share in labor force was 15%. The major reasons behind such shrinkage in agricultural labor share in the

economically active population are the decrease in the agricultural male labor by 0.4% a year over the period of Economic reform Era (1986-2009) while the non-agricultural male labor increased over the same period by 3.4%. Even though the female labor's share increased at a positive annual rate of 0.6%, the non-agricultural female labor expanded fast at annual growth rate of 6%. The expansion in mechanization system in agricultural production of Egypt over the last three decades was a main reason, as shown in the coming section, (Figure 2 and Figure 4). In addition, the market can not afforded a satisfactory opportunity income from agricultural labor to rural population (Soliman and Owaida, 1997), as will be explained in the following section. Finally, the deepness of the poverty gap between rural and urban has been enlarged over the last three decades as was shown under the previous section on socioeconomic aspects of the agro-food system

1.3.3 Input Usage & Machinery

Evidences of agricultural human labor substitution for machinery labor are apparent from data of (Table 31), (Figure 3) and (Figure 4). The density of human labor decreased from 3325 hours per hectare in 1986 to 3018 hours per hectare in 2008. Associated with human labor's density decrease the density of machinery labor increased from one tractor serving 49 hectares in 1986 to one tractor serving 34 hectares in 2008. The density of the mechanized harvesting system might show false conclusion, without explaining the reality of the apparent density. (Figure 4) and (Table 31) show, falsely that the density of harvesters on agricultural was decreasing as the number of hectares served by a machinery harvesting system was increasing over the period 1986-2008. In fact, the mechanical harvesting system in Egypt has shifted from three equipments (Harvester, threshing machine, and tractor) to only a one combine doing harvesting threshing and even transporting the yield to the farmer's storage (silo) by his house. Thereof, since mid of nineties the efficiency of harvesting farm operation has been drastically raised, as one combine becomes able to serve larger area of wheat and rice per day, (Soliman, 1997).

Beyond, human labor and machinery, farming system use intensively fertilizers, particularly in an intensive agricultural system as the Egyptian pattern. Even though the common three types of fertilizers Nitrogen, Phosphorus, and Potassium nutrients are used in the Egyptian soli, the most important one is nitrogen fertilizers, followed by phosphorus fertilizers. The density of application of these two types are presented in (Table 32) and (Figure 5). The importance of the three types is concluded from comparing the density of use of each of them as effective nutrient. While nitrogen fertilizers density ranged between 222-486 kilograms per hectare per year, the phosphorus ones ranged between 39-75 kilograms per hectare per year and the potash 9-20 kilos. There was high fluctuation in the applied quantity per hectare over the period (19986-2008). Such fluctuation reflects, probably, changes in the price policies due to changes in the economic regime. In addition the intensification in cropping pattern and deterioration soli fertility due to not only, intensive cultivation but also due to raising of water table associated with poor drainage have played roles in this concern (Goulili, Soliman and Rizk, 1988). Such issue needs a further extensive study of the input-output relations with price policy analysis.

1-4 Agro-Food Industry

Food processed products chemical fertilizers are among the most important outputs of industrial sector in Egypt (MALR, 2010)

1-4-1 Description and Importance

The agro-Food industries in Egypt accounted for around 20% of GDP. On the other hand, agro-food enterprises employed a workforce of 500,000 people, i.e. 22.8% of the workforce of the Egyptian industry.

1-4-2 Main Products

The main sub- sectors, classified by value added, are sugar, oil and fats and mill products, accounting for around 86% of the total value added of the agro-food industry (African Development Bank, 2007). (Table 33) shows the food processing subsector has experienced significant growth (around 20% per year on average), fuelled by both a growing domestic (and tourism) consumer market and exports. The subsector's main activities are basically fruit processing (juices, jams, marmalades, confectioneries), frozen vegetables, cereals and biscuits for both domestic and export markets. Other products such as oil, flour, sugar, non-alcoholic and alcoholic beverages, dairy products and ice cream are more focused on the domestic markets (Selim, 2009).

1-4-3. Structure and Typology of the Food Industry

The structure and typology of agro-food industry in Egypt can be assessed based upon the processed proportion versus non-processed of each food item. (Table 34) shows the proportion of each food item utilized in processing industries as well as the proportion utilized under other industries. Obviously, the rest is devoted for non-processing use (say fresh or raw). The highest proportion processed was from sugar crops under refining industry and oil crops for food oil and meal extraction. Barley comes at the third rank as a raw material for beer processing. Examples of other industries is more than 10% of maize supply is used for starch and glucose sugar extracted from maize.

1-4-4 Investment

Number of Companies involved in Food Processing Industry in Egypt surpassed 84. While the initial issued capital has reached 2806 million Egyptian pounds, the aggregate investments have reached around 5026 million Egyptian pounds, (Table 35). Whereas, the Egyptian investors share in such investments reached 72%, the partners from Arab countries share has approached 25%. The rest, i.e. around 3% was from the rest of the world.

1-4-5 Agro-Food Trade Flows

(Table 36), shows that Cheese from whole cow milk represents the highest share in total value of agro-food industry exports from Egypt, i.e. are around 25%, in 2009. Molasses came at the second rank. It is extracted from sugar cane refining industry, i.e. around 20% of the total agro-food processing in 2009. Such total was about 213.3 million dollars. Frozen potatoes occupied the third rank with a share in the total value of agro-food commodities exported in 2009. Its share was 15%

2 CURRENT AGRICULTURAL AND FOOD POLICIES

2-1 Short Retrospective View of Egyptian Agricultural Policies

The period 1965-1986 was the Era of the Egyptian Government interventions in the agricultural sector. The control of crop area and install of the producers' price and compulsory purchase of the major crops were the policy instruments used. Thereafter, Egypt has practiced a package of economic policies, known as structural adjustment program (SAP). The program has applied earlier on the agricultural sector, since 1986/1987, compared with other sectors in Egyptian economy, when the Ministry of Agriculture and Land Reclamation (MALR) started to eliminate taxes and subsidies in agriculture products and selling the public agricultural companies. Structural adjustment program, started, empirically, 1990/1991, a financial year, aimed to improve the conditions of the supply structure on base of the comparative advantage principles, to correct distortions in economic policies, development of the local resources, and promote institutional transformation to reduce vulnerability to external shocks in the future (Hazell, et al, 1995).

Since 1991/1992, the Government of Egypt (GOVEG) has applied the reform policies on all sectors in the Egyptian Economy. The main structural changes were liberalization of both monetary and financial markets. Therefore, it liberated both interest and exchange rates. Investment structure has shifted to the

private sector. Currently, the private sector share in Egyptian investment surpassed 70%. Those policy instruments were associated with privatization mechanisms of public firms. All those amendments have impacts on the resources use, the food supply, and unemployment and not only income growth, but also on its distribution (Mohammed, 2000).

The SAP application in the agricultural sector composed of five instruments. These are:

- (1) Remove the farm price control,
- (2) Eliminating restrictions on crop area,
- (3) Cancellation of Government control in purchasing crops,
- (4) Phasing out the subsidies on agricultural production inputs,

(5) Cancelling the Government deregulation, this prevented the entry of private sector in processing and marketing of agricultural products and agricultural production inputs (Hazell, et al, 1995).

The agricultural policy amendments can be classified under two dimensions. First, the policies geared to supply-side. Second, the policies directed to the demand-side.

The first package of reforms concerning the Policies Geared to agricultural supply was implemented during the period (1987-1994). Headed the State has oriented the application of the policy of economic liberalization to transition from central planning to indicative planning based on incentives. In this context, the ministry of agriculture developed so-called benchmark-cropping pattern, as a main production-policy, which take into account to secure the national needs of strategic crops, achieve market stability, water conservation, and limiting the expansion in water-consuming crops (rice and sugar cane). Such policy made agricultural land use (cropping pattern) and agricultural rotation to be determined by farmers' decisions, except rice area, which has limited by a border of 1.2 million acres. The farmer who cultivates rice in a region not allowed for such crop pays a heavy fine. Whereas, other cereals, legumes, vegetables, fruits and fodders; area stayed unrestricted, barriers were induced to shrink the area under Egyptian cotton.

Up to 1986, there were two exchange rates for the local currency (Egyptian Pound, EGP). First official exchange rate equaled 1.43 USD/EGP and a free market exchange rate, which equaled US \$ 0.47/EGP. The official exchange rate applied on all exports of cotton and rice, but did not apply to other crops. While half exports of crops, rather than cotton and rice, applied the official price, the other half applied the free market price. This excessive exchange rate levels resulted in low producer prices. Accordingly, there were indirect taxes on agricultural exports, which was equivalent to a taxed export price policy. In 1990, the official exchange rate was reduced to US\$ 0.5/EGP, while the exchange rate fell in the free market to US\$ 0.34 /EGP. In 1991, there was a common exchange rate and the market exchange rate was US\$ 0.30 /EGP (The World Bank, 2010). However, GOVEG has continued subsidizing the various food products, most notably bread, sugar, and oil, for low-income groups.

. Agricultural development efforts have experienced major changes since 1980 in the different fields of agricultural production, due to expansion of agricultural areas, and improving productivity. These efforts have led to the increase of the agricultural land from 2.5 million hectares in 1980 to approximately 3.7 million Hectares in 2007, as well as increasing cropped area from some 4.4 million Hectares in 1980 to 6.4 million Hectares in 2007. The horizontal and vertical improvement in cultivated area and crop productivity, achieved an average annual growth rate in agriculture of 3-4%. However, such achievements faced notable increase in population associated with expansion in their needs due to economic growth, (MALR, 1982), (MALR, 1991).

The core of Policies directed to the demand-side was the consumer's price subsidy and distribution of some subsistence food items though rational cards. Therefore, such policies profile was presented under the section of price and income support policies

2-2 Objectives of the Agro-Food Policies

MALR has committed with the following objectives to achieve developed sustainable Egyptian agriculture system (MALR, 2009):

- 1 Sustainable use of natural agricultural resources;
- 2 Increasing the productivity of both the land and water units;
- 3 Raising the degree of food security of the strategic food commodities;
- 4 Increasing the competitiveness of agricultural products in local and international markets;
- 5 Improving the climate for agricultural investment;
- 6 Improving the standards of living and reducing poverty rates in the rural area

2-3 Price and Income support Policies

The price and income support policies in Egypt are classified as follows for the analytical purposes: (a) Producers' price support policy (b) Consumer Price Subsidy Policy, (c) Share of Food and Agricultural sector in the Total Subsidies Structure.

2-3-1 Producer's Price Support Policy

SAP eliminated the compulsory quotas delivery of major field crops. Such policy was replaced by an optional delivery system for all crops, except sugar cane. The sugar cane should be delivered to domestic refineries at a price determined by GOVEG. Such price is usually above the international price (Soliman, et al, 1994). In addition, the Government has established a grantee price policy for major subsistence crops, wheat and rice, (usually at a level above the international market), with optional delivery of the production to government milling plants and/or agricultural cooperatives, (Soliman and Gaber, 1997) and (Soliman, et al, 1997). The objective was to encourage farmers to deliver their wheat for being processed as subsidized common bread and to raise the wheat self-sufficiency as basic strategic crop. This policy has led to decrease the Berseem area from one third to less than one-fifth of agricultural area in Egypt for wheat and sugar beat area (Soliman et al, 1997)

.Financial assistance to the sector is provided in the form of subsidized price of water, (Soliman, Ibrahim, 2002), the latter being provided almost free of charge to farmers. The price subsidy policy was kept valid for diesel fuel used for agricultural machinery operations (Soliman and Owaida, 1998), cottonseeds, and cotton protection operation (Soliman, Owaida, 2005). The national program to increase productivity of sugar cane was applied free of charge and funded entirely by a governmental institution called the national sugar cane Council

2-3-2 Consumer's Price Subsidy Policy

The Government has continued subsidizing the consumer price of various food products since fifty years ago. Such policy focused upon most notably bread besides and quotas of other subsistence food items (sugar, vegetal oil; rice and pasta). Bread represents more than one third of calories per capita intake in the Egyptian diet and almost 60% of wheat consumption (Soliman and Shapouri, 1984). Subsidized common bread (83% extracted wheat flower) is delivered to the market at almost 70% subsidy in the price (Called baladi bread). Currently Egypt imports more than 55% of wheat required for such bread and the rest is from delivered domestic wheat to milling plants and/or agricultural cooperatives, at grantee price. Mill plants (mainly private) deliver the flower at subsidized price to bakeries (entirely private) to produce such bread at the subsidized price (Soliman, et al, 1997). Such policy is facing currently, many arguments. Among those are different types of the seepages of subsidy value. Such seepages stem mainly from using considerable amount (Soliman and Abdul Zaher, 1984) of this bread type for livestock feeding, particularly the commercial dairy farms around big cities. The subsidized low price flower is also Leaked to other processing purposes, rather than being backed as "baladi" bread. The seepage of such subsidized price

bread expands to being smuggled, illegally, to the popular take away food shops and small restaurants and other not target categories. The big argument is that undeserved categories of the population (relatively high-income classes) buy such low price bread. Finally, it is sometimes a source of troubles when reaching such bread is difficult at times of shortage in the distribution centers. Troubles also raise between people and government due to low quality of this bread and/or sell it at less weight than the allowance (Asfahani, and Soliman, 1989) and (Soliman and Eid, 1992)

The rational card program concerns delivering monthly quotas to low-income households. Vegetal oil, sugar, and rice are food items provided to the consumer at quota system and recently pasta has been added. There are two levels of quota and subsidy. The First is the highly subsidized price of some food commodities, called supply commodities. The second is the less level of price subsidy for additional quota of food commodities. The purchase of this additional quota of partial subsidized price is voluntary, but both quotas are distributed through the rational card on per capita base of the household.

Currently, the ministry of the social security is responsible for such program. About 70% of Egyptian population (62 millions) enjoins such program of direct subsidy. However, there is a debate about the effectiveness of such policy. The drawbacks of the subsidy in kind are the seepages of the low price food items to what is called the black market. In addition, the consumers complain about the quality of delivered quota. It is postulated that the government intend to purchase or import low quality of such commodities to keep the costs of subsidy at the lowest level. Another source of argument is the undeserved households registered in the program, as their level of income is above the poverty line (Soliman and Eid, 1995).

Even though 25% of the urban houses has connections of natural gas network, the bulk is still relay on the Butane-Gas pressed in standard containers for house use. This fuel type is vitally imported. It is available for the consumers at highly subsidized price. The government postulates that the subsidy of this price surpasses 80 %. Government imports it but the private sector, through contracts, distributes it to the consumers. (National Specialize Councils, 2006).

The arguments around consumer subsidy policies in Egypt have lead to a proposed alternative, which is issuing an electronic Card for each household deserves subsidy to use it for getting the subsidy allowance under this proposed program. Such alternative program is under experimental stage in one or two governorates in Egypt. Another alternative has been raised. It postulates that cash allowance is more effective substitute for subsidy in kind or via an electronic card (National Specialize Councils, 2006).

2-3-3 Share of Agro-Food sector in the Total Subsidies Structure

The total share of grants and social benefits in the subsidies structure is less than 20%, while the rest is the share of direct consumer's price subsidy, i.e. more than 80%, (Table 37, and Table 38).

Social benefits include social insurance pension, child pension, and contributions of the government budget in the pension fund. Other price subsidy types, beyond food and petroleum products, are electricity, exports promotion, Upper Egypt development program, industrial zones, medicines and infant milk prices, student health insurance, passenger transport, loans interest to poor households, low-income group housing, water companies, railways, training and internal trade infrastructure. The share of these other types of subsidies is only 16%.

The bulk of food subsidy is bread subsidy. It acquires 73% of total supply commodity subsidy. The difference between the imported wheat price and the subsidized price, delivered to the mill plants, is the value of subsidy per ton. However, the subsidy value per ton of domestic wheat delivered for backing the "Baladi Bread" is higher than the comparable imported quantity. This additional subsidy stems from the policy of paying a grantee price to the farmers, which is often, higher than the international market price. The difference is considered as an incentive to the farmers, not only for delivering their production to produce the subsidized flower, but also to gear them to cultivate more wheat area. The ultimate goal is raising the self-sufficiency rate of wheat. Recently, a new policy has been implemented to lower the entire reliance upon wheat flower in making the subsidized bread. Such policy mix maize flower with wheat flower at a ratio (1:4). The price of maize delivered to such process is also subsidized (Soliman and Gaber, 1997).

From the same set of tables, it is noticed that petroleum products represent the highest share in total direct and indirect subsidies in Egypt. It reaches around 46%, while food commodities supply price subsidy, devoted to consumers is around 19%. The subsidies left to the farmers, after liberalization of the market is less than 1% of the total subsidies in Egyptian economy. The farmer subsidy almost covers the expenditure of cotton protection operations on farm and sugar cane development program.

Solar price is the main petroleum product-enjoying subsidy. Its subsidy volume reaches more than 52% of all petroleum products subsidy, (Table 39). Raising its price affects much the performance of the economy, as it is the source of energy for operating the transportation means, either for commodities or passengers, generating electricity, operations of many industries and for agricultural machinery. Butane share in subsidies is 23% and it is the main energy source for cooking, and heating in houses. Restaurants also use Butane for preparing eating out meals, in addition to poultry farms heating. Therefore, the impacts of phasing out solar and butane subsidy are wide spread in the Egyptian economy.

2-4 Input Use Policies

The Economic reform program in agriculture sector has not limited within liberalization of the market mechanism and privatization. it was associated with introduction and expansion of three packages of technologies

(1) The biological package, mainly introducing high yield varieties of the main subsistent crops, such as rice and wheat,

(2) The physical package, mainly expansion of agricultural machinery with introducing new systems such as combine harvesting system and leveling the soil using laser system, (Soliman, et al, 1994) and

(3) The chemical technology, which is mainly, applied intensification of chemical fertilizers, to such intensive agricultural system, (Soliman, 1992).

Even though the private sector has conferred full opportunities to trade and to deal with marketing of these three packages of technology, the agricultural cooperatives and the governmental machinery stations have stayed as important outlets that provide these inputs at prices moderately less than free market price (partially subsidized). The principal agricultural credit Bank activities were transformed

towards commercial finance bank functions. When the importation and trading of agricultural requisites were privatized, the market performance has had negative impacts on small farmers, (Soliman, et al, 2003). That experience led GOVEG to intervene again through agricultural credit Bank and cooperatives in those markets. A quota per acre of agricultural requisites have being distributed through the outlets of the principal agricultural credit Bank branches and the common credit agricultural cooperatives in the villages, at a maximum 50% of inputs international prices (Soliman, et al, 2010a). Table 29, shows the impact of such policies on the productivity of these inputs derived from production function estimates made on rice farms in the same region by comparing productivity in 1986 (year of the onset of the economic reform application on agricultural sector) and lately in nineties of the twentieths century (in the year1997). Productivity estimated as the production elasticity coefficients. Apparently, the productivity of machinery labor has relatively increased as well as the fertilizers at the expenses of both human and animal labor. The interaction between higher yield rice variety and both machinery and fertilizers was positive at the expenses of human labor. The later diminished to great extent. Unfortunately, this issue was not associated with an effective integrated rural development program that might offer alternative jobs for the excess of human labor taken left agricultural activities. Such evidence supports the abundant increase in non-agricultural population of Egypt shown earlier in this study under human labor performances.

The production and trade of the seeds of the high yield varieties have left completely for the private sector at the market price without any subsidy. Only the ministry of agriculture provides the technical supervision and support. The agricultural research centers or the centers of seeds screening are allowed to sell the seeds at the market price. The commercial package is a sac contains 30 kilograms. In 2010, the seed prices of the main crops were US\$ 18-20 per "sac" for wheat, US\$ 280 per sac for rice, however the rice seeds sac I 25-30 kilograms. For hybrid maize the price varies by the variety, as the commercial unit is a sac weighing 12 kilograms, the price ranges between US\$ 15-25 (Unpublished data from the Ministry of Agriculture, 2010).

As the nitrogen fertilizers are the major chemical fertilizers in the Egyptian agricultural system, there is still governmental intervention in its market mechanism. The two main commercial nitrogen fertilizer products are the Urea (46.5% Nitrogen) and Nitrate (33.5% Nitrogen). The agricultural cooperatives distribute quotas of these two types of fertilizers at partially subsidized price of US\$ 14 per sac (50 Kg) while the free market price was US\$ 17.5 in 2010. The quota is associated with the land holding card registered in the cooperative. Phosphate and Potassium fertilizers are distributed at free market price, (MALR, 2010).

2-5 Rural Development Policies

A main target of the sixth development plan (2007-2012) is "the National Project for Targeting Needy Rural Households". It is conducted through the Ministry of Social Solidarity. It is a national project in order to target more accurately the most vulnerable households within poor areas. This project was launched during 2008. The Ministry has set itself the following goals:

- (1) Determining the neediest households with regard to social welfare;
- (2) Identifying the needs of households, which are eligible for care and support,
- (3) Monitoring the appropriateness of services provided by the State to meet actual needs;
- (4) Establishing a database of the neediest households with regard to social welfare;
- (5) Developing social welfare programs that suits the needs of households, (UNDP, 2008)

This project is based on two main types of interventions, which are geographic and qualitative targeting, in an effort to reach the neediest households. The qualitative targeting was achieved through the design of a standard digital socioeconomic model (one model for rural areas and a second for urban areas) to identify and classify the levels of need of households. The implementation of this model depends on preparing a detailed and comprehensive map of each household condition (through social field research)

and preparing a file for each household, which determines the human and financial capacity of the households besides their livelihood needs. The measures rely on 37 of economic and social indicators of the household. Each one reflects one or more of the economic and social dimensions related to poverty and the standard of living.

The National Project for Targeting Needy Rural Households has relied upon “the Poverty Assessment Report in Egypt” issued in mid-2007 by the Ministry of Economic Development, in collaboration with the World Bank, (Ministry of Economic Development, 2007). It provided detailed information about the determinants behind the low standard of living and high rate of poverty, in addition to related indicators at the smallest administrative local unit (village and district). The map can help combat poverty and raise the efficiency of public expenditure through the accurate targeting of poor areas and by identifying their actual needs as well as reducing the leakage of benefits to the non-poor.

According to the poverty map the number of poorest villages has reached 1141, spread over ten governorates (Menia, Suhag, Asyut, Qena, Sharkia, Behera, sixth of October, Helwan, Beni Suef and Aswan). The total population of the poorest villages in Egypt reached about 11.8 million people. More than 1.1 million poor households live in these villages with 5.3 million poor people, representing about 45% of the population there (Table 40). The villages, out of Egypt’s total number of 4,700 villages, account for as much as 54% of the total number of rural poor in Egypt. This is largely a result of the unequal distribution of public goods including physical infrastructure (water, sanitation and roads) as well as public services, namely education and health facilities. According to SYPE (2010), whereas rural youth account for 59% of Egypt’s total youth, they account for 85% of Egypt’s poor youth. Therefore, that being poor is very much a characteristic of residing in rural Egypt and thus having less access to public goods and services. Lack of access to schooling in turn becomes a major determinant of low quality work opportunities throughout life and thus the poverty cycle reproduces itself (Smith, C., and Rees, G., (2003)

2-5-1 the Institutional Framework of the Rural Development

Since the completion of the Poverty Assessment Report in 2007, the Government of Egypt has been working on a development plan that aims at implementation of the ‘National Project to reduce poverty in more than one thousand poorest villages (UNDP, 2010). A ministerial group for social development was formed in 2007. It included the Ministers of Housing, Utilities and Urban Development, Environment Affairs, Social Solidarity, Education, Higher Education, Health, Transport, Local Development, and the Secretary of the Social Fund for Development. The group aimed at coordinating the design and implementation of the projects between different ministries whose missions are to upgrade service delivery in the villages covered by the project. Moreover, new partners were added to this group in 2009, namely the Ministry of Family and Population, the National Youth Council, the National Sports Council, the General Authority for Literacy and Adult Education, and the National Post Authority. The philosophy of geographic targeting was to given the strong relationship between public services and poverty, the approach is to break the vicious cycle of poverty by removing those poor infrastructure conditions that perpetuate it.

2-5-2 Implementation of the Integrated Rural development

For Geographic targeting, finance availability, accessibility, and adequacy it is planned to implement this national large expanded project in three phases. Each phase lasts 3 years. They are: (a) 151 villages and 750 surrounding Hamlets (small communities) in 6 Governorates. These villages include nearly 1.5 million people and are located in 24 local units (between 3 to 5 villages in each local unit). The implementation of the first phase of the project started in October 2008, to be completed within two years starting from the financial year 2009/2010. The executive position of various ministries and agencies showed that the implementation of several projects in various domains has been completed during this

phase. However, the problem of land allocation in the targeted villages is still the main obstacle to the implementation of various projects during this phase, (UNDP, 2008), (b) 912 villages in Additional 4 Governorates. Each village includes the hamlets) as satellites of a mother (large) village. (c) 78 villages in Another 4 Governorates, the implementation of this phase will begin within one year of the start of implementation of the second phase.

2-5-3 Rural Development Funds, time schedule and Limitations

Overall, success or failure in applying programs for the 1000+ poorest villages in Egypt will rest on the ability of all parties to sustain the financial requirements necessary for this huge and ambitious project in all its phases. It will also require a high degree of coordination amongst all ministries and government bodies involved. The estimated cost of the project during the first phase amounts to about billion Egyptian pounds). To be funded from the allocations provided from the state investment budget. It is distributed over the involved ministries.. The Ministry of Housing alone holds nearly 68% of the total estimated cost for this phase. The allocations for governorates amount to 690 million US\$. This is besides an additional amount of 64 million US\$ which includes 29 million US\$ to cover drains and 37 million US\$ as the cost of buying land distributed over the governorates (Soliman and Gaber, 2010).

.2-6 Agro-Environmental Policies

The Egyptian Agro-Environmental policies are presented in this section through two dimensions; (1) The Institutional framework and (2) Objectives and Instruments.

2-61 The Institutional Frame work

In June 1997, the responsibility of Egypt's first full time Minister of State for Environmental Affairs was assigned as stated in the Presidential Decree no.275/1997. From thereon, the new ministry has focused, in close collaboration with the national and international development partners, on defining environmental policies, setting priorities and implementing initiatives within a context of sustainable development. The Environment protection law no 4/ released in 1994 was restructured the Egyptian Environmental Affairs Agency (EEAA) with the new mandate to substitute the institution initially established in 1982. At the central level, EEAA represents the executive arm of the Ministry. The Environment Protection Law no 4 issued in 1994, has a greater role with respect to all governmental sectors as a whole. The law has been designated as the highest coordinating body in the field of the environment that will formulate the general policy and prepare the necessary plans for the protection and promotion of the environment. It is also, follow-up the implementation of such plans with competent administrative authorities. The Environmental Protection Law has defined the responsibilities of the agency in terms of the following:

- 1- Preparation of draft legislation and decrees pertinent to environmental management,
- 2- Collection of data both nationally and internationally on the state of the environment,
- 3- Preparation of periodical reports and studies on the state of the environment,
- 4- Formulation of the national plan and its projects,
- 5- Preparation of environmental profiles for new and urban areas, and setting of standards to be used in planning for their development
- 6- Preparation of an annual report on the state of the environment to the President

.According to the environmental Law 4/1994, the mandate of the Egyptian Environmental Affairs Agency (EEAA) is to protect and promote the environment. It is established within the cabinet premier ship. The agency has a public juridical personality. It is affiliated to the component minister of Environmental Affairs with independent budget. It has several branches in the Governorates of Egypt. EEAA formulates the general policy and lays down the necessary plans for protecting and promoting the environment. It follows up the implementation of such plans in coordination with the competent administrative authorities. It also

has the authority to implement some pilot projects. The agency is responsible for strengthening environmental relations between Egypt and other countries and regional and international organizations. It recommends taking the necessary legal procedures to adhere to regional and international; conventions related to the environment and prepare the necessary draft laws and decrees required for the implementation of such conventions

2.6.2 Objectives and Instruments

The National Egyptian Environmental Protection Policies (MESA, 2010) aiming at natural resources conservation, protection of Air, water and soil quality. The policies are implemented through packages of programs and projects. Each program consists of three major components: information and monitoring; preventive and/or corrective measures; and supportive measures. Most of the information and monitoring activities are that of the Egyptian Environmental Affairs Agency. Some supportive measures, such as awareness and capacity building is also the responsibility of the Egyptian Environmental Affairs Agency. Most of the corrective and preventive measures are that of central and local agencies to include in their plans the issue of protecting the environment. For example, combating desertification is central to the activities of Ministry of Agriculture and Land Reclamation (MALR); while protecting the Nile, canals, drains are that of Ministry of Water Resources and Irrigation (MWRI). The Egyptian Environmental Affairs Agency plays its role as a coordinating body that implements demonstrative pilot projects as prescribed by Law 4/1994.

1. Water Resources: The Government of Egypt, through the Ministry of Water Resources and Irrigation (MWRI), is updating a water master plan and initiating a special program for managing water demand. MWRI has embarked on implementing another program for managing water quality. Protecting the coastal waters and shores are also included in the NEAP capitalizing on previous efforts in that area. The working group on the water issue emphasized the need to reform the production and delivery of drinking water as well as executing planned activities to manage wastewater through specialized central authorities and local administrations. However, the working group argued for measures to manage the demand through charging the consumers for recovering the costs of delivering drinking water and encouraging the conservation activities.

2. Air: EEAA has begun the development of National Strategy for Air Quality

Management to include executable plans, such as relocating small and micro industrial enterprises outside human settlements, programs for cleaner production techniques and energy conservation.

3. Land: (a) Agriculture: sound environmental agricultural development and management of rural settlements is a program that coincides with the plans and efforts of the Ministry of Agriculture and Land Reclamation (MALR), Ministry of Housing, Utilities and Urban Communities (MHUUC), and the Integrated Rural Development Program (Sherouk) that the Ministry of Local Development (MLD) executes. Through these central agencies GOE is implementing plans for sustainable land uses that encourage planning on a scale large enough to maintain the health of regional ecosystems. The implemented plans would also minimize food losses, employ biological control, host-plant resistance as means to reduce costs and conserve the environment. The achievements of "Sherouk- Project" in reconstructing and developing the Egyptian villages are: the outcome of participatory decision-making and building partnerships with local stakeholders to own the process and output.

4 Human settlements: the Government is encouraging the development of new cities, and secondary cities with desert frontiers, Allocating investments to develop new industrial estates and direct the development of these medium-size cities will create employment and housing, thus attracting new comers away from major metropolitan areas. Concerning the desertification, three National Action Programs (NAPs) are included in the NEAP. The first is for the North Coastal Belts, the second is for Nile Valley and the reclaimed desert areas that share infrastructures with the land of old valley; and finally yet

importantly, is for the oases and Southern remote desert areas. Each proposed NAP fits and suits the ecological conditions and addresses factors that trigger the desertification processes and their social and economic outcomes.

5. Marine Environment: the Ministry of Tourism is among the major institutions concerned with protecting the marine environment when planning and developing the country's tourism industry. NEAP includes a program for managing national marine coastal zones. The main objectives of this program include establishing a dynamic process for national comprehensive coastal zoning (land and sea), and achieving Sustainable use of marine and coastal resources through a combination of scientific research, appropriate quotas and regulations, active monitoring and enforcement, and pilot projects allowing use of certain resources by local citizens. The responsibility of conserving Egypt's marine life lies mainly with the EEAA, which is responsible for setting the general environmental policy and formulating legislation standards and guidelines to protect the environment as well as having the authority to initiate national coastal zone management activities.

6. Waste: the MESA and the EEAA have formulated a policy for the proper management of waste in Egypt and this policy is currently under implementation. The National Municipal Solid Waste Program, which the Governor's council that the Prime Minister heads approved in December 2000, presents an integrated management system to be implemented at the national level. User charges for solid waste collection and disposal are among the supportive measures adopted by the EEAA.

7. Biological Diversity: EEAA has adopted and implemented various measures and programs to meet the challenges of biodiversity in Egypt. EEAA is currently developing programs and measures to support Egypt's declared natural protectorates, which cover about 8.5 percent of the area of the country. In Collaboration with various international donors, GOE is implementing projects to conserve biodiversity, including conserving the wetland and the environmental systems along the Mediterranean shores and a program for conserving Gulf of Aqaba protectorates.

8. Bio-safety: in this issue, safety is achieved through the provision of transparent information on the product and the process, and conducting adequate risk assessment and risk management by the regulatory authorities in the receiving environment. The NEAP includes a program for regulating the handling and Unintentional release of biological material. It also includes a program for regulating intentional release of Genetically Modified Organisms (GMOs) in the environment.

The national environmental plan acknowledges the environmental effects on some social classes more directly than others, either because of their nature, ages, social and cultural aspects, or their direct relation with environmental problems. NEAP includes programs catered for six of these categories: children, youth, women, the elderly, physically disabled and marginalized people that both NGOs and governmental agencies can implement.

2-7 Infrastructure Policies

In the past half a century, Egypt has experienced remarkable progress in the provision of infrastructure in all areas, including transportation, telecommunication, power generation, and water and sanitation. Judging from an international perspective, Egypt has achieved an infrastructure status that closely corresponds to what could be expected given its national income level, as well as contributed to the progress in social and economic well-being of its citizens. The present infrastructure status is the result of decades of purposeful investment, (Loayza and Odawara, 2010)

In the past 15 years, however, a worrisome trend has emerged: Infrastructure investment has suffered a substantial decline, which may be at odds with the country's goals of raising economic growth. Improving infrastructure in Egypt would require a combination of larger infrastructure expenditures and more efficient investment. The analysis provided in this paper suggests that an increase in infrastructure expenditures from 5 to 6 percent of gross domestic product would raise the annual per capita growth rate

of gross domestic product by about 0.5 percentage points in a decade's time and 1 percentage point by the third decade. If the increase in infrastructure investment did not imply a heavier government burden (for instance, by cutting down on inefficient expenditures), the corresponding increase in growth of per capita gross domestic product would be substantially larger, in fact twice as large by the end of the first decade. This highlights the importance of considering renewed infrastructure investment in the larger context of public sector reform. Despite this progress, in the last years there has been a slowdown or even a decline in some areas of infrastructure, particularly power generation and transportation. Associated with this decline, capital expenditures in Egypt have been reduced in the last decade, raising concerns that the country may have reached an unsustainably low level of infrastructure investment.

Egypt has had a high share of public investment in infrastructure even among MENA countries. Over the last few decades, however, public infrastructure investment in Egypt has been falling, and the decline in public investment has not been compensated by a rise in private investment,

(IFC, 2003) reports that private participation in infrastructure investment in the MENA region declined in the 2000s compared to the 1990s and in fact, its cumulative investment for 1990-2001 is smaller than other regions, even smaller than Sub-Saharan Africa. The World Bank (2003) concludes that the MENA region especially suffers from an unfavorable investment environment that prevents private participation in the last decade. Reflecting the specific situation of Egypt, the impact of infrastructure in the country has been studied from the following perspectives in the literature.

(1) Infrastructure is one of the determinants and binding constraints of growth performance. Using diagnostic approach and growth regressions, developed by Hausmann, et al. (2005), Dobronogov and Iqbal, (2005) and Enders (2007) found that inadequate infrastructure is not among most urgent binding constraints in Egypt, but inefficient financial intermediations and high public debt are critical growth constraints. Kamaly (2007) analyzes the sources of growth in Egypt for three decades (1973-2002). Using a new consistent estimate for capital stock and growth accounting technique, he claimed that capital stock seems to be the most important source of growth, and the downward trend in real output growth since the 1980s could be attributed to the slow down in capital growth, including infrastructure. Nabil and Vefganzounes-Varoudakis, (2007) investigated the linkage between economic reforms, human capital, infrastructure, and economic growth in the MENA region using Employing growth regressions that include different composite indicators of infrastructure on panel data consisting of 44 countries from 1970 to 1999. They found that the contribution of infrastructure on growth is substantial. At the country level, comparing the period for 1980-89 to 1990-99, the contribution of infrastructure to growth in Egypt fell from 1.0 to -0.9, while that of the average of MENA countries fell from 1.4 to 1.0. The drop in the contribution from infrastructure in Egypt was due to the decline in their measure of road networks experienced in the 1990s,

(2) Infrastructure has a significant impact on improvement of the business climate and encouragement of private participation in the economy. The World Bank report (2008) emphasized the importance of securing long-term fiscal sustainability in its basic infrastructure sectors while sustaining the quality of service delivery in them. Moreover, Ragab (2005) argues that better performance of infrastructure and more efficient regulatory framework are critical to improve the business climate and promote private domestic and foreign investment in Egypt, and,

(3) The majority of previous studies on the effect of infrastructure on private investment found a positive impact of public infrastructure investment on private investment. Shafik, (1992) claimed that public investment tends to crowd in private investment through infrastructure investment in Egypt. In a recent paper, Agenor et al. (2005) investigated the impact of public infrastructure on private investment in three countries in the MENA region (Egypt, Jordan, and Tunisia). They used a vector auto regression (VAR) model that accounted for both the flows and stocks of public infrastructure and controlled for simultaneous interactions between these variables and private credit, output, and the real exchange. The impulse

response analysis indicated that public infrastructure has both flow and stock effects on private investment in Egypt.

2-8 Consumer Policies

With a more liberalized economy, serious attention has been paid to ensure that mechanisms were in place to protect the consumer. Such attention is translated in real actions through passing and implementation of the consumer protection Law in 2006. The consumer protection societies have been also expanded to play the role of the civil society in building up the consumer awareness and education towards food specifications and safety issues. They also observe the effectiveness of transparency and building up the necessary trust in private producers and government on one side, and consumers on the other. The new law was a necessary tool for allowing Egypt to move further in the direction of trade liberalization and encouragement of private participation without compromising the government's obligation to provide legitimate protection to consumers (Soliman, 2000a) and (Soliman, 2000b).

In relation to consumer's policies, the Law of commercial fraud was adjusted in the year 2000. The penalties applied on the traders, who might violate the specifications have been shaped. Whereas, the monetary penalty was raised to hundred thousand Egyptian pounds, the punishment could reach custody (imprisoned) for one year.

The Egyptian Parliament passed Law 3/2005 on the Protection of Competition and the Prohibition of Monopolistic Practices. A Commission responsible for implementation of the Law has been operational since June 2005. Companies (public or private) that are established as for-profit are subject to the Law. Actually, they are dealing with at least 30% of the market share of a certain commodity. The Competition Law prohibits price collusion, production-restricting agreements, market sharing, and abuse of a dominant market position (Ministry of Trade and Industry, Egypt, 2010). Currently, this commission is under the supervision of the ministry of trade and industry. The penalties decided by the law have been recently raised by the Egyptian parliament to each 50 million Egyptian pounds.

The ministry of trade and supply since 1997 has adopted the attitude of the civil community to establish the consumer protection society. Until now more than two hundreds societies have been established and approved. The passing of the consumer protection law has strengthened the effectiveness of these societies. They provide in addition to that, helping the governmental departments with respect to the oversight role in the market, they also provide an important function in terms of raising the consumer consciousness towards food safety and sanitary (Soliman, 2000a).

3 TRADE POLICES

Before applying the economic reform program, GOVEG took control of trade in agricultural products allowing only little horticultural exports by private sector, under restriction of handing in 25% of the earned foreign currency to the Central Bank at the official exchange rate. That policy has been modified under the second Package of the reform policies directed to the demand-side to encourage private sector role in agricultural commodity exports. Dollar income was valued at the free exchange rate, associated with allowing the private sector to establish grading, loading and cold storage warehouses for exporting fruits and vegetables, (Soliman, et al, 2010b).. Since 1999, Egypt has not submitted any notifications to the WTO Committee on Agriculture, (World Bank, 2008).

This section includes, beside a profile of the agro-food trade of Egypt, a review analysis of the trade agreements, tariff and non-tariff barriers on trade flow.

3-1 General Presentation of Egyptian Agro-Food Trade

While the total merchandise exports of Egypt was 5700 million US\$, its merchandise imports was almost triple exports value, i.e. around 16.9 million US\$ in 2009. EU is the main client of the Egyptian merchandise export. It market absorbs 83% of such value, even though EU merchandise exports to Egypt

covers only around one third of the letter's merchandise imports. Therefore, the Egyptian merchandise exports to EU cover only 76% of the EU exports to Egypt, (Table 42). The performance is worsening when we analyze the agricultural trade flow. Egypt agricultural exports to EU are only 6% of its total merchandise exports and Egypt agricultural imports from EU is only 3% of its total merchandise imports. However, the Egypt-EU net balance of Agro-food trade showed better performance than the Egyptian agricultural trade with the rest of the world, (Table 42)

The total agricultural exports of Egypt was 1201 million US\$ and the total agricultural imports was 5420 million US\$ resulting a deficit of about 78% of agricultural imports value. While the Arab Countries are the major market of the Egyptian agricultural exports, which receive around 44% of total agricultural exports, Egypt imports only 4% of its agricultural products requirements from Arab countries. Therefore the net agricultural merchandise balance between these two markets is positive, where exports cover 225% of imports. The EU market is the second important market for the Egyptian agricultural exports. Whereas EU share in the Egyptian agricultural exports is about 29%, EU share in Egyptian agricultural imports is only 11%. However, the net balance is negative, with a deficit of around 41% of the imports value of Egypt from EU. The other European countries receive 8% of the agricultural exports of Egypt and deliver to the Egyptian market 17% of its agricultural import with a deficit in the net balance of 90%. None of North America markets imports agricultural products from Egypt, (Table 43)

3-2 Trade Agreements

The total number of international agreements between Egypt and the rest of the world are 400. Among them 100 with European countries, 33 with African Countries, 85 with Asian Countries, 70 with north American Countries, 5 with south American countries, 2 with Australia. Numerous of these agreements related directly or indirectly to trade. The study extracted the following set of agreements that are purely for trade promotion. These are (1) COMESA agreement, (2) Egypt - EU Partnership Agreement, (3) EU/EGYPT Action plan, (4) Qualified Industrial Zone [QIZ], (5) Free and Preferential Trade Agreements Between Egypt and the Arab Countries, (6) International Agreements [International Organizations - Asia - Europe, (7) AGADIR, (8) TIFA, (9) PAFTA, (10) MEFTA, (11) Global System of Trade Preferences (GSTP), and (12) Egypt-Turkey. In addition, there are some important agreements signed, as draft and soon will be applicable. These are:

(1) Egypt-(UEMOA) Free Trade Agreement: for the Establishment of a Free Trade Zone between Egypt and West African Economic and Monetary Union (UEMOA) the UEMOA is composed of eight West African member countries (Benin, Burkina Faso, Cote D'Ivoire, Guinea-Bissau, Mali, Niger, Senegal and Togo),

(2). Egypt- CEMAC Countries agreement for Regional Free Trade Area Negotiation, the CEMAC group are Cameroon, Central African Republic, Chad, Congo-Brazzaville, Gabon and Equatorial Guinea in Central Africa,

(3) Egypt- Nigeria Bilateral Free Trade Area with the goal of obtaining an economic preference ,as Nigeria is the economic powerhouse within the Economic Community of West African States (ECOWAS) group,

(4) Egypt-Tanzania Bilateral Free Trade Area to compensate the drawbacks stemming from Tanzania's withdrawal from COMESA,

(5) Egypt-Mercosur Preferential Trade Agreement which includes the Southern Common Market, regional trade agreement (RTA) between Argentina, Brazil, Paraguay and Uruguay founded in 1991 by the Treaty of Asuncion, which was later amended and updated by the 1994,

(6) Egypt- India Preferential Trade Agreements,

(7) Egypt-Sri Lanka free trade agreements,

(8) Egypt-Russia Free Trade Agreements

However, the study focuses upon the agreements between Egypt and EU countries and between Egypt and Arab Countries. They are classified into three groups Economic Blocks I agreements, multilateral agreements and bilateral agreements (Ministry of Trade and Industry, 2010).

3-2-1 Economic Blocks agreements:

3-2-1-1 Egypt - EU Partnership Agreement

Egypt started negotiations with EU for concluding a partnership agreement in 1995. Its initial signature was made on January, 26th 2001 in preparation for the final signature that was effective on June, 25th 2001. The Member States Of the European-Egyptian Partnership Agreement are the EU members. According to the Agreement, a free trade area (FTA) will be established during a 12-year transitional period, from the date the agreement enters into force. During the third year both parties will decide upon the procedures, to be implemented on the following year, to further liberalize their trade in agricultural products, maritime products and processed agricultural products. The Agreement permits Egypt to take certain exceptional measures for specific periods during the transitional stage, if and when certain domestic industries face a threat as a result of liberalization of imports of similar goods from the EU. The Agreement includes implementation of WTO and GATT regulations against anti-dumping, subsidy and safeguard measures. The Agreement allows each party to enjoy Most Favorite Nation treatment MFNT) from the other party in trading services. The Agreement aims at increasing the flow of foreign capital, expertise, and technology to Egypt. Egyptian exports of manufactured goods to the EU will be exempted from tariffs once the Agreement enters into force, meanwhile, EU exports of manufactured goods to Egypt shall be tariff-exempted, according to the lists and period specified in the Agreement. Agricultural goods and agricultural processed goods shall not be tariff exempted but shall be treated according to the rules stipulated in the agreement, which defines certain quotas for specific goods with tariff privileges and certain market windows for exportation. The agreement is valid until terminated by either party by notification to the other party. The Agreement shall cease to function after the elapse of 12 calendar months from date of notification.

In addition, the agreement aims at developing balanced economic and social relations through cooperation. While it contributes to the process of economic and social development in Egypt, it also encourage regional cooperation to promote peaceful coexistence and economic and political stability. as well as promoting cooperation in other fields of mutual interest. Egypt and the EU agreed on exempting certain quotas of agricultural products from custom duties and reducing the tariffs on exports that exceed these quotas.

With Respect to Egyptian Agricultural Products Exports to EU of Egyptian origin, they are either eliminated from tariffs or the rates are reduced. For products which the EU tariff system stipulates a value-based fee and a specific fee, reductions shall only apply to the value-based fee. .For specific products, tariffs will be eliminated within the quotas specified. Beyond the set quotas for quantities, either full tariffs are applied or a tariff reduction is implemented. Other Products are liable to a 3% annual increase on tariffs based on the volume of the preceding year.

As of December 1st and up to May 31st, the agreed upon entry price shall apply for fresh oranges within a tariff quota of 34000 tons, with regards to the preferential advantage of a value-based customs fee. The customs fee shall be reduced to a zero level, which was set at Euro 266/ton as of Dec 1st, 1999 and up to May, 31st, 2000 and readjusted to Euro 264/ton afterwards for the same period. The shipment's entry price is less than 2%, 4%, 6%, or 8% of the agreed upon price, the fixed tariff fee shall be equivalent to the 2%, 4%,6% or 8% percent of the agreed upon entry price. If the entry price is less than 92% of the agreed price, the fixed tariff rate set by the WTO shall then apply. As for the remaining quota of fresh orange (26000 tons), the value -based tariff rate shall be reduced by 60%.

Cut flowers have a quota of 3000 tons, under the following conditions: The price level of the Egyptian exports to the EU must be at least equal to 85% of the EU price for the same type of product and during the same market window. If Egypt's price level for any of these products is below 85% of the EU price level, preferential tariff shall cease to function, The EU shall reapply the preferential tariff, if and when the Egyptian price quotas exceed or equal 85% of the price level of the EU. With respect to EU Agricultural Commodity Exports to Egypt, the tariffs on EU agricultural exports shall either be eliminated or reduced to the level defined in for specific products; tariffs will be eliminated or reduced within quotas listed

The agricultural products used in the production of agricultural commodities. They are subject to CAP (Common Agricultural Policies) to attain the domestic prices higher than those prevailing in the international markets (especially products like grains, sugar and dairy products). The EU imposes the following duties on its imports of processed agricultural commodities:

1) Relative custom fees (between 2% and 12%) are applicable based on the processing operations of those commodities. Egyptian exports will be exempted from this custom fee.

2) A tariff fee on the agricultural components, equivalent to the difference between their international prices and domestic (EU) prices

3) A list of Egyptian processed agricultural products will be exempted from the relative custom fee while the tariff fee on the agricultural component will remain unchanged, whereas a number of other Egyptian processed agricultural products will enjoy a 30% exemption of the tariff fee on the agricultural component in addition to the complete exemption from the relative custom fee

4) An additional fee shall apply on commodities whose component includes ingredients of grains, rice, sugar or dairy products.

EU Exports of Processed Agricultural Products to Egypt will be treated according to the following categories:

Products that will be exempted of all tariffs and other fees with a similar effect after two years from the date the Agreement enters into force.

Products whose tariffs and other similar fees will be reduced according to the following time table:

A reduction of 5% of the basic fees after two years from the date the Agreement enters into force.

A reduction of 10% of the basic fees after three years from the date the Agreement enters into force.

A reduction of 15% of the basic fees after four years from the date the Agreement enters into force.

Products whose tariffs and other similar fees will be reduced according the following timetable:

A reduction of 5% of the basic fees after two years from the date the Agreement enters into force.

A reduction of 10% of the basic fees after three years from the date the Agreement enters into force.

A reduction of 25% of the basic fees after four years from the date the Agreement enters into force.

3-2-1-2 Greater Arab Free Trade Agreement (GAFTA)

Pursuant to Decision No. 1317 D 59, the Economic, and Social Council, at a meeting held on 19/2/1997, adopted the Executive Program, and set a timeline for the establishment of an Arab Free Trade Area in accordance with the 1981 Agreement for Facilitation and Promotion of Trade among Member Countries. The Agreement entered into force on 1/1/1998. All trade among Arab member countries was subject to a gradual phase-out from 1/1/1998 until 1/1/2005, which was the timeline set for establishing the Arab Free Trade Area. During the liberalization process Member countries were able, as per agreement during the implementation process, to schedule certain commodities for immediate liberalization. The FTA applies to all products as follows: Agricultural and animal products, from HS Chapters 1 to 24, whether in their raw or processed form. During the liberalization process member, countries were able to exclude from tariff reductions certain agricultural products depending on the production season. However, since 1/1/2005 all agricultural products became exempt from customs duties and other fees and charges having similar effect. Provisions cited in this Program shall not apply to products or materials banned from importation, circulation or use in any member country for reasons related to religion, health, security and

environment or because of quarantine rules. Member countries are required to submit a list of these products, as well as a list of any related amendments. These provisions do not apply to commodities produced in free zones where specific procedures are yet to be established in connection with the treatment of such products. The Preferential treatment implies that the reduction rates reached zero level by 2005.

Seventeen Arab member countries have acceded to this Agreement to date Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Palestine, Qatar, Saudi Arabia, Syria, Sudan, Syria, Tunisia, United Arab Emirates and Yemen. However, three of the countries in the region have not yet rendered effective the gradual phase-out of customs duties and any other duties or charges having equivalent effect (Palestine, Sudan and Yemen). Where Yemen reduces its import duties by 16% annually starting from 2005 to reach total exemption in 2010., Sudan reduces its import duties by 20% annually starting from 2006 to reach full exemption in 2010, and Palestine is exempted from reducing its import duties. Palestine exports to Arab countries are exempted from any customs duties or other duties having equivalent effect pursuant to the Arab Summit decision in Tunisia no.274 in 2004. The reduction rates reached zero level by 2005. All exceptions granted to member countries were terminated by 16/9/2002. The Arab rules of origin are currently being used in order to apply the GAFTA agreement. These rules of origin require at least 40% value-added. The detailed Arab rules of origin derived from the EU rules of origin are being developed currently. Their objectives are to protect Arab countries' production from substitute products originating in non-member countries and to give preferential custom treatment on applicable goods that fulfill the value added criteria.

All types of non-tariff measures (seasonal restrictions, import licenses, and other quantitative measures) have been eliminated. To dispute settlement mechanism member countries have established procedures for settling disputes among them and abolishing the authentication/certification needed for rules of origin documents and certifications. Schedules of concessions under the GATS are now being discussed to reach an agreement on services in accordance with WTO agreement. A detailed schedule for services fees is being prepared to determine whether they include. duties with equivalent effect. The provisions of the GAFTA agreement including the customs reduction are not applicable to free zones products.

3-2-1-3 Pan Arab Free Trade Area (PAFTA)

The Establishment of the Pan Arab Free Trade Area was signed by the members of the Arab league on the February 27, 1981 to facilitate and development the trade among Arab States. Member States of the (PAFTA) are Egypt, United Arab Emirates, (UAE), Bahrain, Jordon, Tunisia, Saudi Arabia, Sudan, Syria, Iraq, Oman, Palestine, Qatar, Kuwait, Lebanon, Libya, Morocco and Yemen. The non member states include the Arab League members who have not yet finalized the procedures to join the area. They are Algeria, Djibouti, Somalia, and Comoros Islands, Mauritania. To enhance the implementation of this Agreement the member states agreed on February 19, 1997 on the arrangements to establish the Pan Arab Free Trade Area to be completed within 10 years. The Arab Summit held in Beirut in march 2002 and the Economic And Social Council meeting held in September 2002 decided to reduce the transitional period for the implementation of the Pan Arab Free Trade Area (PAFTA) to be seven years ending in January 2005.

The objectives of Free Trade Area (PAFTA), (Delegation of the European Union to Egypt, 2010) are to eliminate the customs duties and other fees and duties having similar effects. This objective was implemented as follows: 10% annual reduction on first of January of each year from 1998 to 2003 and by 20% for the years 2004 and 2005. Member States should eliminate all non tariff barriers (NTB's), including Administrative, Monetary, Financial and Technical barriers. The Arab Summit decided to grant the least developed member states a preferential treatment, through which their exports to the other member

states should enjoy free access and exemption and custom duties, meanwhile they have to reduce their customs tariffs gradually in five installments starting from January 1, 2005.

The rules of origin applicable now require either to apply detailed rules of origin on the item that the member states reached a consensus about them or to apply the value added should not be less than 40% of ex- factory cost for the items that the member states could not reach a consensus about them. Detailed rules of origin have been under discussion among member states for some time, when agreed upon; it will replace the previous one. Trade in Services Agreement has been reached on the general Provisions of the Agreement. Negotiations shall start soon between member states to agree on the specific commitments of each member.

The tariff dismantling for all industrial and agricultural products started in January 1997 with a 10% customs duties reduction and finalized on 1st January 2005 with a final 20% customs duties reductions. Currently all products meeting the transitional rules of origin (products should have at least 40% Arab component) can access members' markets duty-free. Only 6 Member States (incl. Egypt) presented negative lists with products exempted from tariff dismantling, but they were valid for a maximum of 4 years and expired in September 2002. However, three of the countries (Morocco, Tunisia and Egypt) have added some administrative procedures for textiles products in order to obtain duty-free market access. The Arab League, who clearly stated that they should be removed, considers these measures as non-tariff barriers.

The Arab League's Economic and Social Council (ECOSOC) administer the PAFTA-Agreement with high officials meeting, at least twice per year. Under the AL ECOSOC, there is one Committee on ROO, and one on NTB, also meeting 2-3times/year. Dispute Settlement procedures have already been finalized. A focal point has been appointed in each MS responsible for dealing with complaints or problems faced by MS companies. If no solution is reached by the focal points, then the ECOSOC will act as arbitrator, if this fails, it goes to the Arab League Court for investment and trade problems. The Committee on ROO is currently working in the establishment of detailed ROO. The General Framework has already been endorsed by the Eco-Soc and the ROO on agricultural products will be presented in the July meeting for endorsement. The expert group is currently working on the ROO for industrial products was finalized by the end of 2005 and presented to the ECOSOC for endorsement. The possibility to adopt the Pan-Euro-Med ROO as PAFTA ROO was initially discussed, but no agreement reached. The Committee on NTB is analyzing the different customs procedures, import/export documents, and costs related to customs clearance aiming at harmonizing them in order to enhance trade and investments in the region.

3-2-2 Multilateral Agreements

3-2-2-1 Free Trade Agreement between Egypt and EFTA States

Norway and Switzerland were among the founding member states of EFTA in 1960. Iceland joined EFTA in 1970, followed by Liechtenstein in 1991. Norway, Iceland (from 1994) and Liechtenstein (from 1995) are also parties to the European Economic Area Agreement (EEA) with the European Union, while Switzerland has signed a set of bilateral agreements with the EU, (EU, EEAS, 2010). Although the four EFTA countries are small, they are world leaders in several sectors vital to the global economy. The two EFTA Alpine countries – Liechtenstein and Switzerland – are internationally renowned financial centers and hosts to major companies and multinationals. The two EFTA Nordic countries, Iceland and Norway, stand out in fish production, the metal industry, and maritime transport. Accordingly, to make FTA with Egypt would generate mutual benefits.

The Egypt-EFTA agreement was signed in Davos in January 2007 and entered into force in August 2007, The Industrial products are treated as follows:

While the Egyptian exports to EFTA shall enjoy an immediate removal of all customs duties and other charges having equivalent effect, Egyptian imports from EFTA states, if they are originating in EFTA,

shall be gradually abolished. This procedure occurs according to the schedules of four lists in which Egyptian tariffs are phased out differently over the years starting from the date of entry into force of the Agreement. The tariff reduction on Egyptian imports could be summarized as the following schedule:

List 1: includes the raw materials that are important as inputs for most of industries, this list enjoys 75% reduction from the day of entry into force, and it will be completely liberalized in the second year of entry into force (year 2008). The most important products included in this list are: Aluminum ores, sodium chloride, Sulfur, wood, parts of machines, aluminum oxide, copper alloys.

List 2: includes the intermediate goods, the tariff phasing out will start in year 2008 and it will enjoy free access in year 2014. The most important products included in this list are: carbon, chemical preparations, papers, glasses, fibers, Tubes and pipes of vulcanized rubber, Insecticides, and Vacuum flask

List 3: includes the final goods, the liberalization of this list will be started in year 2010 and end in year 2017. The most important products are apparel, textiles, shoes, iron and steel, electrical equipments and machines.

List 4: includes mainly vehicles and some of the electrical engines and generators. This list will be liberalized in ten years (2011-2020).

It was agreed that the agriculture file would be dealt with on a bilateral basis. A List of agriculture exports to each EFTA member country was prepared, as well as lists of imports of agriculture products from member countries, in accordance with Egyptian interests. Both parties agreed on the list of Egyptian exports that is to be accorded preferential treatment by EFTA countries, equivalent to the preferential treatment accorded to EU countries for 5 years. This preferential treatment will not be reciprocal. Negotiation is to take place by the end of the 4th year to the effect that Egypt accords the same preferential treatment to goods of EFTA. An article was agreed upon regarding the protection of IPR according to the Egyptian interests and the annex regarding trade in fish was agreed upon, according to the Egyptian interests. Both parties of the agreement apply the PAN-EURO-MED rules of origin, which allows products produced from materials originating in any of the Euro-Med countries to enter the EU market with Pan-Euro –Med preferences. Therefore, Egypt and EFTA can benefit from the PAN EURO -MED by establishing originating integrative industries and export them into the EU market.

A certain country can enjoy this accumulation, if some pre-conditions are satisfied. These are: (a) All participating countries must conclude FTAs among each other (such as Egypt-Turkey FTA), (b) All participating countries must conclude FTAs or Association Agreement with EU (such as EU-Egypt Partnership Agreement and the custom union between Turkey and EU), (c) participating countries, must employ the Euro-Med rules of origin.

3-2-2-2 AGHADIR Agreement

"Aghadir Declaration" was signed by the Hashemite Kingdom of Jordan, the Tunisian Republic, the Arab Republic of Egypt, and the Kingdom of Morocco in the Moroccan city of Agadir on 8th of May 2001 for the establishment of a free trade area for the Arab Mediterranean countries. However, the four countries signed in Rabat on 25 February 2004 the agreement on the establishment of the Free Trade Area between the four countries. It was agreed to apply the Pan-Euro med rules of origin on the goods exchanged among them. The agreement cited that the Arab countries member of the Arab league who are members of the Pan Arab Free Trade Area and have Association or a Free Trade Area agreement with the EU could join Aghadir agreement on the acceptance of its members. It has entered into force on 6/7/2006. The goals of the agreement are to establish a free trade area between the member states by 1/1/2005, to develop economic and commercial cooperation between the member countries and to encourage economic and industrial integration among member countries by applying accumulation rule to produce goods for export to EU as well as to their domestic markets. Even though it stipulates the Agreement shall be in force for an unlimited duration, however, any party to the Agreement can withdraw from it, if the Party concerned

sends a notification to this effect to the Foreign Ministerial Committee. The advantages of the Agreement include exemption of all industrial and agriculture products from the entire tariff and the non-tariff measures as soon as the agreement is into effect, and applying the cumulative Rules of Origin, which will support and enhance the economic and trade cooperation among the parties. The agreement applies the pan euro med rules of origin so as to be benefited from the diagonal accumulation already applied in the context of pan euro-med rules of origin. On the other hand, it Pursuits to enhance trade exchange between Egypt and the signatory Arab countries since the volume of inter-Arab trade does not exceed 10% of their total trade volume currently, and it has even more benefits of expanding the European Union markets after the accession of ten new member states.

.This Agreement deals with many important issues such as customs systems, rules of origin, government procurements, financial transactions, safeguard measures, new industries, subsidy and dumping, intellectual property, standards and specifications, and establishing a dispute settlement mechanism. Rules of origin constitute one of the most important articles stipulated in the Agadir Agreement since it will increase the prospective European Market Access for products of Party states, which consequently will encourage investments and increase inter-country regional cooperation.

3-3 BILATERAL AGREEMENTS

There are several bilateral trade agreements between Egypt and Arab and Mediterranean countries, as shown in the following summary table. However, the study focuses on three of them as the most common and effective ones.

Articles	Lebanon	Syria	Morocco	Tunisia	Libya	Jordan	Iraq
Type of Agreement	Executive Program	Preferential trade agreement	Free Trade Agreement	Free Trade Agreement	Tariffs Agreement	Free Trade Agreement	Free Trade Agreement
Enter Into Force	15/3/1999	1/12/1991	28/4/1999	26/4/2007	18/6/1991	21/12/1999	8/7/2001

Source: Ministry of Trade & Industry, Trade Agreement Sector 09 August, 2010. Available in web site: <http://www.tas.gov.eg/English/Trade%20Agreements/Publications/overview>

3-3-1 The Free Trade Agreement between Egypt and Turkey

Egypt and Turkey began the first of six rounds of trade negotiations in 1998. Lately, they signed final draft on December 27, 2005 on a free trade agreement. The Agreement is drafted in accordance with the provisions of the chapters related to the free trade area in the Association Agreement between Egypt and the EU. The Egypt–Turkey FTA major components: and key provisions include the following: Abolishes Customs duties and charges having equivalent effect on both imports and exports, and all quantitative restrictions on imports and measures having equivalent effect in accordance with the provisions of the Agreement, and stipulates that no new measures on imports may be introduced and that those already applied may not be increased in trade between the parties.

The agreement lays down the system of Pan-Euro-Med accumulation of origin, which governs the application of the harmonized preferential rules of origin between the two countries. It governs the rights and obligations of the parties with respect to subsidies to be administered by Articles VI and XVI of the GATT 1994, the WTO Agreement on Subsidies and Countervailing Measures, and the WTO Agreement on Agriculture. It, also, outlines means of promoting investment and technology flows between the two countries to achieve economic growth and development. In addition, it establishes a framework for achieving gradual liberalization in trade in services in accordance with the provisions of the WTO General Agreement on Trade in Services (GATS).

It allows Egypt to take exceptional measures to protect infant industries or sectors that face difficulties in the form of increased customs duties. In this case Customs duties applicable on imports from Turkey into Egypt may not exceed 25 percent ad valorem and must maintain an element of preference for products originating in Turkey. The total value of imports of products subject to these measures may not exceed 20 percent of total imports of industrial products from Turkey, as defined in Article 3, during the last year for which statistics are available. These measures can be applied for a period not exceeding five years.

The agreement allows both parties to take measures against dumping or to apply safeguard measures in accordance with WTO Agreements, to take measures in case of serious shortage in an essential product to the exporting country that leads to serious difficulties, and to take measures in case of balance of payments difficulties in accordance with relevant WTO and IMF articles. The FTA establishes an Egyptian–Turkish Joint Committee with representatives to administer the FTA, resolving problems arising during implementation and discussing the possibility of further concessions.

The agreement protocol covered the abolition of customs duties and charges having equivalent effect on imports between Egypt and Turkey; as well as the exchange of concessions in basic agricultural, processed agricultural, and fishery products. Industrial products originating in Egypt shall enjoy an immediate removal of all customs duties and other charges having equivalent effect, when the FTA enters into force. Therefore, all Egyptian exports of industrial products will enjoy free access to Turkey. It should be mentioned that, the processed agricultural products are not considered industrial products even though some are classified in the HS Customs duties as industrial.

List 1 covers raw materials that are important as inputs for most industries. This list enjoys 75 percent reduction from the Most Favored Nation (i.e. non-preferential) duty from the day of entry into force of the agreement. Products on the list will enter Egypt duty-free in the second year of entry into force of the agreement (i.e., 2008). The list consists of about 2,070 HS tariff lines, including aluminum ores, sodium chloride, Sulfur, wood, parts of machines, aluminum oxide, and copper alloys. Egypt's MFN duties on those products are 0, 2, 5, or 10 percent.

List 2 covers intermediate goods. Tariff phase-out for these products will start in 2008. Egyptian imports will enjoy duty-free access starting in 2014. The list consists of about 1,204 HS tariff lines, including carbon, chemical preparations, papers, glasses fibers, tubes and pipes of vulcanized rubber, insecticides, and vacuum flask. Egypt's MFN duties on those products are 2, 5, 10, 20, or 30 percent.

List 3 covers final goods for which tariff phase-out will begin in 2010 and end with complete liberalization in 2017. The list consists of nearly 1,650 HS lines, including apparel, textiles, shoes, iron and steel, and electrical equipment and machines. Egypt's MFN duties on those products are 2, 5, 10, 20, or 30 percent.

List 4 includes mainly vehicles and some electrical engines and generators. Tariff phase-out will occur from 2011 to 2020. The list includes only 23 HS lines. Egypt's MFN duties on those products are 10, 30, 40, or 135 percent.

The agreement includes concessions on agricultural, processed agricultural, and fishery products. The two parties have agreed to grant each other concessions as either tariff rate quotas (TRQs) or tariff reductions on agricultural, processed agricultural, and fishery products. The two parties exchanged the same concessions on processed agricultural products.

There are two tables of concessions. Table A includes agricultural and processed agricultural products originating in Turkey that will be subject to TRQs and/or reduced duties when exported to Egypt. Table B includes agricultural, processed agricultural, and fishery products originating in Egypt that face TRQs and/or reduced duties when exported to Turkey. Thus, Egyptian exports of agricultural products have better market access opportunities into the Turkish market than Turkish exports of similar products into the Egyptian market. Moreover, Egyptian fishery exports, except HS 0301, face a 50 percent MFN duty reduction when entering the Turkish market, while some live plants will access the Turkish market on a

duty-free basis. Although limited, the products listed in Tables A and B are important for both countries. Nevertheless, the two countries may discuss expanding those concessions later through the joint committee.

3-3-2 Egypt-Turkey FTA and the Egypt-EU Association Agreement

The two parties have agreed to apply the Pan – Euro med Rules of Origin on the goods exchanged among them. Many aspects of the Egypt-Turkey FTA resemble the Egypt–EU Association Agreement, with entire sections adopted from it. Its rules of origin are identical to those governing each country’s agreements with the EU (e.g., the “one list” is included), allowing them both to benefit from Pan-Euro Med rules of origin. In addition, the tariff phase period out for Egypt’s nonagricultural goods is nearly identical to that granted to Egypt by the EU in recognition of Egypt’s developing country status. The Association Agreement specifies four categories of goods at the product level, delineating a phase-out period of 3 years, 9 years, 12 years, and 15 years. These schedules have been largely incorporated, and on a product-specific basis, into the Egypt-Turkey FTA with specified years—2008, 2014, 2017, and 2020—to phase out tariffs on the four categories of goods. (The only differences between the Egypt-EU and Egypt-Turkey agreement lists are three HS codes related to electrical engines and generators, which were moved from the third to the fourth list.)

According to the Agreement, imports into Turkey of industrial products originating in Egypt shall be allowed free of customs duties and other charges having equivalent effect, upon the entry into force of the Agreement. On the other hand, customs duties and other charges having equivalent effect on imports into Egypt of industrial products originating in Turkey shall be gradually abolished according to the schedules of four lists, which are identical to the lists attached to the Association Agreement. The dismantling of customs duties on Turkish goods of each list shall be affected one year behind the similar list of EU.

Regarding agricultural processed agricultural and fishery products, the two parties have agreed to grant each other concessions either as free tariff quotas or reduction of the customs duties on lists of these products.

3-3-3 Protocol between Egypt and Israel On Qualifying Industrial Zones (QIZ)

The Government of the Arab Republic of Egypt and the Government of the State of Israel noting the 25th Anniversary of the signing of the Peace Agreement between the Parties and desiring to promote economic and trade relations for the benefit of the Parties have agreed to conclude this protocol. In recognition of the requirements in the United States-Israel Free Trade Area Implementation in 1985, and on the recommendation of the private sector of the Parties have agreed to the creation of the Qualifying Industrial Zones (hereinafter the "QIZ"), and request the Government of the United States to designate them as "Qualifying Industrial Zones" under the legislation and proclamation. This Protocol shall enter into force upon the notification of both Parties on the completion of the necessary legal procedures required by them for the entry into force of this Protocol

The Parties hereby designate the following territories of their respective countries as enclaves where merchandise may enter for purposes of export, without payment of duty or excise taxes, no matter what the country of origin of the merchandise.

A For the Government of Egypt: includes areas as designated by the Parties and as approved by the United States Trade Representative (USTR).

B For the Government of Israel: includes an Area under Israeli Customs control within the boundaries of the land crossing border at Nitzana Crossing Point.

Based on the respective national legislation of the Parties, the competent authorities of Israel and Egypt shall establish the necessary procedures for assuring the speedy flow of goods into and out of these areas. The purpose of these procedures is to ensure the strict enforcement of the principles of duty and taxation pursuant to this protocol. In the case of the State of Israel, where factories located outside the

zone shall contribute part of the 35 percent minimum content required by the legislation and proclamation, the Israeli customs authority shall ensure that inputs imported from abroad incorporated into goods shipped into the zone shall be exempt from duty.

A QIZ Joint Committee shall be established, in accordance with Article II of the Protocol, with two co-chairpersons: an Egyptian appointed by the Egyptian Government, and an Israeli appointed by the Israeli Government. A representative of the United States may attend the meetings as an observer

2. The responsibilities of the QIZ Joint Committee are: to supervision the implementation of the QIZ Protocol, verifying full compliance with the QIZ requirements, issuing and/or cancel certificates pursuant to Article E of the Protocol; determining the lists of companies pursuant to Article F of the Protocol; preparing an annual report that to be submitted to the relevant Ministers. The QIZ Joint Committee shall carry out its responsibilities on a quarterly basis. The QIZ Joint Committee shall convene quarterly, to determine the list of companies and issues the certificate to those companies. In order for the QIZ Joint Committee to determine the lists of companies to appear on the lists pursuant to the Protocol the following procedures must be followed:

A. The company shall provide its Authorities evidence of full compliance with all the requirements of the QIZ Protocol for the previous quarter, no later than 15 days from the end of each quarter. This evidence shall include the following documents: the company ID, the type of products exported, the type of input purchased, invoices from Egyptian/Israeli suppliers over the last quarter, including contact persons, and total export of the company to the United States under the QIZ duty free treatment for the previous quarter supported by relevant documents. The authorities of the Party when receive the documents and evidence shall submit to the authorities of the other Party, no later than 30 days from the end of each quarter. The QIZ Joint Committee shall verify the data. in order to determine whether the requirements of the Protocol have been fulfilled. The Joint Committee issues the quarterly lists of the for the following quarter, based on the company's fulfillment of the requirements of the Protocol for the previous quarter.

Companies that have not previously exported under the QIZ Protocol, and that request to be included in the list determined by the QIZ Joint Committee after a quarter has already begun, will not be required to report until the end of the next full quarter. If any Party fails to attend the quarterly QIZ Joint Committee meeting, the Party that has attended the meeting may carry out the responsibilities of the QIZ Joint Committee. If the hosting Party fails to issue the invitation to the other Party to attend the meeting, the other Party may carry out the responsibilities of the QIZ Joint Committee.

The Israeli inputs that shall be recognized for the purpose of the QIZ must be direct relevant inputs.
10. The QIZ Joint Committee shall not recognize inputs purchased from Israeli enterprises as fulfilling the minimum content required from Israeli manufacturers unless those inputs fully comply with the rules of origin as stipulated in the US-Israel Free Trade Area Agreement.

11. Exemption of taxes bases on the quarterly total duty free export to the United States under the QIZ. If the QIZ Joint Committee finds that a company fails to comply with the requirements of the QIZ Protocol the following steps shall be taken:

1- For a first-time failure - the company will not be eligible for QIZ approval for the following quarter, for a second-time failure - the company will not be eligible for QIZ approval for the following two quarters, for every failure beyond the second time - the company will not be eligible for QIZ approval for the following four quarters.

2- In case there is a need for additional data in order to verify QIZ compliance, the QIZ Joint Committee may request the US Customs Authorities to provide the necessary data. In case the QIZ Joint Committee finds during the implementation of the above mentioned procedures a need to amend these procedures, it will submit a proposal to the Minister of Foreign Trade and Industry of Egypt and the Minister of Industry , Trade and Labor of Israel, for their approval.

All the industrial and agriculture products are exempted from the entire tariff and the non-tariff measures. The Parties shall assist United States authorities in obtaining information, including means of verification, for reviewing transactions for which duty-free access into the U.S. is claimed, in order to verify compliance with applicable conditions, and to prevent unlawful transshipment of articles not qualified for duty-free access into the USA, (Table 41)

3-3 Tariff and Non-Tariff Barriers

3-3-1 Tariff Barriers

As Egypt has become a member of WTO, the tariff barriers were a big debate in the Egyptian trade policy. The government in treating tariff's list of rates was trying to make compromise between several national development objectives. On the national level there is a need for protecting the domestic enterprises from imports competition, in the same time, there is a need for facilitating the delivery of domestic industries imported requisites and raw materials. The ultimate target of trade liberalization agreements of WTO is to lower the tariff rates.

As the Customs Law No. 66/1963 stipulates in Articles 6 and 9 that the Customs tariff should be issued by a Presidential Decree that has the power of law, on condition that it be submitted to the legislative authority in its current cycle as soon as it becomes effective. If Parliament is in recess, it is to be submitted to the following legislative cycle, tariff rate amendments were made through several successive presidential decree over the last decade. Therefore, Egypt made several amended its on tariffs system over the last decade. The Presidential Decree No. 33 in 1999 was amended by the Presidential decree No. 300 in 2004, implying significant across-the-board tariff cuts and a reduction in the number of tariff bands. The only products excluded from tariff cuts were alcoholic beverages, tobacco, and cars with an engine greater than 1,600cc. No other changes in Egypt's MFN tariff have been implemented since 1999. The Customs tariff was amended by the Presidential Decree No 39 in 2007 and again was fatherly amended in the Harmonized System of the year 2009 Issued by The Presidential Decree of The New Customs Tariff No 51 in 2009 to reach a regulated system of the rate of custom tariffs in Egypt, (Ministry of Finance, 2010).

The tariff reductions that came into force then were largely driven by national and international changes the Egyptian economy had experienced at the time. The Egyptian Government's long term development plan since 2004 has been to create an investor friendly environment that is increasingly led by the private sector and that provides rapid job growth. In this context, a new Customs tariff issued by Presidential Decree No. 39/2007 has made amendments deemed necessary to achieve the Government's economic objectives in a changing environment. The main objectives of the amendments were as follows:

1. To simplify the structure of tariff rates with a view to reducing distortions in tariff rates and facilitating their implementation by all concerned parties. This objective is achieved through the following reductions: (a) 12 % down to 10 percent; (b). 22 %down to 20 percent; (c). 32 % down to 30 percent; (d) 40 %t down to 30 percent

2. To achieve a balance between tariffs imposed on manufactured products, intermediate goods and raw materials that are used entirely or in part in the production of final goods, while taking into consideration the contradictory goals of supporting the national industry reducing the burden on the Egyptian people, and supporting the various productive activities.

3. To comply with Egypt's commitments to the International Convention on the Harmonized Commodity Description and Coding System, as stipulated by Presidential Decree No. 33/1999, by adopting the HS 2007 issuance as the basis for the Egyptian Customs tariff. This will help facilitate Egypt's external trade, put Egypt's statistics at par with international standards, and ultimately serve negotiations on bilateral and multilateral trade agreements.

4. To review Article 3 of the Customs Law concerning the collection of Customs taxes due on goods that are subject to temporary admission – whether for repair purposes or for completion of manufacturing activities – in order to ensure sound implementation of the Law.

5. Eliminate many of the tariff lines and keep only those strictly necessary in order for the tariff schedule to be at par with international practice.

6. Reduce the current tariff rates on selected imports of basic commodities, medications (especially those used for chronic illnesses) and intermediate and capital goods used for production activities.

7. Support production activities while creating a fair and competitive environment that does not represent a burden on the Egyptian consumer.

8. Develop a partnership with all stakeholders to ensure transparency – a pillar of the international trading system – in the decision making process. The tariff schedule was discussed widely with all concerned parties such as commodity councils, chambers of commerce, the Federation of Egyptian Industries, a number of private and public sector production units, and industrial and investment compounds. The objective was to harmonize all points of view, and to ensure that all stakeholders are partners in the decision-making process to engage all parties and factors concerned with production and commercial operations.

9. Contribute to the creation of a clean environment by applying to selected environmental products a Customs duty of 2 percent of the value of the product. (In cases where a lower tariff rate below 2 percent has been in force, the lower rate applies.) This tax will be applied on stations supplying vehicles with natural gas, on parts needed to transform vehicles to use natural gas, on equipment used to monitor and control various products of environmental concern, and on equipment for renewable and new sources of energy (wind and solar energy) and their spare parts.

Reviewing the (See attached PDF files into the Folder : TRADE TARIFFS) shows that the tariff rate on almost all food products are within the range 2-5% and the tariff rate on agricultural requisites is almost nil (free)

Egypt's average applied MFN tariff has fallen from 26.8% in 1998 to 20.0% in 2005, and the number of tariff bands has been reduced. While the majority of rates adopted by decree (normally the applied rates) remain well below Egypt's bindings, for 19 tariff lines, they exceed, sometimes substantially, the corresponding bound rates; imports from WTO Members are alleged to carry the bound or the applied tariff rate, whichever is lower. Despite recent tariff reforms, Egypt's tariff system remains complex, with numerous exemptions, reductions, and concessions. In addition to tariffs, imports are subject to a general sales tax of between 5% and 45%, which also applies to domestically produced goods (**WTO, 2005**). The 2005 tariff contains 5,687 lines at the HS eight-digit level, of which 99.8% carry ad valorem duties. Egypt does not apply compound, mixed, or seasonal MFN tariffs.

3-3-2 Non-Tariff Barriers

There are other Trade Barriers rather than tariffs, which have been adjusted and relaxed during the economic reform program application. Imports are not subject to licenses or prior approval. However, a wide range of imported products is subject to mandatory quality controls. Since its last Review, Egypt has imposed 14 definitive anti-dumping duties and two safeguard measures. No notifications on sanitary and phytosanitary (SPS) measures or on technical barriers to trade (TBT) have been submitted to the WTO during the period.

Egypt's customs regime is based on Law 121/1982, Law 66/1963 (the Customs Law), Law118/1975 (which, together with its Executive Regulations (Ministerial Decree 275/1991), is also known as the Import and Export Regulations), and a number of Ministerial Decrees.

In accordance with Law 121/1982, all persons or companies importing goods into Egypt must register with the General Organization for Export and Import Control within the Ministry of Foreign Trade

and Industry. The Law also requires that all registered importers be Egyptian nationals and fulfil a number of other conditions, including financial reliability and the presentation of a proven record of past commercial activities. When registering, importers must also provide details of the products they intend to import. Importers must pay for imports through a bank operating in Egypt.

All goods imported into Egypt, except those destined for the free zones, must be accompanied by a customs declaration, irrespective of their value. Other documents required are the original commercial invoice, bill of lading, packing list, pro-forma invoice, a form specifying the mode of payment, delivery order from the carrier in return for the bill of lading, and, if appropriate, a content analysis of the commodity. In certain cases, additional certificates may be required by the customs authorities, including chemical certificates for imports of food additives and other material used in the food processing industry; quality control certificates for a number of products; and a disinfection certificate for shipments of shaving brushes and bristles. Sanitary certificates are also required for a number of products. and plant and animal products are subject to inspection by the Agriculture Quarantine Body and the Animal Quarantine Body.

Ministerial Decree 619/1998 requires that all imported consumer goods be shipped directly from the country of origin to Egypt. Ministerial Decree 423/1999 exempts from these provisions goods shipped from the producing country through a transit port and goods assembled from intermediate products of different origins. The authorities indicate that the decrees are intended to prevent the entry of products of unknown source into the Egyptian market.

Various imported goods are liable to quality control inspection by the General Organization for Export and Import Control within one week of the date of import (see also section (2)(viii)(b)). The Organization is entitled to examine a random sample of 1% of the total number of packages in each consignment and up to 2% of the contents of the chosen packages. The procedures for sampling are laid down in Ministerial Decree 1186/2003; as a main principle, the customs officials must ensure that the samples examined are representative for the consignment. If the chosen samples are not in conformity with regulations, the Organization may search up to 2% of the remaining number of packages in the sample before rejecting a consignment. (Import and Export Regulations, Article 83) Rejected goods must be re-exported or destroyed.

Since Egypt's previous Review, the Customs Administration has stepped up efforts to improve inspection and clearance activities. Advanced clearance centers have been established at the ports of Alexandria, Cairo, Port Said, and Suez to simplify entry procedures (There are six customs offices). The use of computers and x-ray equipment has also helped to improve efficiency and, according to the authorities, the average clearance time has been reduced to between 30 minutes and three days, depending on the size and sensitivity of the consignment. In late 1999, Egypt established a register of trustworthy importers and exporters (reliable in trading in products in conformity with Egyptian specifications). Inclusion on the register, held by the General Organization for Import and Export Control, entitles speedier product quality controls based on the producers or importers' declarations.

4 FUTURE PROSPECTS

Even though Land and water resources are the two main natural resources allocated for agricultural production, the later is the most limiting factor. Thereof, it occupies the highest interest in the future vision of Egypt's sustainable agricultural development. The issues on agricultural policies presented in this study provided evidences that to double the agricultural sector growth rate is vitally required. Such target implies both vertical and horizontal development of the sector. Horizontal increase means additional arable land. However, the water resources availability limits the horizontal expansion. As far as Egypt has a constant quota of Nile water, the available approach is by raising the water use efficiency and looking for nonconventional water resources. Vertical expansion implies to raise the productivity, which in turn, relay

upon the potential yield in comparison with the existing yield, either for crops or for livestock. Such potential yield is approached via improvement of farming practices, input intensification and biotechnology, which means to cultivate high yield varieties and introducing improved genetic makeup of livestock, (Soliman, et al, 2006)

The future prospects have three milestones. Raising irrigation water efficiency and maintaining agricultural land resource associated with institutional reform and policy adjustment program.

The future prospects has two scenarios. *Scenario-1* is conservative in reaching moderate quantitative goals of agricultural development, within a decade for each one of them.. *Scenario-2* is optimistic in reaching such goals. Both stem from a base period (2007-2008). The first scenario leads to expand the cropped area from 6.4 million hectares in the base period to 8.1 million hectares. The second Scenario leads to 9.8 million hectares. The Intensification rate of the cropping pattern will be raised from 183% to 198% under Scenario-1 and 199%, under scenario-2.

4-1 To Raise Water Use Efficiency for Irrigation

Water resources in Egypt face two obstacles the predetermined quota of Egypt's share in the Nile water and low water-use efficiency resulting in much water losses. There are two types of inefficiency. First, the water conveyance efficiency is estimated at 70%. Secondly, the efficiency of field irrigation systems is currently around 50% (Soliman, 2002a).

Thereof, one of the main components of the agricultural development strategy is to achieve a gradual improvement of the efficiency of irrigation systems to reach 80% (Table 44). By reaching such objective saves about 12.4 billion cubic meters of water. This occurs through reducing the rice area from 0.7 million hectares in 2007 to about 0.55 million hectares by 2030, and improving the field irrigation and water conveyance systems. The saved water will be used in reclaiming additional new areas. The strategy aimed at adding 0.53 millions hectares under scenario-1 and about 1.3 million hectares under scenario-2, (Table 45).

Egypt is a poor rainfall country; the highest rate falls on North Mediterranean Coast is about 100–150 mm. However, there is an opportunity to maximize the sustainability of rain fed agriculture, through application of improved water harvesting techniques and supplementary irrigation from ground water sources (Saad, and Soliman, 1979). In addition, rationalization of water resources' use is needed, through adjustments in the financial policies. This can be achieved through:

- (a) Reviewing tax policies related to agricultural land to amending them so that tax assessment should be based not only ,on the area under cultivation, but it should also considers the cropping pattern and the applied irrigation method;
- (b) Introducing concessional credit lines to encourage farmers to improve irrigation systems;
- (c) Improving the performance of government institutions responsible for the assessment and collection of agricultural taxes,
- (d) Granting tax exemption to farmers adopting improved irrigation systems and the proposed cropping pattern, (McCauley, et al, 2002)

4-2 Maintaining and protecting agricultural land

Agricultural land in the Delta and the Nile valley regions suffers from two important problems: (a) Continued encroachment on agricultural land to diverting it from agricultural to non-agricultural uses at an annual rate of 8,400 hectares, and (b) Continued degradation of soil fertility in so many agricultural areas (Soliman, and Rizk, 1991). To assess these problems would require undertaking periodical soil surveys as a basis to establish fertilizer rates, continued restoration and maintenance of agricultural drainage systems, as well as for installing new drainage systems where needed.

Land reclamation maps should include all necessary elements for the development and settlement of new communities. Therefore, it is needed to introduce new concessional credit lines for reclaiming and

developing new areas in a framework for investment opportunities in agricultural projects and other related and complementary projects, if needed. Small farmers in the newly reclaimed areas should form voluntary institutions e.g. Cooperatives, with the state providing needed support to enable such institutions to carry out their role (El-Zoghby, et al, 1985), (Soliman, and El Zanati, 1987), (Soliman and Imam, 1987).

.Protection of agricultural land policy will be based on Undertaking a comprehensive review of all applied laws and procedures to protect agricultural land based on stakeholders' participatory approach and consolidating entities with similar functions. These policy adjustments should be associated with establishing integrated housing plans for the Egyptian villages, with a view to developing a rural housing environment meeting farmers' needs.

Community participation needs providing village leaders with the opportunity to participate in formulating conditions and standards included in these plans, so that such plans would meet the requirements and expectations of the rural inhabitants, and facilitate implementation procedures. Further more; there should be a periodical monitoring of law enforcement, including use of aerial photography; and Introducing a mechanism for linking the non-encroachment on agricultural land and benefitting from the ownership of newly reclaimed areas. The Agricultural land maintenance policy includes preparing packages of extension information and recommendation for different agricultural regions; and planning and executing soil improvement programs.

4-3 Human resources' development

The Egyptian agricultural strategy should adopt a vital target concerning generation of job opportunities for the rural youth. The goal is to generate 4 million jobs by the year 2030 in agricultural and related activities. Such goal is achieved via: (a) Reclamation of new areas, improvement of the irrigation system projects in the old areas, (b) Adoption of labor-intensive technologies, (c) Expansion of agricultural-support activities in producing and marketing agricultural inputs and agro-industries. As the proposed strategy will emphasize on providing the needed human resource skills for different development programs it requires associated design of a new approach towards monitoring and evaluation; and strengthening linkages between agricultural education programs and the requirements of the labor market.

4-4 Improving Agricultural Productivity

the increase in productivity that has achieved over the last 20 years did not reflect the potential of agricultural land or animal productivity (FAO, 2003)

4-4-1 Productivity improvement of Plant Sector

To raise the yield of the main crops requires Planting newly developed varieties with resistance to drought, salinity, and pests and of early maturing. To increase the productivity of clover "Berseem" as the main Egyptian fodder, will not only expand the domestic supply of feeds for livestock development but it will also save a proportion of land and water for other subsistence food crops, such as broad bean and wheat (Soliman and Imam,1987). Developing long-medium staple cotton varieties with high economic returns is highly required for keeping the export position of Egypt in the world market and satisfies the domestic textile manufacture demand for cotton.

Assumptions of raising crop yield are based upon the potential yield cited by the agricultural research outputs (Agricultural Research Center, MALR, 2009) and have to be supported by continuous research programs, including wide potentials of using biotechnology, paying greater attention to integrated farm management, improved practices, (FAO, 2003). Based on aforementioned objectives, the projected yield/feddan would be as shown in (Table 46) for both scenarios. This table includes also the implications of potential improvement in irrigation efficiency and water resource savings. Water efficiency was assessed economically as return per 1-M3 of irrigation water, at base period farm gate weighted price. Revenue

(\$/m³ Water) = (Yield x farm Price)/M³ of Consumptive Water. Estimated average farm prices have been weighted by cultivated areas in the different seasons from data issued by (MALR, 2007).

4-4-2 Productivity improvement of livestock Sector

Increasing *per capita* animal protein consumption by additional 4g/day is one of the main objectives of developing animal protein production systems. The outlook intended to reconstitute the animal food basket from the different sources in favor of the least-costly local sources in both scenarios.

As milk production in Egypt, rather than red meat has a comparative advantage (**Soliman, 1994**), therefore, to increase cattle and buffalo milk productivity to raise the annual per capita consumption from current 63kg, to be 80 Kg under Scenario-1 and 90kg by scenario-2; associated with reducing meat imports to the most possible minimum. Continued improvement of feed conversion rates in the commercial poultry sector, for both poultry meat and eggs is necessary. It leads to increasing the production of fattening broilers to 1.1 billion broilers under scenario-1 and 1.4 billion birds under Scenario-2. The development program leads also to increasing egg production to 5.8 billion table eggs under scenario-1 and to 9.3 billion table eggs under scenario-2. The development and modernizing the rural poultry sector is also a parallel target.

4-4-3 Increasing Competitiveness of the Agricultural Products

Protection of Competitiveness and prevention of monopoly is one of the main state roles in free market economy. It is a vital accelerating function for marketing development and efficient performance of the market. The future view to reach the effectiveness of such acceleration marketing function includes the following policy instruments.

4-3-1 Improving quality of I products to meet market requirements

This policy requires establishing and applying quality standards for all agricultural products, expanding modern capacity of sorting, grading and packaging processes; applying modern telecommunications technologies for market information associated with a clearing house to streamline future markets. Improving pre- and post-harvest practices will not only improve the quality but also minimizing losses; developing risk mitigation program for agricultural sector market. Rationalization and developing the role of the government and related policies in practicing control over agricultural inputs and outputs to provide effective policies to gear the marketing system towards the market chain linkages.

4-3-2 Agricultural commodity marketing policy

The future reform vision of the agricultural marketing policy requires to improve marketing efficiency via encouragement of establishing agro-industries and vertical, as well as horizontal integration in the market. In addition, the Alexandria Commodity Exchange and Cotton Spot Exchange should be reopened. GOVEG has to establish other commodities' exchange spot for other crops, such as cereals, meat and dairy products, establishment a revolving fund to insure and protect the producers and marketing institutions from markets fluctuations and risk sources.

4-4 Food Security Policies

The world has experienced a global food crisis in 2006 (Von Braun, J.2008). Food prices rose sharply. Available indicators show that this crisis is expected to continue possibly for a long period after the present financial crisis. Keeping this in mind, the sustainable agricultural development is based on achieving certain goals. The expected increase in population is from 80 million to 106 millions by 2030. Thereof, strategy targets are to empower Egypt achieving high level of self-sufficiency in subsistence food commodities (Table 47). This means for wheat from 54% in the base year to 71% and 81%, under scenari-1 and scenario-2, respectively. It, also leads to raise maize self-sufficiency from 53% in the base year to to

92% for maize, from 77% to 93% for sugar, from 67% to 93% for red meat, and from 97% to 99% for fish, by the year 2030. The strategy would include policies and work programs to that reduce pre- and post-harvest losses to reach at least half their present levels.

Rationalization, but not phasing out, the existent subsistence food-price subsidy policies should be a main objective of food security, in accordance with a practical system to identify beneficiaries on base of incontestable criteria; and designing a monitoring system to assess its relevance and impact on the low-income groups . To reach sustainable food safety policy requires completion the current programs towards establishing a full Egyptian food and feed safety code of practice; establishing Egyptian standards for maximum residues; and establishing Egyptian standards for food additives, preservatives, colors and flavor-enhancers.

4-5 Improving Opportunities for Agricultural Investment

The tentative estimates of the total agricultural investments needed for achieving an annual agricultural growth rate of 4% during 2009-2030, would be \$88 billions rather than current agricultural investments of \$ 2.35 Billions. Therefore, some restrictions and problems are still prevailing which reduce the positive impact of the newly enacted laws related to agricultural investments. To eliminate such obstacles requires establishing a single entity for the allocation of areas suitable for agricultural investments, with representatives from all concerned ministries. It , also, requires, reviewing laws and procedures applied in land allocation and issuing title deeds for new reclaimed lands. The farmers and agricultural investors should be able to use the areas allocated to them as bank collaterals. The GOVEG should prepare a clear map for investing in agriculture, which define areas, assigned to the different types of investments, and updated periodically. The concerned Government authorities have to design and implement an integrated program for upgrading human resources needs and skills to manage the information system, A special law should be acted to regulate agricultural financial assistance procedures. With special incentives to the small farmers, particularly who cultivate strategic crops, and comply with achieving the national purposes of agricultural development. The Principal Bank for Development and Agricultural Credit (PBDAC) should relinquish its role in the procurement and distribution of agricultural inputs, and concentrate on its principal role of financing agricultural and banking activities.

4-6 Institutional reform of Agricultural Sector

The institutional structure of the agricultural sector is highly complex and characterized by, duplicative, overlapping duties and responsibilities in some cases and the absence of an institutional structure in others. In addition, some institutional frameworks lack the appropriate mechanisms for carrying out the assigned tasks, while some other entities carry out tasks incompatible with their structure and basic functions. Therefore, agricultural institutional reform includes governmental institutes, the cooperative sector, and civil society organizations active in the agricultural sector.

4-6-1 Institutional Reform of the Ministry of agriculture and Land Reclamation

This reform program implies delineating the functions of the MALR and related institutions in the fields of research, extension, policy designing, and follow-up, providing information and data, developing agricultural resources, planning and monitoring infrastructure, developing the newly reclaimed areas and ensuring availability of agricultural inputs. The ministry would also phase out its role in commercial production, merging institutional units with similar functions under one strong entity with defined terms of reference; Consolidating the agricultural law and related laws.

4-6-2 Reforming civil society and Rural Development Organizations

civil society and Organizations should be engaged in laying down research plans, their execution and follow-up, as well as in the application of the results. A unified law to regulate the establishment of

special associations should be enacting, instead of enacting a special law for each category of the special associations. Finally, the MALR should provide technical support to all institutions and organizations, and consider them as a principal partner with the agricultural extension service in implementing extension plans and programs; and

4-6-3 Strategy for Reforming the Agricultural Cooperatives

Providing appropriate support to encourage cooperative organizations is at the top of the agricultural institutions reform. Such support implies to amending the current cooperative Law (122/1982) in light of market economy requirements and international agreements. Reorientation of the role of the administrative mechanism to serve interests of the members democratically is vitally needed. The small cooperatives should be merged in one economically viable entity. To establish a training program for the staff based on a professionally functional structure and a defined business plan. A special program for funds to finance cooperatives with satisfactory credit facilities is required. The involvement of cooperatives in the agricultural development plan as centers of disseminating modern technology is needed. A new regulation should be enacting to allow the cooperatives to establish and/or participate in agricultural banks and agricultural companies.

4-6-4 Development of Agricultural extension system

Restructuring the agricultural extension system and laying down a detailed business plan for its reform. This includes preparing and executing intensive programs for the training of extension agents in the different specializations; To Introduce a transparent mechanism for monitoring and evaluating extension activities, with the participation of concerned stakeholders; Integrating private sector participation in extension activities. Incentives to extension workers should be based on their achievements. A special TV channel to agricultural communication and information, or expanding agricultural programs broadcasted over the present TV channels should be established.

4-7-5 -Required Investments Under the Two Proposed Scenarios:

The First conservative scenario supposes to grow agricultural sector by 3.5%, while the second optimistic scenario hypothesizes that the sector will grow at 5% a year. The cumulative investments for one decade is estimated at constant prices of 2006 are 198 and 231 billion Egyptian pounds, respectively. These estimates based upon, that the capital-Output coefficient is 1.8, and amortization rate is 7.5%, Investment expenditure in the base period (2007-2008) was around 8.5 billions EGP to achieve a growth rate of 3.65%. and the estimated response of the relation between investment expenditure in the agricultural sector and achieved growth rates during the time series 1970 – 2005

4-7-6 SWOT Analysis for Egyptian Agro-Food Policies Outlook

4-7-6-1 Concepts of SWOT Analysis

SWOT is an abbreviation for *Strengths, Weaknesses, Opportunities, and Threats*. It is an important tool for auditing the overall strategic position of a business and its environment. Once key strategic issues have been identified, they feed into business objectives, particularly marketing objectives. In other words, It is a simple framework for generating strategic alternatives from a situation analysis. It is applicable to either the corporate level or the business unit level and frequently appears in marketing plans. SWOT (sometimes referred to as (TOWS) stands for *Strengths, Weaknesses, Opportunities, and Threats*. The SWOT framework was described in (the late 1960's by Edmund P. Learned, C. Roland Christiansen, Kenneth Andrews, and William D. Guth) in *Business Policy, Text and Cases* (Homewood, IL: Irwin, 1969). The General Electric Growth Council used this form of analysis in the 1980's. Because it concentrates on the issues that potentially have the most impact, the SWOT analysis is useful when a very limited amount of time is available to address a complex strategic situation.

The internal and external situation analysis can produce a large amount of information, much of which may not be highly relevant. The SWOT analysis can serve as an interpretative filter to reduce the information to a manageable quantity of key issues. The SWOT analysis classifies the internal aspects of the company as strengths or weaknesses and the external situational factors as opportunities or threats. Strengths can serve as a foundation for building a competitive advantage, and weaknesses may hinder it. By understanding these four aspects of its situation, a firm can better leverage its strengths, correct its weaknesses, capitalize on golden opportunities, and deter potentially devastating threats.

4-7-6-1-1 Internal Analysis

The internal analysis is a comprehensive evaluation of the internal environment's potential strengths and weaknesses. Factors should be evaluated across the organization in areas such as:

Company culture, Company image, Organizational structure, Key staff, Access to natural resources position on the experience curve, Operational efficiency, Operational capacity, Brand awareness, Market share, Financial resources, Exclusive contracts, Patents, and trade secrets. The SWOT analysis summarizes the internal factors of the firm as a list of strengths and weaknesses.

4-7-6-2 External Analysis

An opportunity is the chance to introduce a new product or service that can generate superior returns. Opportunities can arise when changes occur in the external environment. Many of these changes can be perceived as threats to the market position of existing products and may necessitate a change in product specifications or the development of new products in order for the firm to remain competitive. Changes in the external environment may be related to:

Customers, Competitors, Market trends, Suppliers, Partners, Social changes, New technology, Economic environment, Political and regulatory environment

The last four items in the above list are macro-environmental variables, and are addressed in a PEST analysis. The SWOT analysis summarizes the external environmental factors as a list of opportunities and threats

4-7-6-3 SWOT Profile

When the analysis has been completed, a SWOT profile can be generated and used as the basis of goal setting, strategy formulation, and implementation. The completed SWOT profile sometimes is arranged as follows:

Strengths	Weaknesses
1.	1.
2.	2.
3.	3.
Opportunities	Threats
1.	1.
2.	2.
3.	3.
.	.

When formulating strategy, the interaction of the quadrants in the SWOT profile becomes important. For example, the strengths can be leveraged to pursue opportunities and to avoid threats, and managers can be alerted to weaknesses that might need to be overcome in order to successfully pursue opportunities

4-7-6-4 Multiple Perspectives Needed

The method used to acquire the inputs to the SWOT matrix will affect the quality of the analysis. If the information is obtained hastily during a quick interview with the CEO, even though this one person may have a broad view of the company and industry, the information would represent a single viewpoint. The quality of the analysis will be improved greatly if interviews are held with a spectrum of stakeholders such as employees, suppliers, customers, strategic partners, etc

4-7-6-5 SWOT Analysis Limitations

While useful for reducing a large quantity of situational factors into a more manageable profile, the SWOT framework has a tendency to oversimplify the situation by classifying the firm's environmental factors into categories in which they may not always fit. The classification of some factors as strengths or weaknesses, or as opportunities or threats is somewhat arbitrary. For example, a particular company culture can be either a strength or a weakness. A technological change can be either a threat or an opportunity. Perhaps what is more important than the superficial classification of these factors is the firm's awareness of them and its development of a strategic plan to use them to its advantage.

4-7-7 SWOT Chart of Egyptian Agro-Food Sector Outlook

	Positives	Negatives
Internal Factors	<p>Strengths:</p> <ul style="list-style-type: none"> 1- Agricultural land potentiality and reclamation 2- The participation of village leaders 3- Human resource availability 4- Availability of Institutions of agriculture 5- Egyptian quota of Nile and underground water 	<p>Weaknesses:</p> <ul style="list-style-type: none"> 1- Urban demand for agricultural land 2- Water- use efficiency. 3- Agricultural productivity and quality 4- Agricultural finance and investment 5- Agricultural Cooperatives System
External factors	<p>Opportunities:</p> <ul style="list-style-type: none"> 1- Opportunities of fair Nile agreements with INDIGO 2- Foreign funds to finance investments for agricultural development programs 3- Foreign trade agricultural policies 	<p>Threats:</p> <ul style="list-style-type: none"> 1- Water quality & quantity limits. 2- Imposing unfair Nile-water agreement by INDIGO 3- Conditions of the foreign funds to finance investments 4- Deficit in agricultural trade balance 5- High proportion of imported of subsistent food commodities

4-8 TWOS Chart of the Egyptian Agro-Food Policies Evolution Outlook

<p>Internal Factors</p> <p>External Factors</p>	<p>Weaknesses</p> <ol style="list-style-type: none"> 1- Urban demand for agricultural land 2- Water- use efficiency 3- Agricultural productivity and quality 4- Agricultural finance and investment 5- Agricultural Cooperatives System 	<p>Strengths</p> <ol style="list-style-type: none"> 1- Agricultural land potentiality and reclamation 2- The participation of village leaders 3- Human resource availability 4- Availability of Institutions of agriculture 5- Egyptian quota of Nile and underground water
<p>Opportunities</p> <ol style="list-style-type: none"> 1- Opportunities of fair Nile agreements with INDIGO 2- Foreign funds to finance investments for agricultural development programs 3- Foreign trade agricultural policies 	<p>W&O policies</p> <ol style="list-style-type: none"> 1- To Raise Water Use Efficiency for Irrigation 2- Improving Agricultural Productivity 3- Agricultural commodity marketing policy 4- Reforming the Agricultural Cooperatives System 	<p>S&O policies</p> <ol style="list-style-type: none"> 1- Maintaining and protecting agricultural land. 2- Human resources development Via training and research. 3- Proper management of agricultural institutes
<p>Threats</p> <ol style="list-style-type: none"> 1- Water quality & quantity limits. 2- Imposing unfair Nile-water agreement by INDAGO. 3- Conditions of the foreign funds to finance investments. 4- Deficit in agricultural trade balance. 5- High proportion of imported of subsistent food commodities. 	<p>W&T policies</p> <ol style="list-style-type: none"> 1-Food Security Policies. 2-Improving Opportunities for Agricultural Investment. 4- Reforming civil society organizations dealing with rural development. 	<p>S&T policies</p> <ol style="list-style-type: none"> 1- Institutional reform of Agricultural Sector. 2- Development of Agricultural extension system

5 CONCLUDING REMARKS

Agricultural sector is a major sector in Egypt's national economy. It is responsible for achieving food security, by using human and natural resources with technology and capital in intensive way. The economic reform program has been significant although unequal across sectors. Agriculture has received closer attention than manufacturing and some services, which are only being liberalized gradually. Reform in agriculture, which began in the 1980s, has reduced government control over production, pricing, and distribution. As a result, there appear to be no major remaining restrictions on annual production and most agricultural products appear to be freely tradable. While reforms in the manufacturing sector have continued, they have not been as rapid. All import and export bans and quotas have been abolished.

there was a low growth rate of the Egyptian agricultural production, over the last decade, associated with imbalance between a low share of this sector in GDP and relatively higher share in total employment. Such imbalance implied lower productivity, in terms of average value of agricultural output per agricultural worker, comparing with the national level, where the agricultural labor productivity reached only 50% of the national one. Egypt has remained a net importer of agricultural products, although its agricultural trade deficit has decreased in recent years

The poverty rates indicate to the concentration of the poor in rural areas and particularly those in Upper Egypt. Even though rural regions are poorer than urban, inequality in income distribution is less in rural than urban regions of Egypt, However, more income distribution equality associated with much less income level than urban, is a disadvantage, as it means that poverty is wide expanded and more deeper in rural than in urban

Several lessons were learned from the application of previous strategies in eighties, nineties and at the onset of this century. The component of price liberalization of the structural reform program has reached its ultimate to great extend, however, the associated institutional reform, suffered from much lag response and needs further reform. The limited water resources have not faced with proper policies towards rationalization of water use. Although small farm holdings are more than 80% of the Egyptian agricultural system, such sector of the majority has not supported with policies that let the stakeholders being adapted with the dramatic changes in agricultural sector and protect them from the negative impacts of market liberalization and globalization.

The newly reclaimed land, which reached about one million hectare, has generated communities lacking of the foundations of settlement and efficient institutional framework as well as efficient marketing system,). The system of distributing the new reclaimed land was biased against the real stakeholders of the agricultural system, i.e. the small farmers and agricultural gradates from either universities or high agricultural schools

The previous strategies have lacked of a proper vision towards achieving sustainable agricultural development through an integrated rural development program. Therefore, unemployment, risky migration to urban or abroad, poverty gap, all has expanded in rural communities, (Soliman, 2010). Environmental impacts on agricultural system in Egypt from the production, marketing and foreign trade dimensions had not received much attention, particularly its impacts on output specifications, yield losses and barriers on exportation

In spite of full privatization of production and marketing firms of the agricultural system in Egypt, the private agricultural enterpriser have not shared in financing the agricultural research institutions in Egypt by any means. Drying most of the area of internal lakes and transformed most of their water area for agricultural production wasted the main source of fish production in Egypt (such lakes were providing 70% of Egypt fish supply) and failed to cultivate economically the dried land. The fault was that the feasibility studies made had denied the valuation on social price and costs of the transformed natural fisheries.

Reluctant development plans for efficient agricultural and food marketing system distorted the implemented plans for raising agricultural productivity. Even high yield was violated with high losses and lack of sufficient specifications and lack of proper grading, sufficient storage, or efficient processing (Soliman, 1998). The lag of issuing the act of protecting competitiveness and prevention of monopoly, for 15 years between liberalization and privatization of the market, in addition to lack of effective mechanism of implementation generated inherited power poles of monopoly in the Egyptian market, (Soliman and Gaber, 2008). Two marketing functions suppose to be monitored by government under free market system. However, both are not conducted at proper effectiveness. These are Market information system, monitoring and control on specifications, grades and safety,. International and regional backgrounds have experienced many changes, most important of which is the international trend towards further liberalization of agricultural trade, this big issue raised extra challenges that faced the agricultural development in Egypt

Even though Land and water resources are the two main natural resources allocated for agricultural production, the later is the most limiting factor. Thereof, it occupies the highest interest in the future vision of Egypt's sustainable agricultural development. The issues on agricultural policies presented in this study provided evidences that to double the agricultural sector growth rate is vitally required. Such target implies both vertical and horizontal development of the sector. Horizontal increase means additional

arable land. However, the water resources availability limits the horizontal expansion. As far as Egypt has a constant quota of Nile water, the available approach is by raising the water use efficiency and looking for nonconventional water resources. Vertical expansion implies to raise the productivity, which in turn, rely upon the potential yield in comparison with the existing yield, either for crops or for livestock. Such potential yield is approached via improvement of farming practices, input intensification and biotechnology, which means to cultivate high yield varieties and introducing improved genetic makeup of livestock, (Soliman, et al, 2006)

The future prospects have three milestones. Raising irrigation water efficiency and maintaining agricultural land resource associated with institutional reform and policy adjustment program.

The future prospects has two scenarios. Scenario-1 is conservative in reaching moderate quantitative goals of agricultural development, within a decade for each one of them.. The second is optimistic in reaching such goals. Both stem from a base period (2007-2008). The first scenario leads to expand the cropped area from 6.4 million hectares in the base period to 8.1 million hectares. The second Scenario leads to 9.8 million hectares. The Intensification rate of the cropping pattern will be raised from 183% to 198% under Scenario-1 and 199%, under scenario-2.

The First conservative scenario supposes to grow agricultural sector by 3.5%, while the second optimistic scenario hypothesizes that the sector will grow at 5% a year. The cumulative investments for one decade is estimated at constant prices of 2006 are 198 and 231 billion Egyptian pounds, respectively. These estimates based upon, that the capital-Output coefficient is 1.8, and amortization rate is 7.5%, Investment expenditure in the base period (2007-2008) was around 8.5 billions EGP to achieve a growth rate of 3.65%. and the estimated response of the relation between investment expenditure in the agricultural sector and achieved growth rates during the time series 1970 – 2005

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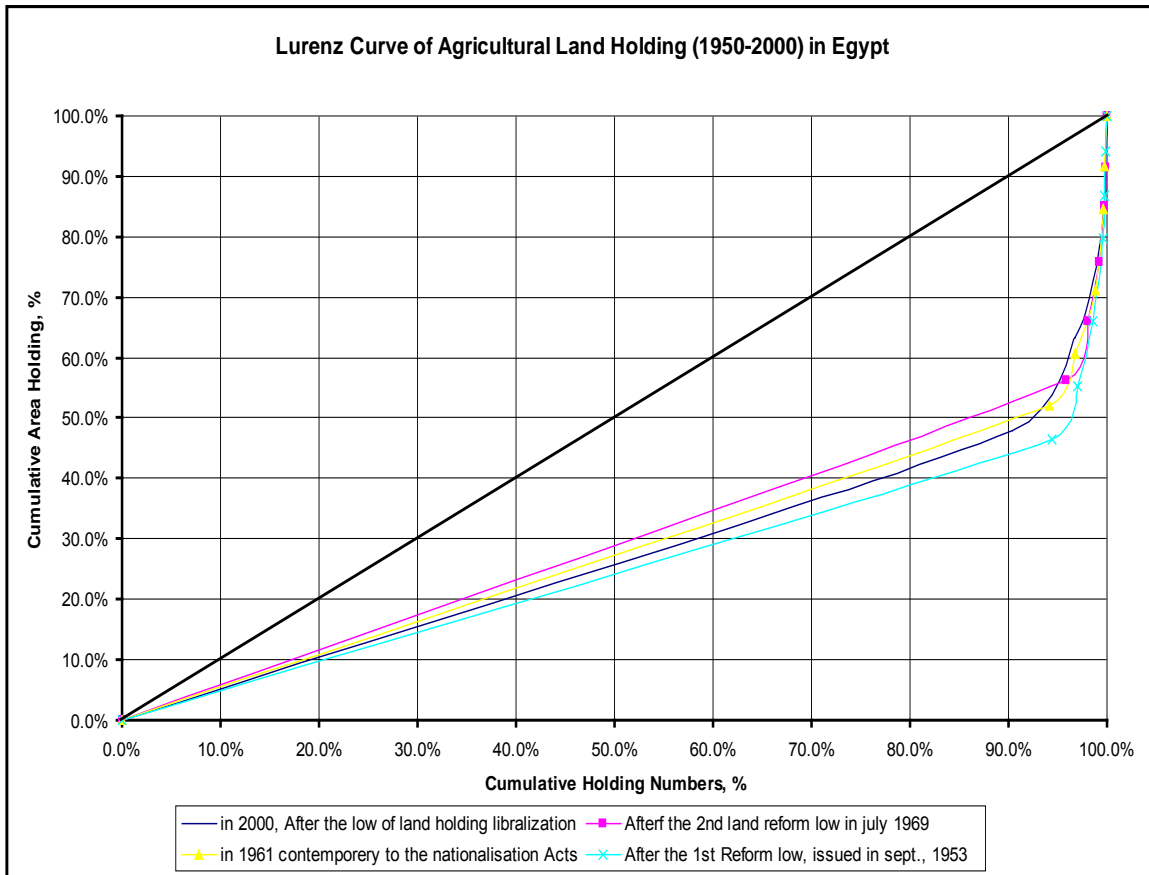
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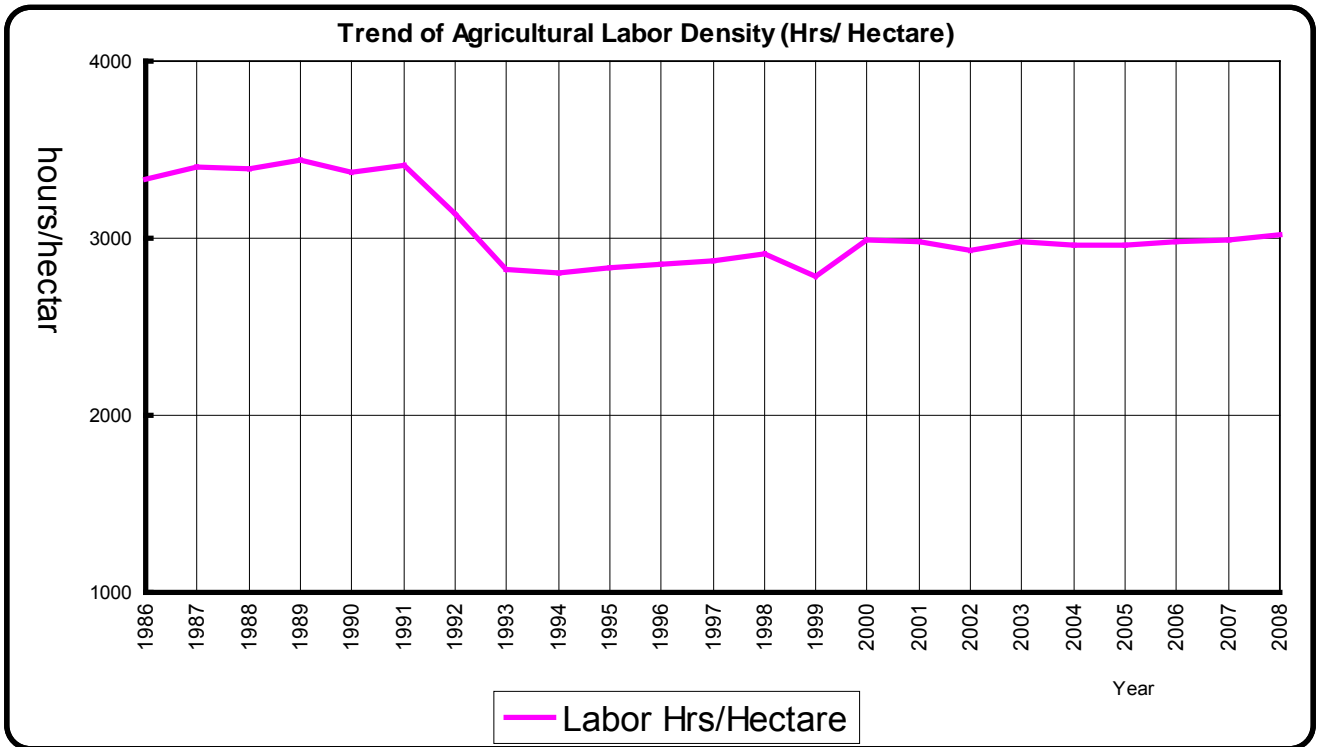
ANNEX 1: Figures

Figure 1



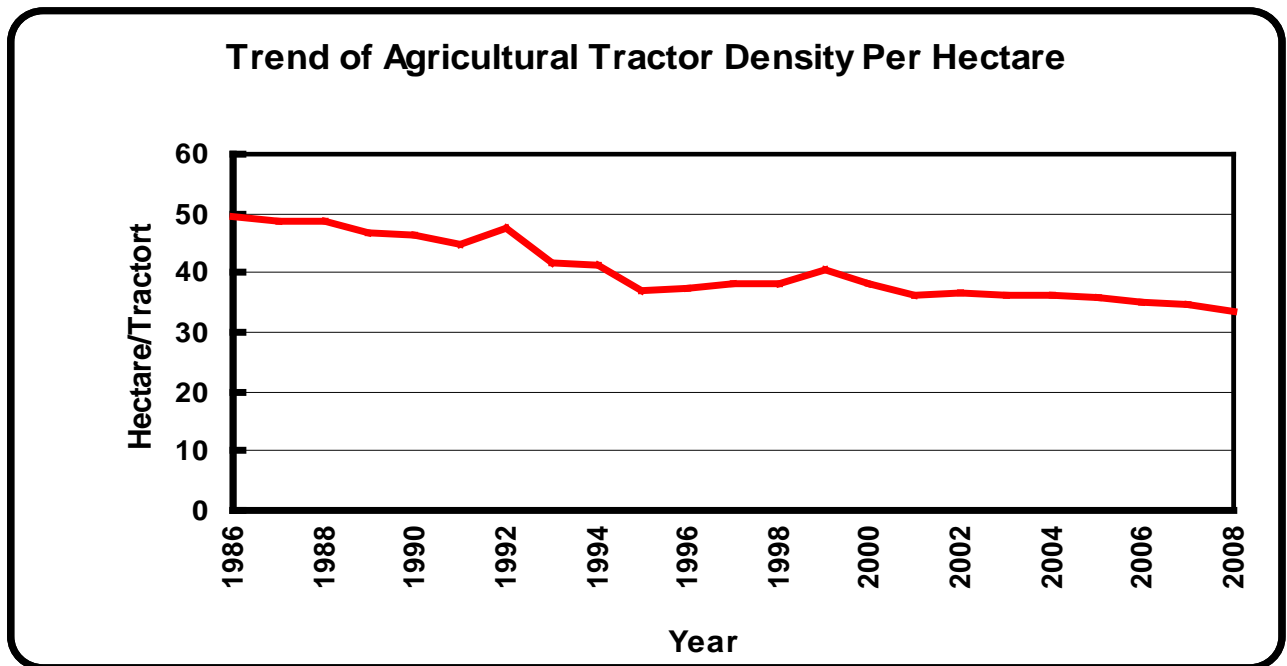
Source: Drawn from: (Table 27) and (Table 28)

Figure 2



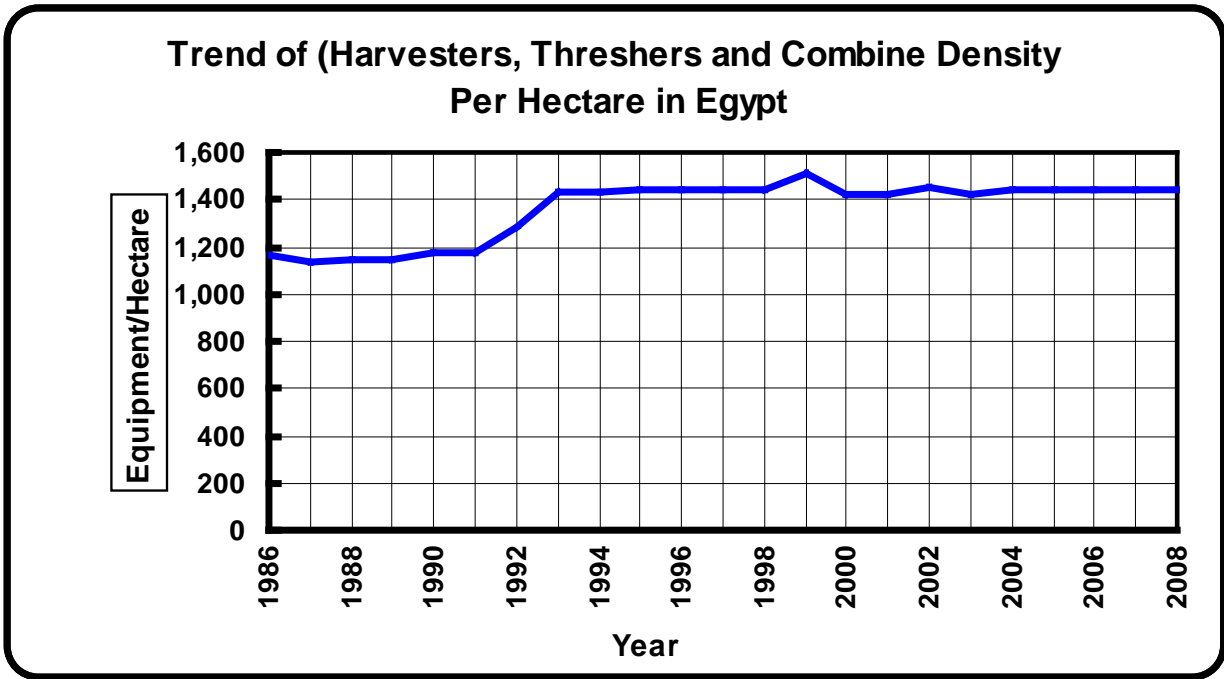
Source; Drawn from Data of (Table 31)

Figure 3



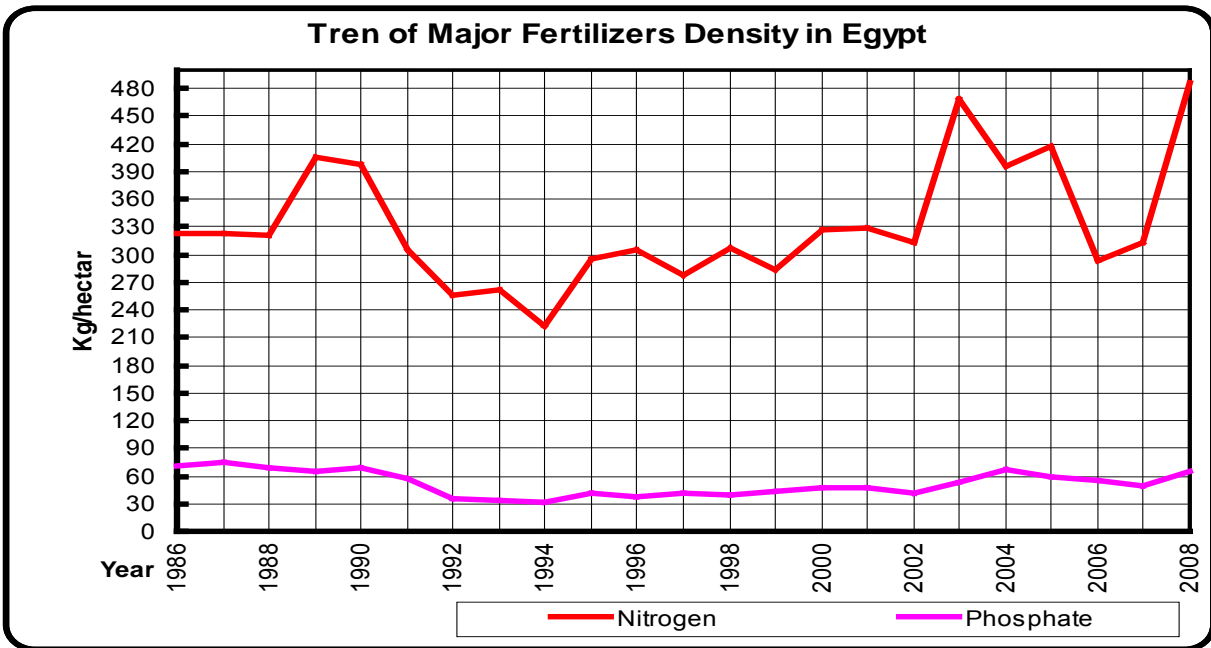
Source; Drawn from Data of (Table 31)

Figure 4



Source; Drawn from Data of (Table 31)

Figure 5



Source: Drawn From (Table 32)

ANNEX 2 ANALYTICAL SUMMARY TABLES

Table 1 Role of agricultural Sector in Employment

Period	Total Active (000)	Economically Population	GDP/ Worker	Employed in Agricultural (000)	%(Employed in Agriculture)/ total	Agricultural output/ Agricultural Worker
1995	18531		3,224	6489	35%	1,568
1996	18850		3,761	6455	34%	1,801
1997	19169		4,105	6417	33%	2,012
1998	19489		4,159	6377	33%	2,189
1999	20559		4,254	6599	32%	2,255
2000	20935		4,514	6577	31%	2,343
2001	21242		4,301	6544	31%	2,260
2002	22136		3,887	6700	30%	2,106
2003	22828		3,616	6760	30%	1,919
2004	23504		3,326	6807	29%	1,724
2005	24160		3,753	6839	28%	1,915
2006	24757		4,534	6847	28%	2,307
2007	25559		4,864	6900	27%	2,702
Annual Average	21671		4,039	6639	31%	2,087

Source; Calculated from: FAOSTAT; Statistical Data Base, FAOSTAT | © FAO Statistics Division 2010 | 22 August 2010www.FAO.org

Table 2 Role of Agricultural Output and Trade in the Egyptian GDP and total Foreign Trade

Period	Population, (2) Million	Exchange rate (1\$/EGP) (1)	Total GDP Million US\$(2)	Agricultural GDP Million US\$	% (agriculture Output)/GDP	Total Exports Million US\$ (3)	Agricultural Exports Million US\$ (3)	% (agricultural exports)/ Total	Total Imports Million US\$ (3)	Agricultural Imports Million US\$ (3)	% (agricultural imports)/ Total
1995	57	3.391	59749	10177	17%	4957	536	11%	11739	3370	29%
1996	58	3.392	70896	11623	16%	4609	521	11%	14107	3863	27%
1997	59	3.39	78684	12910	16%	5345	442	8%	15565	3459	22%
1998	61	3.388	81063	13958	17%	5128	572	11%	16899	3557	21%
1999	62	3.42	87463	14880	17%	4445	586	13%	17008	3665	22%
2000	63	3.43	94492	15407	16%	6388	518	8%	17861	3532	20%
2001	65	3.76	91371	14789	16%	7068	620	9%	16441	3338	20%
2002	66	4.33	86049	14110	16%	6643	772	12%	14644	3438	23%
2003	67	5.13	82548	12970	16%	8205	938	11%	14821	2741	18%
2004	69	6.158	78171	11735	15%	10453	1314	13%	17975	3014	17%
2005	70	5.997	90682	13095	14%	13833	1169	8%	24193	3948	16%
2006	71	5.753	112254	15794	14%	18455	1088	6%	30441	3890	13%
2007	74	5.714	124324	18643	15%	19224	1503	8%	37100	5440	15%
Annual Average	65	4	87519	13853	16%	8827	814	9%	19138	3635	19%

Source: Calculated from: (1) Central Bank of Egypt, Annual Report, Several Issues, August 2010, (2) Ministry of Economic Development, Egypt: Annual Statistical Reports, (3) FAOSTAT; Statistical Data Base, FAOSTAT | © FAO Statistics Division 2010 | 22 August 2010www.FAO.org.

Table 3 Time Trend of GDP, Agricultural output and Foreign Trade, (\$ Million), (1995-2007)

Estimate	Parameter	Coefficient	S.E.	t	Adjusted Square	R	F	Annual (Average)	% Growth Rate
GDP	α	67,235	5,568	12.08	0.59		18.4	87,519	3.9%
	β	3,381	787	4.29					
Agricultural Output Value	α	11,855	950	12.47	0.30		6.10	13,853	2.4%
	β	333	134	2.48					
Total Exports	α	1,821	1,344	1.35	0.8		37.76	8,827	13.2%
	β	1,168	190	6.15					
Agricultural Exports	α	1,821	1,344	1.35	0.75		37.77	3,941	2.1%
	β	1,168	190	6.15					
Total Imports	α	10,435	2,471	4.22	0.57		17.2	19,138	7.6%
	β	1,450	349	4.15					
Agricultural Imports	α	3,274	326	10.05	0.06		1.70	3,635	1.7%
	β	60	46	1.31					

Source; Estimated from (Table 1) and (Table 2)

Table 4 Population Structure and growth Rate by Demographic Category in Egypt (1986-2009)

Population Structure	1986		2009		Annual Growth Rate %
	(000) Habitant	% Of Total Population	(000) Habitant	% Of Total Population	
Total Population	52,063	100%	82,999	100%	2.0%
Urban	22,884	44%	35,458	43%	1.9%
Rural	29,179	56%	23,744	57%	2.1%
Agricultural	25,607	49%	23,798	29%	-0.3%
Non Agricultural	3,572	7%	47,542	29%	8.2%
Total non-agriculture	26,456	51%	59,256	71%	3.5%

Source; Calculated From: FAOSTAT; Statistical Data Base, FAOSTAT | © FAO Statistics Division 2010 | August 2010www.FAO.org, and Ministry of Agricultural and land Reclamation, Egypt (2010) Economic Affairs Sector

Table 5 Indicators of Standard of Living in Egyptian Rural and Urban Regions

Economic Indicators	2000		2005	
	Urban	Rural	Urban	Rural
Average Value/ Kg of Food Consumed	2.73	1.43	2.97	2.29
Annual Food Prices Inflation rate%			2.10%	9.40%
Annual Per Capita Expenditure (L.E.)	2,653	1,455	2,769	2,328
% Expenditure (Rural/Urban), where 2000 = 100	100%	55%	100%	84%
Annual growth rate between the two successive periods (%)			0.90%	7.71%
Real Annual Per Capita Expenditure (L.E.)	2,653	1,455	2,391	928
% Expenditure (Rural/Urban), where 2000 = 100	100%	55%	100%	39%
Annual Economic Growth Rate between 2000 and 2005 (%)			-2%	-9%

Source; Estimated from Center for Statistics and Mobilization (CAPMAS), "The Household Budget survey of Egypt", the surveys of 2000 and 2005, Cairo, Nasr City, Egypt

Table 6 Role of Agriculture in Rural Household's Income

Source of Income		Urban	Rural	All sample
Agricultural Income	Owned Agricultural land	9.57	44.53	28.06
	Agricultural machinery	2.38	2.92	2.66
	Agricultural projects	1.74	1.13	1.41
	Farm animals	2.13	13.39	8.09
	Subtotal (1)	15.82	61.97	40.22
Other sources of Income	Residential buildings	6.38	1.62	3.86
	Financial activities	19.54	10.71	14.87
	Commercial projects	24.05	7.52	15.31
	Subtotal (2)	49.97	19.85	34.04
	Wages & Salaries (3)	34.21	18.18	25.74
Total I (L.E./Household/Year)		100	100	100

Source: calculated from: Had-hood, A. Mashhour, A, (1999) "Specification of Income sources of Egyptian Households" Egyptian. Journal of Applied Science, 14 (1)

Table 7 Income distribution and poverty in Urban and Rural of Egypt

Region	Expend/ Capita (EGP)	Income Share		Gini Coefficient	Poor persons (of total population %)		Wages of poor households (%) of	
		Lowest 40% of people	20% /lowest 20% (highest %)		Ultra poor	Total	Their income	Total wages
Urban Govern. S	5832	20.10%	5.40%	35%	0.50%	6.90%	43.50%	4.60%
Lower Egypt	3556	26.30%	3.00%	23%	2.00%	14.20%	41.00%	10.30%
Urban	4327	15.10%	8.00%	27%	0.80%	7.30%	38.40%	4.90%
Rural	3275	32.30%	1.80%	20%	2.50%	16.70%	41.40%	12.50%
Upper Egypt	2916	23.40%	4.00%	28%	12.80%	36.90%	41.00%	27.70%
Urban	3879	12.80%	11.00%	33%	6.30%	21.30%	41.60%	14.70%
Rural	2501	43.70%	1.90%	23%	15.60%	43.70%	40.90%	34.60%
Egypt	3712	22.30%	4.40%	31%	6.10%	21.60%	41.30%	15.20%
Urban	4843	20.70%	5.10%	34%	2.60%	11.00%	41.40%	7.20%
Rural	2924	26.00%	3.10%	22%	8.50%	28.90%	41.20%	21.80%

Source: Ibrahim Soliman," Soliman (2010) "Human Development Indicators in Rural Egypt" SUSTAINMED Working Paper No 02, Ver2 18-12-2010.

Table 8 Internal Migration as % of total population in 2008

Region	internal migration	Region	Internal migration
Cairo	11.9	Beni Suif	2.2
Alexandria	6.7	Fayoum	0.6
Port Said	34	Menia	0.7
Suez	37.9	Asyut	1.2
Ismailia	31.3	Suhag	0.6
Damietta	5.4	Qena	1.4
Dakahlia	1.9	Luxor	1.3
Sharkia	4.6	Region	3.6
Kalyoubia	14.4	Red sea	28.7
Kafr El Sheikh	2.6	New valley	16.7
Gharbia	1.7	Matrouh	13.5
Menoufia	2.1	North Sinai	14.1
Behera	4.1	South Sinai	27.4
Giza	20.4	EGYPT	6.6

Source: collected from data of several issues of "The official Labor Force Survey", carried on a quarterly basis

Table 9 Aggregate Cropping Pattern of Egypt in the Agricultural Year 2008/2009

Agricultural Land (000) Hectares						Cropped Area (000) Hectares			Agricultural Land By Season (000) Hectares					
Non-Perennial Crops			Permanent Total			New land	Old land	Total	Winter		Summer		Nili	
New land	old land	Total	New land	old land	Total				New land	old land	New land	old land	New land	old land
1,104	2,587	3,690	444	362	805	1,622	4,889	6,510	660	2,225	470	2,055	49	247
30%	70%	100%	12%	10%	22%	147%	189%	176%	18%	60%	13%	56%	1%	7%

Source: Ministry of Agricultural and land Reclamation (2010) Economic Affairs Sector, Cairo, Egypt

Table 10 Permanent Crops in the Agricultural Year 2008/2009

Crop	Region	(000) Hectare	%
Sugar Cane	New land	15	1.9%
	Old land	118	14.6%
Orchards	New land	370	45.9%
	Old land	221	27.5%
Palms	New land	17	2.1%
	Old land	20	2.4%
Alfalfa	New land	31	3.9%
	Old land	3	0.4%
Wood Trees	New land	10	1.2%
	Old land	0.3	0.0%
Total		806	100.0%

Source: Ministry of Agricultural and Land reclamation, (2010) Sector of Economic Affairs, Agriculture Directorates of Governorates, Dokki, Cairo, Egypt

Table 11 Agro-Food Production, Trade, consumption, and self Sufficiency in Egypt in 2009

Source: Compiled and Calculated from: FAOSTAT | © FAO Statistics Division 2011 | 04 January 2011,
<http://faostat.fao.org/site/368/DesktopDefault.aspx?PageID=368#ancor>

Table 12 Per Capita Nutrient Intake per Day in Egypt in 2009

Food Item	Per Capita Food Consumption					
	(kcal/day)		Protein (gm/day)		Fat (g/day)	
	Kcal	% of total	gram	% of total	gram	% of total
Grand Total	3195	100%	92.4	100%	55	100%
Total Vegetal Products	2918	91%	71.9	78%	35.7	65%
Total Animal Products	276	9%	20.5	22%	19.3	35%
Total Cereals	2023	63%	55	60%	14.1	26%
Wheat	1093	34%	33.1	36%	14.1	26%
Rice (Milled Equivalent)	388	12%	7.5	8%	5.8	11%
Maize	517	16%	13.6	15%	7.3	13%
Total Starchy Roots	245	8%	0	0%	0	0%
Total Sugar & Sweeteners	245	8%	0	0%	0	0%
Total Pulses	65	2%	4.9	5%	0.3	1%
Total Tree nuts	51	2%	2.1	2%	4.4	8%
(Total Oil crops	51	2%	2.1	2%	4.4	8%
Total Vegetables	126	4%	6	6%	1	2%
Total Fruits	169	5%	2.1	2%	0.8	1%
Bovine Meat	44	1%	4.3	5%	2.8	5%
Mutton & Goat Meat	5	0.2%	0.3	0.3%	0.4	1%
Poultry Meat	34	1.1%	2.9	3%	2.3	4%
Other Meat	6	0.2%	0.7	1%	0.3	1%
Edible Offal	6	0.2%	1.1	1%	0.2	0%
Butter, Ghee	36	1%	0	0%	4.1	7%
Raw Animals Fats	6	0.2%	0	0%	0.6	1%
Total Eggs	9	0.3%	0.7	1%	0.7	1%
Total Milk, excluding Butter	101	3%	5.7	6%	6.8	12%
Total Fish and Seafood	29	1%	4.6	5%	1	2%

Source; Calculated from: FAOSTAT | © FAO Statistics Division 2011
<http://faostat.fao.org/site/368/DesktopDefault.aspx?PageID=368#ancor>

Table 13 Comparison between Egypt Agro-Food Yields versus World Average in 2009

Crops	Crop	ton/Hectare	
		Egypt	World
Cereals	Wheat	6.5	3
	Barley	3.4	2.8
	Rice	9.6	4.2
	Maize	8	4.2
	Sorghum	5.5	1.4
Legumes	Broad Bean	3.4	1.6
	Lintels	1.9	1
sugars	Sugar Beet	48.3	53.1
	Sugar Cane	116.4	70.9
Fibers	Cotton	2.4	2.1
Oils	Ground Nuts	40.7	1.5
	Sesame	10.3	0.5
	Soy Bean	3.6	2.2
	Sun flower	2.4	1.3
Vegetables	Onion	24	1.8
	Garlic	32.6	1.3
	Tomatoes	44.3	2.8
	Green peas	11	0.8
	Cabbage	0	2.2
	Egg Plant	28.4	1.8
	Green Pepper	16.9	0.8
	Potatoes	26.2	18
	Okra	14.4	0.7
Fruits	Oranges	10	16.1
	Dates	15	5.75

Source: (MALR) Ministry of agriculture and land reclamation, Egypt (2010), Agricultural Statistical Bulletin

Table 14 Winter Crops Area in the Agricultural Year 2008/2009

Crop	Region	(0000) Hectare	%
Wheat	Old land	1,115	45.70%
	New land	221	9.00%
Clover	Old land	556	22.80%
	New land	82	3.40%
Sugar Beet	Old land	177	7.30%
	New land	42	1.70%
Broad Beans	Old land	158	6.50%
	New land	27	1.10%
Barley	Old land	8	0.30%
	New land	87	3.60%
Lentil	Old land	2	0.10%
	New land	0	0.00%
Others	Old land	144	5.90%
	New land	10	0.40%
Total	Total	2,441	100%

Source: Ministry of Agricultural and Land reclamation (2010) Sector of Economic Affairs, Agriculture Directorates of Governorates, Dokki, Cairo, Egypt

Table 15 Summer Crops Area in the Agricultural Year 2008/2009

Crop	Region	Feddan	Hectare	(000) Hectare	%
Maize	Old land	1,546,525	649,541	650	36.0%
	New land	174,493	73,287	73	4.1%
Rice	Old land	1,329,658	558,456	558	31.0%
	New land	39,580	16,624	17	0.9%
Sorghum	Old land	318,549	133,791	134	7.4%
	New land	14,640	6,149	6	0.3%
Cotton	Old land	277,370	116,495	116	6.5%
	New land	7,064	2,967	3	0.2%
Yellow Corn	Old land	195,507	82,113	82	4.6%
	New land	67,041	28,157	28	1.6%
Peanuts	Old land	34,098	14,321	14	0.8%
	New land	117,755	49,457	49	2.7%
Sesame	Old land	34,127	14,333	14	0.8%
	New land	64,658	27,156	27	1.5%
Sun Flower	Old land	27,400	11,508	12	0.6%
	New land	12,248	5,144	5	0.3%
Onion	Old land	11,478	4,821	5	0.3%
	New land	5,078	2,133	2	0.1%
Soybeans	Old land	16,799	7,056	7	0.4%
	New land	256	108	0	0.0%
Total		4,294,324	1,803,616	1,804	100.0%

Source: Ministry of Agricultural and Land reclamation, (2010) Sector of Economic Affairs, Agriculture Directorates of Governorates, Dokki, Cairo, Egypt

Table 16 Nili Crops Area in the Agricultural Year 2008/2009

Crop by Region		Total	%
Maize	New land	11	7.4%
	Old land	106	68.6%
Sorghum	New land	0	0.1%
	Old land	1	0.8%
Rice	New land	0.37	0.2%
	Old land	0.01	0.0%
Corn	New land	12	7.7%
	Old land	24	15.3%
Total		155	100%

Source: Ministry of Agricultural and Land reclamation, (2010) Sector of Economic Affairs, Agriculture Directorates of Governorates, Dokki, Cairo, Egypt

Table 17 Winter Vegetables Area in the Agricultural Year 2008/2009

Crop by Region		(000) Hectare	%
Tomato	New Land	63	18%
	Old land	49	14%
Potatoes	New Land	17	5%
	Old land	48	14%
Onion	Old land	34	10%
	New land	18	5%
Green Beans	New land	12	4%
	Old land	13	4%
Egg Plant	New land	9	3%
	Old land	8	2%
Green Beans	New land	12	4%
	Old land	4	1%
Pepper	New land	8	2%
	Old land	7	2%
Cabbage	New land	4	1%
	Old land	11	3%
Squash	New land	7	2%
	Old land	5	2%
Garlic	Old land	7	2%
	New land	0.3	0.10%
Strawberry	New land	2	1%
	Old land	3	1%
Total		342	100%

Source: Ministry of Agricultural and land Reclamation (2010) Economic Affairs Sector, Dokki, Cairo, Egypt

Table 18 Summer Vegetables Area in the Agricultural Year 2008/2009

Crop by Region		(000) Hectare	%
Seeds Water Mellon	New land	9	2%
	Old land	64	17%
Strawberry	New land	0.33	0.09%
	Old Land	70	18%
Tomatoes	New land	44	11%
	Old Land	9	2%
Potatoes	New land	42	11%
	Old land	0.02	0.01%
Water melon	New land	27	7%
	Old land	10	3%
Red Pepper	New land	14	4%
	Old land	10	3%
Onion	New land	4	1%
	Old land	23	6%
Egg Plant	New land	7	2%
	Old land	15	4%
Squash	New land	11	3%
	Old land	8	2%
Cantaloupe	New land	15	4%
	Old land	3	1%
Total		385	100%

Source: Ministry of Agricultural and land Reclamation (2010) Economic Affairs Sector, Dokki, Cairo, Egypt

Table 19 Nile Vegetables Area in the Agricultural Year 2008/2009

Crop by Region		(000) Hectare	%
Tomato	New Land	10	10%
	Old land	17	19%
Potatoes	New Land	1	1%
	Old land	23	25%
Egg Plant	New land	4	4%
	Old land	4	4%
Pepper	New land	4	4%
	Old land	3	3%
Dry Beans	New land	0	0.00%
	Old land	6	7%
Onion	Old Land	5	5%
Green Beans	New land	1	1%
	Old land	3	3%
Squash	New land	1	1%
	Old land	3	3%
Cabbage	New land	0.3	0.40%
	Old land	3	4%
Cucumber	New land	1	1%
	Old land	2	2%
Strawberry	New Land	1	1%
	Old land	0.1	0.10%
Total		91	100%

Source: Ministry of Agricultural and land Reclamation (2010) Economic Affairs Sector, Dokki, Cairo, Egypt

Table 20 Livestock Production in Egypt in 2008

Item	Stock	Milk	% of	Yield	Production	% of	% of producing	Yield (Kg/An):
Milk Production								
Buffalo	4	1.65	41%	1600	2641	44%	1.31	1.05
Cattle	5	1.7	34%	1862	3211	53.90%	1.69	0.89
Sheep	5.5	1.88	34%	49.4	93	1.60%	1.83	1.1
Goat	4.55	1.06	23%	14.2	15	0.30%	1.13	0.17
Total	19.05	6.29	33%	948	5960	100%		
Meat Production								
Buffalo	4	1.55	39%	174	270	38%	3.04	1.26
Cattle	5	1.69	34%	200	338	47%	1.59	0.95
Sheep	5.5	1.7	31%	25	43	5.90%	0.64	1.6
Goat	4.55	0.97	21%	18.5	18	2.50%	0.47	1.49
Camel	0.11	0.13	118%	348	45	6.30%	17.45	1.7
Pig Meat	0.04	0.07	193%	30	2	0.30%	1.36	0.38
Total	19.198	6.11	32%	117	716	100%		
Hide Production								
Buffalo	4	1.55	39%	20	31	43%	2.31	0.74
Cattle	5	1.69	34%	20	34	47%	1.51	0.79
Sheep	5.5	1.7	31%	3	5	7%	0.62	0.08
Goat	4.55	0.97	21%	2.5	2	3%	0.43	0.1
Total	19.05	5.91	31%	12	73	100%		

Source: FAOSTAT | © FAO Statistics Division 2011 | 22 January 2011

Table 21 Indicators of Egypt Comparative Advantage in Milk Production

year	Buffalo Milk			Cow Milk			Buffalo/ Cow
	Farm Price (\$/ton)		Nominal Protection	Farm Price (\$/ton)		Nominal Protection	
	Egypt	World		Egypt	World		
1991	337.79	368.65	0.92	334.61	383.71	0.87	1.05
1992	334.16	414.33	0.81	312.79	378.93	0.83	0.98
1993	344.52	874.56	0.39	313.50	445.57	0.70	0.56
1994	355.08	461.75	0.77	314.02	354.34	0.89	0.87
1995	383.23	550.07	0.70	316.61	395.83	0.80	0.87
1996	398.06	590.61	0.67	309.30	406.11	0.76	0.88
1997	398.38	643.77	0.62	309.55	411.39	0.75	0.82
1998	442.74	728.69	0.61	344.16	399.99	0.86	0.71
1999	441.79	813.82	0.54	343.42	395.29	0.87	0.62
2000	432.02	800.37	0.54	335.83	381.23	0.88	0.61
2001	402.72	805.36	0.50	312.86	377.99	0.83	0.60
2002	368.92	824.70	0.45	286.69	391.40	0.73	0.61
2003	316.19	1077.44	0.29	259.79	445.65	0.58	0.50
2004	326.59	1146.88	0.28	270.94	490.43	0.55	0.52
2005	363.56	1239.52	0.29	304.29	515.58	0.59	0.50

Source: Calculated from: Statistical Data Base of Internet Site (www.fao.org)

Table 22 Indicators of Egypt Comparative Advantage in Meat Production

year	Buffalo Meat			Cow Meat			Buffalo/ Cow
	Farm Price (\$/ton)		Nominal Protection Coefficient	Farm Price (\$/ton)		Nominal Protection Coefficient	
	Egypt	World Average		Egypt	World Average		
1991	2263.86	2631.73	0.86	2333.33	3032.97	0.77	1.12
1992	2197.64	3012.92	0.73	2257.85	2908.69	0.78	0.94
1993	2647.86	3205.30	0.83	2350.17	2887.81	0.81	1.02
1994	2782.76	3185.91	0.87	2383.95	2569.11	0.93	0.94
1995	2928.77	3580.93	0.82	2626.61	2869.79	0.92	0.89
1996	3087.15	3718.61	0.83	2703.83	2854.89	0.95	0.88
1997	3083.73	3452.89	0.89	2773.88	2720.41	1.02	0.88
1998	3019.48	3462.25	0.87	2780.40	2684.90	1.04	0.84
1999	3163.24	3990.13	0.79	2736.18	2729.14	1.00	0.79
2000	3335.21	3913.60	0.85	2911.82	2614.83	1.11	0.77
2001	2937.33	3848.48	0.76	2975.08	2643.33	1.13	0.68
2002	3381.36	3811.63	0.89	3015.78	2786.91	1.08	0.82
2003	2998.70	4737.41	0.63	2678.23	3137.42	0.85	0.74
2004	3213.48	5093.18	0.63	2873.11	3473.73	0.83	0.76
2005	3733.39	5449.09	0.69	3258.37	3736.11	0.87	0.79

Source: Calculated from: Statistical Data Base of Internet Site (www.fao.org)

Table 23 Poultry Meat Production in Egypt in 2008

Item	Stock	(000) Bird	% of producing Birds	Kg/Bird	Production (Ton)	% of Total	% of producing Animals: (Egypt)/(World)	Yield (Kg/An): (Egypt)/(World)
Chicken	96000	455,902	475%	1.38	628,799	81%	0.79	0.89
Goose	NA	10,000	NA	4.2	42,000	5%	NA	1.06
Ducks	NA	15,000	NA	2.6	39,000	5%	NA	1.78
Rabbit	NA	58,200	NA	1.2	69,840	9%	NA	0.84
Total	NA	539,102	NA	1.4	779,639	100%	NA	NA

Source: FAOSTAT | © FAO Statistics Division 2011 | 22 January 2011

Table 24 Table Eggs Production

Item	Laying Hens (000)	Eggs/Hen	(000) Eggs	Yield (Kg/An): (Egypt)/(World)
Eggs Production	25,152	278	7,000,000	1.40

Source: Source: FAOSTAT | © FAO Statistics Division 2011 | 22 January 2011

Table 25 Relation between Relative Distributions (%) of both Farm size and Cattle Population (%)

Land Holding Size (Hectare)	Cattle Herd Size (Head)					Total	Cumulative distribution
	<5	5-10	11-50	51-100	>100		
Landless	1.5	2.95	1.32	0.14	0.12	6.12	12.15
<0.5 Hectare	19.95	2.15	0.46	0.03	0.07	22.67	6.12
0.5-2	32.93	11.11	2.02	0.09	0.12	46.26	28.8
2.5-4	5.97	6.19	2.74	0.14	0.31	15.35	75.06
4.5-21	1.07	2.13	2.91	0.25	1.02	7.38	90.41
21.5-142	0.02	0.06	0.31	0.11	0.3	0.8	97.79
>42	0.01	0.02	0.16	0.07	1.15	1.41	98.59
Total	61.45	24.61	9.93	0.83	3.18	100	100
Cumulative distribution		86.06	95.99	96.82	100		

Source: computed from: MALR (2007), Department of Economic Affairs, Livestock, poultry statistics bulletin

Table 26 Relation between Relative Distributions (%) of both Farm size and Buffalo Population (%)

Land Holding Size (Hectare)	Cattle Herd Size (Head)						Cumulative distribution
	<5	5-10	11-50	51-100	>100	Total	
Landless	13.98	2.02	1.01	0.13	0.12	17.26	17.26
<1 Hectare	23.96	1.7	0.38	0.04	0.02	26.1	43.36
1-5	34.07	9.47	1.74	0.08	0.05	45.42	88.78
6-10	2.89	2.56	1.09	0.06	0.09	6.69	95.47
11 - 50	0.78	1.19	1.42	0.12	0.22	3.73	99.2
>50	0.01	0.02	0.21	0.07	0.43	0.74	99.94
Total	75.7	16.99	5.86	0.5	0.96	100	100
Cumulative distribution	75.7	92.69	98.55	99.05	100		

Source: Ministry of Agriculture and Land Reclamation (2009) "Agricultural Statistics Bulletin", Issued annually by The Economic Affairs Sector, Dokki, Cairo, Egypt

Table 27 Distribution Pattern of Agricultural Land Holdings before and After Land Reform Low

Land holding Category	Before 19952		After the 1st Reform low, in 1953	
	(Numbers) %	(Area) %	(Numbers) %	(Area) %
< 2 feddans	94.3%	35.4%	94.4%	46.5%
2-	97.1%	44.2%	97.0%	55.3%
4-	98.8%	54.9%	98.6%	66.0%
8-	99.6%	65.8%	99.6%	79.7%
21-	99.8%	73.0%	99.8%	86.9%
42-	99.9%	80.3%	99.9%	94.1%
84+	100%	100%	100%	100%
Gini Coefficient	61.1%		49.4%	

Source: Compiled and Calculated from: Ministry of Agriculture and Land Reclamation (2009) "Annual Agricultural Statistics Bulletin", the Economic Affairs Sector, Dokki, Cairo, Egypt

Table 28 Distribution Pattern of Agricultural Land Holdings (1969-2000)

Land holding Category	contemporary to the nationalization Acts in 1961		After the 2 nd land reform low in July 1969		in 2000, After the low of land holding liberalization	
	(Numbers) %	(Area) %	(Numbers) %	(Area) %	(Numbers) %	(Area) %
< 2 feddans	94.1%	52.1%	95.8%	56.3%	90.4%	47.8%
2-	96.7%	60.6%	98.1%	66.0%	96.7%	63.4%
4-	98.8%	71.2%	99.2%	75.8%	98.9%	75.2%
8-	99.6%	84.7%	99.7%	85.0%	99.7%	85.5%
21-	99.8%	91.8%	99.9%	91.5%	99.9%	89.5%
42-	100.0%	100%	100.0%	100.0%	100.0%	100.0%
Gini Coefficient	43.3%		40.3%		44.9%	

Source: Compiled and calculated from: Ministry of Agriculture and Land Reclamation (2009) "Annual Agricultural Statistics Bulletin" the Economic Affairs Sector, Dokki, Cairo, Egypt

Table 29 Increase in Rice Yield at 10% increase of Major Inputs with the Input level per hectare

Input	1986		1997	
	% increase in Yield at 10% increase of Input	Input density per Hectare	% increase in Yield/ 10% increase in Input	Input density per Hectare
Human Labor (Man-hour)	4%	107	0.8%	80
Machinery Labor (HP)	1,9%	31	2.7%	42
Animal Work (HP)	0.9%	21	0.0%	8
Nitrogen Fertilizer (Kg Nitrogen)	2.5%	153	2.7%	217

Source: Abstracted from: Soliman, Ibrahim & Owaida, U, (1997) "Impacts of Technological Changes and Economic Liberalization on Agricultural Labor Employment and Productivity" Journal of Egypt Contemporary Vol. 88, No. 445, P.3-20, Egyptian Association of Political Economic, Statistics and Legislation. Cairo, Egypt.

Table 30 Share of Agricultural Labor in Employment in Egypt in 2009

Labor Structure	(000)	% Of Econ. Active Pop.	Annual Growth Rate %
Economically Active Population			
Agriculture			
Male	4,136	15.4%	-0.4%
Female	2,771	10.3%	0.8%
Total	6,907	25.7%	0.03%
Non Agriculture			
Male	15,859	59.0%	3.4%
Female	4,093	15.2%	6.1%
Total	19,952	74.3%	3.9%
Total			
Male	19,995	74.4%	2.3%
Female	6,864	25.6%	3.2%
Total	26,859	100%	2.5%

Source: Calculated from: FAO Statistics Division: FAOSTAT 2010, December 2010

Table 31 Trend of Agricultural Machinery and Human Labor Use in Egypt (1986-2008)

Year	Agricultural Area (000) Hectares	Combine Harvesters and Threshers		Agricultural tractors		Agricultural Labor Hrs/Year/Hectare
		Numbers	Hectare/Equipment	(000) Tractors	Hectare/Tractor	
1986	2567	2200	1167	52000	49	3335
1987	2547	2243	1136	52290	49	3400
1988	2581	2250	1147	53000	49	3395
1989	2571	2250	1143	55000	47	3445
1990	2648	2250	1177	57000	46	3377
1991	2643	2250	1175	59000	45	3415
1992	2900	2260	1283	61000	48	3139
1993	3246	2260	1436	78099	42	2821
1994	3246	2270	1430	78846	41	2800
1995	3283	2280	1440	89080	37	2837
1996	3286	2285	1438	88000	37	2856
1997	3300	2290	1441	86000	38	2877
1998	3300	2290	1441	86000	38	2910
1999	3483	2300	1514	86000	41	2789
2000	3291	2316	1421	86255	38	2987
2001	3338	2354	1418	92203	36	2979
2002	3424	2363	1449	93340	37	2931
2003	3409	2392	1425	94482	36	2983
2004	3478	2405	1446	96265	36	2965
2005	3523	2437	1446	98051	36	2965
2006	3533	2445	1445	100317	35	2979
2007	3538	2451	1443	102584	34	2994
2008	3542	2463	1438	105121	34	3018

Source: (1) Calculated from: FAO Statistics Division: FAOSTAT 2010, December 2010, <http://faostat.fao.org/site/570/default.aspx#ancor>

(2) Ministry of Economic Development, Economic Indicators (<http://www.mop.gov.eg/English/english.html>, December 2010)

Table 32 Trend of Chemical Fertilizers Use Per Hectare in Egypt

Year	Agricultural area	Chemical Fertilizers (KG Nutrients/Hectare)		
		Nitrogen	Phosphate	Potash (K2O)
1986	2567	324	72	12
1987	2547	324	75	13
1988	2581	322	70	10
1989	2571	405	64	8
1990	2648	398	70	11
1991	2643	306	57	15
1992	2900	256	36	10
1993	3246	262	34	9
1994	3246	222	32	6
1995	3283	295	41	7
1996	3286	305	37	10
1997	3300	277	41	9
1998	3300	307	39	9
1999	3483	283	43	13
2000	3291	326	47	10
2001	3338	329	47	16
2002	3424	313	42	17
2003	3409	469	52	14
2004	3478	396	68	10
2005	3523	417	59	14
2006	3533	294	55	14
2007	3538	313	50	20
2008	3542	486	65	16

Source: Calculated from: FAO Statistics Division: FAOSTAT 2010, December 2010,
<http://faostat.fao.org/site/570/default.aspx#ancor>

Table 33 Trend of Agro-food Industry in Egypt within the development Plan (2002-2007)

Item	2002	2007
Food processing production value (2002/03)* (billion EGP)	28.0	30.3
Share of private sector in value (billion EGP)	16.2	25.0
Private sector share	95%	95%
Number of enterprises	4,700	4,576
% of total manufacturing sector	15%	10%
Employment equals of total manufacturing sector	20%	N.A.

N.A. = Not Available

*Includes food, beverages and tobacco: Sources: (1) CAPMAS, (2) Egypt's Information Service

Table 34 Agro-Food Industry structure in Egypt in 2009

Item	Processing & Other industries
Wheat	6.70%
Milled Rice Equivalent	12.20%
Barley	37.20%
Maize	11.50%
Sorghum	7.70%
Potatoes	12.00%
Sweet Potatoes	10.10%
Sugar Cane	71.40%
Sugar Beet	98.20%
Pulses	5.10%
Soy beans	93.60%
Shelled Groundnuts	35.60%
Sun flower seed	100.00%
Cottonseed	99.40%
Sesame seed	4.30%
Olives	3.20%
Tomatoes	10.00%
Onions	11.60%
Other Vegetables	10.20%
Oranges, Mandarins	11.10%
Lemons, Limes	10.20%
Bananas	10.10%
Apples	10.00%
Dates	10.00%
Grapes	10.90%
Other Fruits	9.90%
Raw Animal Fats	5.00%
Eggs	4.20%
Milk	5.80%

Source; Compiled and Calculated from: FAOSTAT | © FAO Statistics Division 2011 | 04 January 2011, <http://faostat.fao.org/site/368/DesktopDefault.aspx?PageID=368#ancor>

Table 35 Investment profile of Egyptian Food Processing Industries

Year	Number of Companies	Issued Capital (Million EGP)	Investments (Million EGP)	Share of Issued Capital		
				Egypt	Arab	Other
1994	7	14.4	23.4	98.6%	0.0%	1.4%
1995	15	234.1	535.5	50.7%	31.2%	18.1%
1996	25	156.8	234.6	94.6%	0.0%	5.5%
1997	51	428.3	675.1	72.7%	24.3%	3.0%
1998	49	522	886.8	19.2%	80.1%	0.7%
1999	54	214.9	316.9	98.6%	1.4%	0.0%
2000	43	107.3	191.4	50.3%	40.4%	9.2%
2001	37	359.8	632.7	96.6%	2.2%	1.2%
2002	35	54.2	104.1	91.9%	3.7%	4.4%
2003	47	144.9	215.9	90.2%	7.3%	2.5%
2004	84	569.3	1209.6	92.3%	6.3%	1.4%
Total		2806	5026	71.7%	24.9%	3.4%

Source: General Authority for Investment and Free Zones (GAFI), Unpublished Data, Cairo, Egypt, December 2005

Table 36 Exports of Egyptian Agro-Food Processed Products in 2009

Commodity	1000\$	% of total
Cheese of Whole Cow Milk	53493	25%
Molasses	41877	20%
Other Fruit Preparations	31297	15%
Frozen Potatoes	19782	9%
Sugar Raw Centrifugal	16625	8%
Other Fruit Juice	13764	6%
Sugar Refined	7663	4%
Mango Juice	7295	3%
Oil Hydrogenated	6538	3%
virgin Olive oil	3012	1%
Breakfast Cereals	2912	1%
Cake of Soybeans	1500	1%
Canned Meat of Chicken	1403	1%
Other Cake of Oilseeds,	1146	1%
Milk Whole Dried	823	0.39%
Skim Milk of Cows	736	0.35%
Other Juice of Vegetables	676	0.32%
Milk Skimmed Dry	561	0.26%
Other Fat Preparations	464	0.22%
Macaroni	203	0.10%
Cake of Cottonseed	199	0.09%
Boiled Oil	194	0.09%
Evaporated Whole Milk	176	0.08%
Butter Cow Milk	167	0.08%
Preparations of Beef Meat	123	0.06%
Ice Cream and Edible Ice	99	0.05%
Cake of Linseed	86	0.04%
Must of Grapes	56	0.03%
Ghee, Butte roil, of Cow Milk	48	0.02%
Other Dried Fruits	47	0.02%
Condensed Whole Milk	46	0.02%
Beer of Barley	43	0.02%
Meat Extracts	37	0.02%
Dry Whey	33	0.02%
Juice of Pineapples	33	0.02%
Germ of Wheat	33	0.02%
Bread	30	0.01%
Buttermilk, Curd, Acid Milk	18	0.01%
Meat Preparations.	13	
Bran of Cereals	8	0.004%
Glucose and Dextrose	8	0.004%
Cake of Groundnuts	5	0.002%
Juice of Tomatoes	4	0.002%
Bran of Maize	4	0.002%
Bran of Rice	3	0.001%
Ginger	2	0.001%
Total	213285	100%

Source: FAOSTAT (2011) "<http://faostat.fao.org/site/406/default.aspx>"

Table 37 Subsidy Structure in 2009/2010

Item	Million EGP	% of Total
Commodity Supply Subsidy	13841.4	19%
Subsidy of farmers	792.6	1%
Subsidy of petroleum products	33694	46%
Other subsidies	11447	16%
Total Subsidies	59775	81%
Grants	3523	5%
Social Benefits(2)	6663.9	9%
Additional requirements and contingencies	3425	5%
Total Subsidies	73386.9	100%

Source: Compiled and Calculated from: Ministry of Finance, Egypt "Financial Statement Of The Draft of State's General Budget For Fiscal Year 2009/2010, May, 2009" Cairo, Egypt.

Table 38 Supply Commodities Subsidy in 2009/2010

Item	(000) Ton	Million EGP	%	EGP/ton
Imported wheat	5900	6368	46%	1,079
Domestic wheat	2100	2993	22%	1,425
Maize (Corn flower is mixed with wheat flower (1:4)	500	688	5%	1,376
Bread subsidy	8500	10049	73%	1,182
Ration oil	377	1675	12%	4,443
Sugar	755	1434	10%	1,899
Total Subsidy of supply commodities	9632	13158	95%	1,366
Additional Commodities(1)			0%	
Oil	498	621	4%	1,247
Sugar	498	604	4%	1,213
Rice	994	1244	9%	1,252
Tea	39	49	0%	1,256
Total subsidy of additional commodities	2028	2518	18%	1,242
Total Overall Subsidy	11660	15676	113%	1,344
Deducting: Total Revenues from Expenditures		-1835	-13%	
Net subsidy of supply commodities		13841	100%	

Source: Compiled and Calculated from: Ministry of Finance, Egypt "Financial Statement Of The Draft of State's General Budget For Fiscal Year 2009/2010, May, 2009" Cairo, Egypt

Table 39 Petroleum Products subsidy in 2009/2010

Product Quantity	(1000 tons)	Costs	revenues	Subsidy	%
Natural gas	34374	9551	7992	1559	5%
Butane	3795	7826	7826	7747	23%
Benzene	3971	8977	3194	5783	17%
kerosene	180	197	86	111	0%
Solar	11222	22618	5099	17519	52%
Gasoline	7674	4925	3950	975	3%
Total	61216	54094	20400	33694	100%

Source: Compiled and Calculated from: Ministry of Finance, Egypt "Financial Statement Of The Draft of State's General Budget For Fiscal Year 2009/2010, May, 2009" Cairo, Egypt

Table 40 The poorest Villages in Egyptian Rural

Governorate	No. of Villages	Population (Million)	% of Population	Number of poor (Million)	% of Total poor	% (Poor/Population)
Asyut	236	2.53	23.74%	1.44	29.45%	56.78%
Suhag	271	2.73	25.64%	1.27	26.00%	46.42%
'Menia	365	3.05	28.60%	1.27	26.04%	41.66%
Qena	150	1.50	14.04%	0.59	12.05%	39.26%
Sharkia	74	0.61	5.69%	0.23	4.66%	37.49%
Aswan	4	0.01	0.06%	0.00	0.05%	36.68%
6-Oct	8	0.05	0.44%	0.02	0.35%	36.67%
Helwan	10	0.09	0.82%	0.03	0.65%	36.46%
Beni Suef	13	0.09	0.81%	0.03	0.64%	35.90%
Behera	19	0.02	0.15%	0.01	0.12%	35.59%
Total	1150	10.66	100.00%	4.88	100.00%	45.77%
Lower Egypt	93	0.62	5.85%	0.23	4.78%	37.44%
Upper Egypt	1039	9.90	92.90%	4.65	95.22%	46.91%
Helwan & 6 October	18	0.13	1.25%	0.05	1.00%	36.53%

Source: The Egypt Human Development Report (2010) executed by the Institute of National Planning, Egypt, with the United Nations Development Program, project document EGY/01/006 of technical cooperation.

Table 41 Firms joined QIZ in Egypt

.QIZ	Factories in QIZ	Industrial Cities in QIZ
Greater Cairo QIZ	Cairo Cotton	Tenth of Ramadan
	Dice	Fifteenth of May (Helwan)
	E.T.C.	South of Giza
	Samir Flaneles	Shobra El-Khema
	Delta	Nasr City
Alexandria QIZ		El-Amria (Bourg El-Arab),
Suez Canal Zone QIZ		Port Said Industrial City

Source; Ministry of International Cooperation, Egypt (2010) "Various Data and Reports" <http://www.mic.gov.eg/minister2.asp>

Table 42 Importance of Egyptian Agricultural Trade Flow of Egypt in EU Markets

Item	Role of EU in Egyptian Merchandise Trade				% (1)/(2)
	Exports (1)		Imports (2)		
	Million US\$	%	Million US\$	%	
Total Merchandise	5,700	100%	16,888	100%	34%
Merchandise EU	4,703	83%	6,209	37%	76%
Merchandise (Other Religion)s	997	17%	10,679	63%	9%
Agricultural EU	344	6%	580	3%	59%
Agricultural other (Regions)	857	15%	4,841	29%	18%

Source: Compiled and Calculated from: (1) (FAOSTAT Trade Matrix), (2) Central Agency for public Mobilization and Statistic, (2) Ministry of Economic Development (2009), Cairo, Egypt

Table 43 Agricultural Exports Flow by Region

Region	Agricultural Exports Flow by Region				% (Export/Import)
	Exports		Imports		
	(000)US\$	%	(000)US\$	%	
EU	343,826	28.62%	579,538	11%	59%
Other Europe	90,961	8%	946,140	17%	10%
Arab States	525,445	44%	234,028	4%	225%
Africa	79,754	7%	71,626	1%	111%
Asia	143,427	12%	595,574	11%	24%
Latin America	11,055	1%	1,122,918	21%	1%
North America	5,694	0%	1,627,296	30%	0.3%
Others	5,361	0%	243,107	4%	2%
Total Exports	1,201,312	100%	5,420,227	100%	22%

Source: Compiled and Calculated from: (1) FAOSTAT Trade Matrix, (2) Central Agency for public Mobilization and Statistic, (3) Ministry of Economic Development (2009), Cairo, Egypt

Table 44 Impacts of Improving Water Efficiency on Sustainable agricultural development up 2030

Description	Base Period	Scenario-1	Scenario-2
Quantities of water used in irrigation (million m3)	58,000	61,000	64,000
Field water use efficiency	50%	75%	80%
Areas projected to be developed (1,000 hectares)	-	945	2101
Saved water from developing irrigation systems (million M3)	-	5300	12400
Land areas expected to be added (1,000 hectare)	-	55	135
Areas with developed irrigation systems (million Hectares)	1.1	2.5	4.5
Total irrigated areas (million hectares)	3.5	4.1	4.8
% of developed areas to total areas	30%	62%	92%
Average water used per hectare (1,000 cubic meter)	16422	15042	13245
Percentage of intensification	183.6	199.1	200
Average rate of return per water 1 cubic meter	4.55	7.62	9.92
Average rate of return per Hectare	31.42	48.31	54.50

Table 45 Projected Cropped Area Pattern up to 2030, (000) Hectares

Crop Category	Base Period	Scenario-1	Scenario-2
Total cereal crops	1385	2181	2596
Total sugar crops	245	353	483
Total oilseed crops	119	159	221
Total legume crops	103	142	187
Total fodder crops	1155	1387	1786
Tomatoes	226	244	261
Potatoes	108	126	147
Green beans	31	42	53
Onion and garlic	47	57	65
Other Vegetable Crops	108	126	147
Total Vegetable Crops	1740	1973	2288
Citrus	166	189	210
Grapes	71	84	105
Mango	77	67	76
Other fruit crops	236	290	347
Total fruit crops	550	630	737
Medicinal and aromatic plants:	32	50	92
Total cropped area (in million)	6,400	8,100	9,800
Agricultural intensification rate	183%	198%	199%

Source: the base period 2007-2008: MALR, Economic Affairs Department, Agricultural Statistics Bulletin (2009)

Table 46 Estimates of total returns per M3 of water unit, towards 2030

Crops	Base Period				Scenario-1				Scenario-2			
	(000) Hectare	Water (m3/H)	(Ton/H)	Water unit return	(000) Hectare	Water (m3/H)	(Ton/H)	Water unit return	(000) Hectare	Water (m3/H)	(Ton/H)	Water unit return
Wheat	1,141	3,713	6.5	1.97	1,576	2,856	7.6	3.29	1,765	2,475	8.6	4.66
Rice	703	12,350	9.8	0.85	525	9,520	10.7	1.38	546	9,520	12.4	1.69
Maize	774	5,553	8.2	1.59	1,324	4,272	10.5	2.64	1,555	3,808	11.9	3.72
S. cane	141	18,585	116.6	1	143	14,280	134.7	1.5	147	14,280	155.7	1.74
S. beet	104	4,422	52.4	2.04	210	3,401	66.6	3.37	336	2,951	83.3	4.85
Groundnut	65	8,182	3.3	1.16	97	6,295	4.8	2.15	147	5,474	6.0	3.09
Faba beans	89	2,849	3.4	2.65	126	2,190	3.8	3.89	168	1,904	4.3	5.04
Cotton	242	6,716	3.3	2.36	315	5,165	3.8	3.58	420	5,165	4.3	4.03
Perennial clover	766	5,995	70.4	2.06	798	4,610	83.3	3.16	924	3,998	95.2	4.17
One-cut clover	203	2,242	29.8	2.32	227	1,726	32.1	3.25	273	1,499	35.7	4.17
Alfalfa	16	11,900	96.4	1.41	42	9,163	107.1	2.05	84	7,854	121.4	2.7
e clover					126	1,726	38.1	3.86	252	1,499	40.5	4.72
Citrus	166	7,461	21.7	2.9	189	5,741	28.6	4.97	210	4,998	35.7	7.14
Grapes	71	7,461	23.6	2.84	84	5,741	28.6	4.48	105	4,998	33.3	6
Mango	77	12,250	10.9	2.23	67	9,401	14.3	3.8	76	8,166	23.8	7.29
Tomatoes	226	6,664	34.5	3.36	244	5,141	47.6	6	261	4,522	71.4	10.3
Potatoes	108	6,378	25.5	2.55	126	4,905	28.6	3.73	147	4,236	33.3	5.04
Beans	31	2,618	12.1	3.86	42	2,023	16.7	7	53	1,785	19.0	9.06

Source; Egyptian Ministry of Agricultural and Land reclamation, (2009)

Table 47 Estimated rates of self-sufficiency in the main food commodities, towards 2030

Food Commodity	Base Period				Scenario-1				Scenario-2			
	Production (000) tons	Consumption (000) tons	Annual Per Capita KG	Self-sufficiency (%)	Production (000) tons	Consumption (000) tons	Annual Per Capita KG	Self-sufficiency (%)	Production (000) tons	Consumption (000) tons	Annual Per Capita KG	Self-sufficiency (%)
Wheat	7388	13591	177	54	12000	16238	177	74	15120	18709	180	81
Milled rice	4553	3273	43	139	4161	3956	43	105	4809	4664	44	103
Sugar	1487	1933	27	77	2260	2760	30	82	3460	3710	35	93
Faba beans	301	578	8	52	480	690	8	70	720	795	8	91
Potatoes	2793	1548	20	180	3600	2024	22	178	4900	2650	25	185
Tomatoes	7888	7623	100	104	11600	9200	100	126	18600	10812	102	172
Citrus	3594	2672	35	135	5400	3496	38	155	7500	4240	40	177
Grape	1783	1294	17	129	2400	1656	18	145	3500	2120	20	165
Milk	4400	4859	63	91	7200	7332	80	98	9540	9540	90	100
Red meat	670	1001	14	67	853	1104	12	77	1089	1166	11	93
White meat	850	847	12	100	1095	1095	12	100	1410	1410	13	100
Eggs	240	240	3	100	288	288	3	100	373	373	4	100
Fish	971	1001	14	97	1500	1380	15	1087	1950	1961	19	99
Population (Million)	77				92				106			

Source: The base period from: Food balance sheet data , (MALR), (2009) “

Table 48 Required investments over a decade to approach Scenarios 1 & 2

Scenario	Investment expenditure (billion EGP)	Annual Growth Rate (%)
Base Period (2007-2008)*	8.5	3.7
Scenario-1 (2009-2019)	198	4
Scenario-2 (2009-2019)	231	5

Estimates on Base of:

- (1) The capital coefficient is 1.8, and amortization rate is 7.5%.
- (2) Investment expenditure in the base period 2007-2008 amounted to 8.5 billions EGP to achieve a growth rate of 3.65%.
- (3) Forecasting of investments at 2005 constant prices
- (4) The relation between investment expenditure in the agricultural sector and achieved growth rates during 1970 – 2005.

NATIONAL AGRO-FOOD POLICIES IN JORDAN

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1. Description of agro-food sector

1.1 Importance and role of agro-food sector

1.1.1. Relative size to national economy

Agriculture in Jordan contributed substantially to the economy at the time of Jordan's independence, but it subsequently suffered a decades-long steady decline. In the early 1950s, agriculture constituted almost 40 percent of GNP; on the eve of the June 1967 War, it was 17 percent. By the mid-1980s, agriculture's share of GNP in Jordan was only about 6 percent, (Chapin Metz, Helen, 1989). In contrast, in Syria and Egypt agriculture constituted more than 20 percent of GNP in the 1980s.

Several factors contributed to this downward trend. With the Israeli occupation of the West Bank, Jordan lost prime farmland. Starting in the mid-1970s, Jordanian labor emigration also hastened the decline of agriculture. Many Jordanian peasants abandoned farming to seek for lucrative jobs abroad. Others migrated to cities where labor shortages had led to higher wages for manual workers. Deserted farms were built over as urban areas expanded, (Chapin Metz, Helen, 1989)

Agriculture's direct contribution to GDP has been around 5 percent since 1995, about 2-3 points less than its contribution in 1992. It is estimated, however, that 25-30 percent of economic activity depends on agriculture. In 1997, the average GDP per agricultural holding (roughly equivalent to a farmer) was estimated at about JD2, 700 or, on a per capita basis, around JD 4502. This is only one-third of the national average per capita income, (Hjort, Kim C., 1998).

In the year 2006, the agricultural sector share in the Jordanian GDP reached 6.2%. Such share fluctuated along the successive three years (2007-2009) between 6% and 7%, due to fluctuation in the agricultural production value, while the Jordanian GDP has kept steady growth over the same period, (Table 1). It should be mentioned that the values of agricultural production is the value added after deduction of the intermediate agricultural products used in the sector. While, the FAO country profile estimates the gross agricultural production value of Jordan as 2108 million US in 2009, (FAO, 2011), the value added generated by agricultural production in the same year was about 71% of the gross value. Such evidence shows how much is the agricultural sector self-finance or self-reliance.

1.1.2 Agro-food sector and the society

In November 1996, the legislature enacted "The Agricultural Policy Charter" (the Charter) which institutionalizes the policy reform undertaken as part of the restructuring program and establishes long-

term goals and objectives for the Kingdom's agricultural sector and agricultural policies. The Charter is developed on the premise that rural areas in Jordan and the holding of farmland links current generations to a "homeland and natural and cultural habitat."

Another mandate in the Charter is the expansion of private sector participation in the agricultural sector. This is being supported in several ways. The most important means is removal of the government from the role of both primary buyer and supplier of feed and food grains and pulses.

In addition, economic incentives, such as exclusion of 75 percent of investment expenditures on agricultural projects from trade and domestic general sales taxes, are being provided to the private sector to encourage investment. Overall, the idea is to limit government's role in agriculture to provision of institutional support such as extension, research, and infrastructure investments.

The transition from a government-dependent or highly subsidized sector to a completely free market oriented sector, under what is called the adjustment program of the agricultural sector was not without costs. For example, most livestock holders have reduced, or in some cases liquidated, their holdings in the last two decades because the reduction in, and then subsequent elimination of, feed subsidies resulted in non-cost effective production. Vegetable farmers have faced significantly higher prices for water, challenging their competitive export position. Even so, the government has not slowed its pace of reforms, (UNDP, 2004).

The idea of culture has grown in tangent with global development matters, as environmental sustainability and economic equity. Often, advances in human development may also require cultural change. In the case of Jordan, however, years of resource scarcity have led to the development of many environmentally friendly practices that became embedded within the culture itself. Jordanians tend to light the room they are in within the house rather than lighting all rooms, which lends towards family gatherings in one area of the house. Cultural heritage is both tangible and intangible, and supporting crafts along with home-based micro enterprises are two dimensions of preserving cultural heritage. Jordanian crafts were restored and renewed through voluntary initiatives in order to promote traditional values and local heritage. A number of voluntary societies started during the past twenty years to rediscover traditional crafts through the initiation of income generating projects to improve the standards of living in rural areas, (Wright, 2005).

Crafts in Jordan are produced through different business formats that correspond to four different structures of production: Individual evidenced by the rising share of cultural products, services, and intellectual property in global trade, along with the challenges to cultural diversities and characteristics, which are related to modern globalization. Cultural diversity and preservation is an integral aspect of sustainable development, and human development. Human development can only be accomplished through a synergy of cultural preservation. Table 2 shows the employment in Sales and Craft in 2008.

Jordan's total land area is about 8 million hectares, only a small portion is suitable for producing crops (Table 3). It is currently estimated that there are less than 225,000 hectares of land that are cultivated. The pastures of rainfall rate below 200 mm³ per inch per yea represent about 8% of the kingdom land. Fallow, forest, and inland water account 3% of Jordan land. Desert share is more than 89% of the kingdom.

Another view on the cultivated land in Jordan by irrigation pattern shows that it is composed of irrigated and rain fed areas. Irrigated area is around one third of the total. However, the rain fed area has

included recently large area of rainfall rate less than 200 mm³ per inch per year i.e. less than the requirements for the cultivation of subsistence grains, where, such area should have been utilized as pastures. The minimum water requirements for grains are 250 mm³ per inch per year. Such regions of less than 200 mm³ rainfall face, frequently, poor years with rainfall much below basic requirements for crops. It is not only that but there is more frequent fluctuations in such rate. The citizens of these area perform as risk aversion farmers to secure subsistence food crops and some grain feeds (barley) for their livestock to avoid poor rangeland yield. Therefore, as (Table 4) and (Figure 1) show the cultivated area had reached 2.38 million hectares in 2010. Nevertheless, two thirds of such area was rain fed and the majority of such rain fed area was rangeland deducted for cultivation of subsistent crops associated with most probably poor yield and high risky model of production system. Table 4, shows the high growth rate of expansion in irrigated area associated with a decrease in rain-fed area by 1%, associated with fluctuation in the area along the presented 8 years. A major conclusion that abstracted from such analysis, is the rural population in Jordan are valuable communities with respect to nature, natural resources availability and quality, which make them under uncertainty with respect to livelihood

1.2 Main agricultural commodities

Fruits and vegetables in Jordan are the main crops either measured as the share in the area or as income generated.

1.2.1 Crops

Area under fruits decreased from around 858 thousand hectares in 2003 to more than 827 thousand hectares in 2010. However, the share of irrigated area of fruits increased from about 39% in 2003 to more than 54% in 2010, associated with shrink in rain-fed fruits. The irrigated area has increased annually, at approximately, 4.3%, while the rain-fed fruits area decreased faster at 4.6% a year along the last decade, (Table 5) and (Figure 2).

In contrast, vegetable area had increased from 344 thousand hectares in 2003 to more about 481 thousand hectares in 2010, where most of it was irrigated, i.e. around 95%. The expansion in vegetables area included both irrigated and rain-fed at an average annual growth rate of 4.7% and 6.5%, respectively, (Table 6) and (Figure 3).

Table 7 and (Figure 4), showed that the Seasonal field crops have shown high rate of expansion of about 11.6% a year, in the area under irrigated system, which doubled the share of irrigated field crops in the total area of such set of crops from only 5% in 2003 to 10% in the year 2010.

The major vegetable crops in Jordan are Tomatoes, Potatoes, and Watermelon. Table eight and Figure 6; present the fluctuation in the area of these three crops over the period (1999-2009). However, it could be concluded that there was an apparent expansion in tomatoes area after 2005 which made such crop occupied more than 100 thousands hectare in recent years, associated with a similar increase in production of tomatoes from 324 thousand hectares in 1999 to almost 610 thousand tons in 2009, (Table 57).

Potatoes area had moved over cycle alike. It decreased from 40 thousand tons in 1999 to a minimum of 35 thousand hectares in 2004, and then started an increase up to 53 thousand hectares in 2009, (Figure 10, Table 8). Production of potatoes has passed a similar trend over the period 1999-2009.

Potatoes produce was about 95 thousand tons in 1999 raised to 172 thousand tons in 2007 and then dropped to 99 thousand tons in 2009, (Table 9).

Fluctuation in the annual area allocated for watermelon was apparently very irregular as shown in Figure 5 and Table 8, with almost a similar fluctuation in production, (Table 8, Figure 6). A minimum area of watermelon was around 11 thousand hectares in 2002 and a maximum area of 26 thousand hectares in 2005. It was associated with a minimum production of 34 thousand tons in 2003 and a maximum level of production of about 105 thousand tons in 1999, (Table 9).

Table 10 presents the yield's time trend of the major vegetable crops in Jordanian agriculture. In general, such yield of the three vegetables is much less than the world average. The yield per hectare under Jordanian agricultural system has not surpassed 15% to 17% the world average. In addition, the fluctuation in the yield per hectare of the three vegetable crops under Jordanian agricultural pattern was relatively too high in comparison with the world average. Estimation of the coefficient of variation ranged between 30% for watermelon to 15% for both tomatoes and potatoes. Such variation coefficient is 6 times the world variation of melon, 4 times the variation in world's tomatoes yield and 1.5 times the world's average of potatoes yield.

The three major fruit trees in Jordan are oranges (citrus), olive, and apple. Table 11, presents the capacity of the three fruit crops in Jordan as million trees. While olive reached around 6.8 million trees, the citrus trees reached about 1.9 million trees and the apple trees number was about 1.5 million trees, in 2009. Figure 8, shows that time trend of the number of fruit trees has no steady state size in Jordanian agriculture. Fluctuation is the apparent pattern in the time series figures. This because of the same reasons cited above with respect to vegetables. Production of the three major fruit trees fluctuated almost at the same pattern of the area along the period 1999-2009, (Figure 9, and Table 12). The production of Jordan reached around 125 thousand tons, 90 thousand tons and 31 thousand tons, of olives, citrus and apples, respectively, in the year 2009.

To compare the yield of the major three fruit trees in Jordan with the world average, Table 13 and Figure 10, are not suitable, even though it shows the official figures from the department of statistics of Jordan, as it presents the yield per tree. Therefore, (Table 14) was compiled and calculated from FAO database in terms of yield per hectare to conduct the required comparison. On the average, the variation in orange yield in Jordan reached 14%, i.e. about five folds that of the world's yield. However, among years the yield per hectare of orange in Jordan reached 77% as a minimum of the world yield in 2007 and 119% as a maximum of the world yield in 2006, i.e. between 12-20 tons per hectare a year).

In conclusion, the Jordanian agricultural model is a risky one, as the irrigated area is very limited and the majority of arable land is under rain-fed. In addition, the very limited water resources, even, for fully irrigated area makes the farmers taking risk aversion decision with respect to input usage as will be seen later in this study

1.2.2 Livestock

Livestock production was limited in the late 1980s. Jordan had about 35,000 head of cattle but more than 1 million sheep and 500,000 goats, and the government planned to increase their numbers. In late years of eighties of previous century. The annual production of red meat ranged between 10,000 and 15,000 metric tons, which covered less than 33 percent of domestic consumption. A major impediment to increase livestock production was the high cost of imported feed. Jordan imported cereals at high cost for

human consumption, but imported animal feed was a much lower priority. Likewise, the arid, rain-fed land that could have been used for grazing or for fodder production was set aside for wheat production.

Jordan was self-sufficient, however, in poultry meat production (about 35,000 metric tons) and egg production (about 400,000 eggs), and exported these products to neighboring countries, up to late 1980's (Chapin Metz, Helen, 1989).

The cattle performance indicators under Jordanian agricultural system are presented in (Table 15). The total stocks of cattle are small. Over the period 2000-2009, the total population did not surpass 81 thousand heads. Apparent fluctuation was clear along the whole period. The off-take rate for slaughtering did not match with the norms of cattle performance, as the optimum rate would not surpass 50% (Abu Akkada and Soliman, 1980). In some years in Jordan, it passed 100%. This is because the data of FAO, considers the endogenous slaughtered animals. Endogenous slaughtered include to non-domestic sources, which, are slaughtered in domestic slaughtered houses, and considered of domestic supply. The first are the imported live animals and the second are the migrated herds across the border with nomadic Tribes from Syria, Iraq, or Saudi Arabia seeking for water or green range and/or supplementary feed distribution by the government (Soliman, 1977). In spite of the fluctuation in the average carcass weight per head, there was slightly positive trend in such weight. It rose from 162 Kg in 2000 to around 200 kg in 2009. Due to fluctuation in slaughtered animals the mea production, also, fluctuated along the same period. The maximum was around 19 thousand tons in 2008.

Fluctuation in milking animals share in the national herd was more sever than the slaughtered animals. This is because, the feed supply fluctuations associated with the fluctuations in rainfall rate, and due to drastic continuous changes in culling and replacement rate in the flocks in Jordan, (Soliman, 1975). The cattle farms holders prefer to replace their high milk yield exotic breeds cows with new milking ones to keep the daily supply of fresh milk constant or at least stable. Therefore, the percent of milking cows in total cattle stock surpasses in most years the optimum rate, which is 50%. Thereof, the domestic milk supply has kept growing from 162 thousand tons in 2000 to 314 thousand tons in 2008, even though it dropped to 245 thousand tons in 2009.

Sheep and goats are the main livestock types in Jordan. It should be mentioned that a specific phenomenon is characterizing the sheep and goats flocks in Jordan, Iraq, and Saudi Arabia. The three countries have joint adjacent borders. The Nomadic and semi-nomadic Arabic Tribes living in these areas move from one country to another searching for either water points, and/or green range area. When one of these three countries was providing a program of concentrate feed supplements while the other two had drought or poor range areas. Those tribes do not hold well-defined identity, as they are nomadic, (Soliman, 1998). Rainfall in these concerned regions is low (below 150mm³) which fluctuates between poor years to moderate years. Such fluctuation affects much the feed supply in terms of range areas. When the rainfall is good, ranges grow moderately, thereof, shepherd men keep ewes for rebuilding the herds, leading to decrease in the off-take rate to its minimum. During poor years, the shepherd men get ride of large proportion of their herds, including ewes, to get a balanced carrying capacity of the herds on rage acreage. Accordingly, the off-take rate may surpass 70% in sheep herds. Goats are more resistant to drought conditions. Therefore, the off-take rate would stay within norms, i.e. up to 45%. Therefore, investigation of the sheep and goats stock performance indicators in Table 16 and Table 17, reflect the human and natural resource patterns in Jordan concerning sheep and goats stocks. The relatively high milk

yield of goat than ewe in Jordan implies the type of "Sham-Goat breed" which is common in Syria, Jordan, Iraq, and probably Lebanon. The demand for mutton meat in these countries is dominant (Soliman, 1990).

Broiler production and commercial laying hens performance in Jordan is presented in (Table 18 and Table 19). There was a trend of declining in both broiler and table eggs productivity over the last decade, which made the dressing weight per broiler around 1 Kg, while this industry standard surpassed 1.5 kg (Goueili, Soliman and Mashhour, 1988). In addition, table eggs yield per hen decreases from 245 pieces to around 190, while the modern industry performs an average of 250 per laying hen.

1. 2. 3. Food Consumption Pattern

Most of the consumers in Arab countries -but few, mainly Egypt- prefer mutton and lamb meat, in particular, the domestic breeds with fat tails rather than cattle and beef meat (Soliman, 1990). Therefore, as (Table 21) shows one-third of red meat consumption is from mutton and goats. Poultry meat is the main source of meat consumption in the Jordanian market. Annual per capita consumption of poultry meat was 27 Kg in 2007. Due to such relatively high consumption level of poultry meat in Jordan, the production was not enough for satisfying the domestic market and around 16% of the supply was imported in 2007. In addition, the opportunity to export large quantities of poultry meat was very little, as gulf countries have established their own industries.

Whereas Jordan's production of cereals is of minor share in the supply, imports play the major role in fulfillment the domestic supply. Wheat is the bulk of cereals imports. The presented supply in (Table 69) does not include the 280 thousand tons of wheat reserved as a strategic and buffering stock. Transit trade plays an apparent role in wheat exports, as the wheat exports of about 30 thousand tons surpassed the production volume. Due to frequent poor rainfall years, imports of Barely reached 804 thousand tons in 2007. Maize imports, also, occupy a large proportion of total food imports.

Vegetables, particularly, tomatoes, are the highest exportable food items. Self-sufficiency rate reached 186% for total vegetables and 251% for tomatoes in 2007. Olive fruits and Olive oil are the second exportable items from Jordanian market, where, self-sufficiency ratio reached around 112% and 118%, respectively, in 2007. Self-sufficiency of fruits, other than, citrus has reached 124%

The grand food supply per capita per day supplies the individual Jordanian consumer with 3015-kilo calories, of which 87% from vegetal sources and the rest from animal sources. Daily per capita protein supply, reached more than 78 gram, of which one-third was animal protein in 2007, (Table 22). Such level of animal protein is considered a good sign of intuitively rich food, as it one third content from animal sources is a safe rate health wise (Soliman and Eid, 1995). However, the fat consumption per day, which reached 91 grams, of which about 30% animal fat, is not health recommended pattern. The optimum allowance of daily fat consumption should not pass 50-60 grams per day with less than 10% from animal origins, (Soliman and Eid, 1995)

1.3 Agricultural sector structure

Serious water studies in Jordan began in the 50's of the last century. These studies have shown that the main source of water in Jordan is rainwater, characterized by scarcity and irregularity. With the increase in population growth, this has been a challenge for planners and governments that should provide water with acceptable specifications. In general, the most important water sources in Jordan as follows, (Kareem, 2000):

A. Conventional sources which, in turn, are two types:

i. Surface and rain water:

The rain season in Jordan is between December and March. In this period, 80 % of the annual rainfall takes place. This is about 8,500 million cubic meters over an area of 90,000 sq km, the area of Jordan. Climate factors play an important role in the distribution of this quantity over that area. The amount of precipitation ranges from less than 100 mm (in the desert) up to 600 mm (in the mountains of Ajloun). The quantities increase towards the north and west. The total volume of surface water in Jordan is 495.78 million cubic meters, of which the Yarmulke River constitutes 55 %. Floodwater constitutes 3 % of the total annual rainfall. In Jordan, 17 water dams represent an important source of water. The total capacity is between 0.7 million cubic meters (Buweidah Dam) to 82 million cubic meters (King Talal Dam); some are still under construction (Wehda Dam on the Yarmouk River). This is a joint venture between Jordan and Syria and is expected to have a capacity of 225 million cubic meters, with a storage capacity of 125 million cubic meters.

ii. Groundwater:

The northern area of Jordan (the northern desert) with its basalt rock formation is an important water reservoir. The limestone layers constitute another reservoir along with the sandstone layers. However, the latter is deeper and its water has more salt content. Subterranean water can be divided into the following categories

a. Renewable water resources:

The volume in Jordan is 257 million cubic meter and is fed by rainwater.

b. Non-renewable water:

There are two aquifers: the Rum aquifer in Disi area, which is a sandstone aquifer that extends into Saudi Arabia to the south. 152 million cubic meters per year of water can be pumped from it for the next 100 years. The Jafr aquifer is smaller and 18 million cubic meters per year can be extracted from it for the next 50 years.

B. Non-conventional sources:

Wastewater is the main source of non-conventional water. It will play a vital role as a water source in the future if processed properly. At present, there are 14 wastewater treatment plants. There are plans for the number to reach 34 with a capacity to reach 100 million cubic meters. However, the present use of this water is restricted to landscapes irrigation. The total water flow from the Khirba al-Samraa wastewater treatment plant for the years 1988, 1992, 1995 was 25, 45 and 66 million cubic meters, respectively.

1 Residential use:

The first groundwater well in Jordan started operating in the 30's of the past century. Since then, the main source of residential water has been the groundwater. At the end of the 50's, the first water distribution network was established. Now, 98 % of Jordanian homes are connected to that network. The volume of water used for residential purposes has reached 219 million cubic meters per year.

2 Industrial use:

The amount used for industrial purposes is 21.3 million cubic meters per year.

3 Irrigation:

The non-irrigated (Rain Fed) lands in Jordan are limited to the north, where fruit and olive trees as well as some vegetables are planted. As to the rest of the areas, such as the Jordan valley and the desert, they are irrigated lands due to the climate and produce fruits and vegetables throughout the year. The total area of irrigated land in 1995 was 350,000 donums in the Jordan valley and 305,000 donums in the semi-desert areas. The total amount of surface water used is 757 million cubic meter. There is a huge increase in the need for water in Jordan during the next quarter of a century (Kareem, 2000).

Thus, Jordan relies on rain as the major source of water, but rainfall varies considerably from season to another and leaked around 5% into the ground, while congregate at more than 3% in the form of run-off, and is more than 90% evaporation. Although there is a shortage of water in Jordan, there is some competition between residential, industrial and agricultural uses, where, 75 % of the water is used in agriculture and industry, which use large amounts of water. For example, the manufacture of one ton of leather requires 40-60 cubic meters of water, (Ministry of Water, Jordan, 2009).

With the use of treated wastewater for irrigation is increasing, especially in the Jordan Valley. Jordan is generally among the poorest four hydraulically countries at the global level, and within the Arab States it is within the category of below the per capita water poverty line. Therefore, any shortage of water resources prevents the expansion of agricultural land.

3.1 Farm structures

The eastern half of Jordan is desert or pre-desert plains with very little rainfall. Rainfall is somewhat higher in the western part of the country—the highlands and the Jordan Valley— but even then, it is highly erratic. The climate favors year-round production of horticultural products and so, where irrigation water is available, vegetables and annual fruits are the primary crops.

The Jordan Valley and the Ghors of Karak form are actually, the “fruit and vegetable” basket of Jordan. A large share of the land in these two areas is irrigated with water supplied by the government from dams and other water works. Land productivity in these two areas has declined in recent years as a result of decades of intensive farming and continuous irrigation. Traditional canal irrigation systems are being replaced with water efficient systems and so salinity problems should decline. However, intensive use of the land is likely to continue, especially if Jordan’s horticultural exports expand as expected after admission to the WTO.

In the 1950s, the government developed the original irrigation systems in the Jordan Valley and then distributed the land to farmers. Each holding is limited to 30-40 dunum (3-4 hectares) and cannot be divided into smaller holdings. However, because of inheritance laws, there can be, and often are, several owners of a single holding. The Jordan Valley land law has recently been amended to permit leasing of land for up to 30 years as compared to the original regulation which limited leasing to a 10 years time horizon. It is expected to increase producer incentives to invest and further develop holdings in the Jordan Valley.

Much of the land in the Badia and western highlands is irrigated from groundwater. These regions are very productive as long as rainfall is sufficient each year to replenish groundwater reserves. The reliance on rainfall for the continual replenishment of water resources makes long term sustainable agricultural production risky in these areas.

In 1983, the average farm size was 6.3 hectares; Data from the 1997 Agriculture Census suggests that the average size has fallen to 4.2 hectares. As shown in (Table 23), Jordan's farm sector is composed primarily of farms of less than 30 dunum (3 hectares). The smallest farms are often found in the highlands where inheritance customs result in smaller and smaller holdings. Larger farms are located in the dry plains bordering the desert that occupies the eastern two-thirds of the country. Neither of these farms—the very smallest or the larger farms—are likely to be highly profitable unless water is available from ground or other sources.

Cash crop farms dominate in the valleys along the western border. These farms produce vegetables, citrus fruits, or bananas under irrigation and sell the bulk of their products. They tend to be the more profitable than farms in other areas of the country and therefore they also tend to be early adopters in terms of technological advances. In irrigated areas of the highlands, farmers typically produce vegetables, fruits, and olives while some farmers are experimenting with cut flowers and other non-traditional agricultural products. Farmers in the irrigated highlands also sell the bulk of their output. In rainfed areas of the highlands (the area between the Jordan Valley and the plains bordering the desert), farmers typically produce cereals, olives, tobacco, grapes, apples, and nuts. Subsistence farms are usually the smallest holdings and are located in rain fed areas with few alternative employment opportunities. Most subsistence farmers produce both livestock and crops but primarily for family consumption.

1.3.2 Agricultural labor

Whereas, rural population represents around 22% of Jordan's population the agricultural community is less than one-third of the rural population. Agricultural labor has not passed 7% of the total economically active population and around one-fourth of the Jordanian agricultural community, (Table 24). Therefore, agriculture sector share in employment in Jordan is not high in comparison with other Mediterranean countries, such Egypt, Morocco, and Algeria. The labor force currently consists of an estimated 1.667 million workers. Of those, 77.4% are occupied in the services sector, 20% in the industrial sector, and 2% in agriculture, as shown in (Figure 11). Unemployment currently stands at 13%, down from the 14.% figure in 2009 and the 14% - 15% that was common in the previous decade This figure is expected to improve slightly to the 12% - 11.%, but with its high birthrate and young population, of which up to 57% are Palestinian, this is still a poor country; 14.2% are estimated to live below the poverty line, (economy watch Internet Site, Jordan, 2011)

1.3.3 Inputs usage and machinery

Investigation of the data in (Table 25) throws lights in the input usage in Jordanian Agricultural system. It shows that the system has adjusted a wrong policy of intensifying chemical fertilizers, since 2001. The density of nitrogen fertilizers per hectare of agricultural land in Jordan was 83 kg of nitrogen in 2000, which was far beyond the world average of only 18Kg, as shown by the footnote beneath (Table, 25). Such large density of nitrogen fertilizers (as nutrients) has gradually declined over time to reach only 5 Kg in 2007. This policy seems, at least apparently, rational because most of Jordanian agricultural production is under a high risky model due to rainfall fluctuation and even unsecured ground water supply. Therefore, minimization of capital inputs density such as mineral fertilizers is a rational risk aversion policy, where the producers work on base of a model of minimization losses rather than maximization of profits. In case of poor years of rainfall there would be at least some low yield but with minimum cost, which is better than to face in such poor years high costs per hectare associated with low level of yield.

Unfortunately, there was no complete set of time series data available on agricultural machinery use in Jordan. However, Table 25 shows a sort of trend of increase in the density of agricultural tractors density from 186 hectares served by 1-tractor in 2000 to 174 hectares served by one agricultural tractor in 2004. It was higher than the world rate of 183 hectares served by one agricultural tractor. Such policy contradicts with the rational declining trend of the fertilizers intensification policy. The reason of more intensive machinery use is the probably the scarcity of agricultural labor leading to the high wage rate in farming operations due to the high rate and level of education Jordanian population which, let the young people aspiration and attitudes highly positive towards urban jobs and the vice versa with agricultural work.

1.4 Agro-food industry

1.4.1 Description, importance

The Jordanian food industry is the second most important sector in the country on the basis of FDI and national investment according to the Jordanian Investment Board. The agro-food industrial sub-sector represents 15.4 percent of the national industrial sector, In 2008, and the sub-sector enjoyed exports of US\$497 million or 13 percent of total industrial exports. This represented a direct contribution of four percent to national GDP, (Al-Mahasneh, 2009)

The total number of registered agro-industrial enterprises was 3,366, i.e. nine percent of total industrial enterprises and employed more than 27,000 workers, i.e. 10 percent total industrial workers.. Fully 79 percent of agro-industries in Jordan can best be defined as small and medium enterprises (SMEs), and have been established close to Amman – as a source of workers and of markets. Estimated 97 percent are privately owned, , (Al-Mahasneh, 2009).

Access to information, training, extension services and R&D for agro-industries is provided by a number of private, quazi-public or public sector agencies, some of which are in the form of agribusiness incubators – providing services linked to funding, technical assistance and supervision.

Although the food processing industry in terms of strength and potential is stronger than the agricultural sector in Jordan, because of the lack of raw materials, dependency on imports (in terms of raw materials) is likely to increase. Raw materials are imported from Syria and Lebanon (fruit and vegetables), USA, Europe and Australia (grain and wheat), with the exception of tomatoes in food processing, (Unido, 2011).

1.4.2. Main Products

The most important agro-industrial sub-sectors are bakery products, vegetable oils, animal fats and milling products. The meat processing industry is active and it has specialized in frozen processed meat products, these products are exported to the neighboring countries

The major vegetables grown locally are tomatoes (representing about 31% of total production), potatoes (about 10%) and cucumber (about 9%). Among the fruit tree products olives represent the most important production. Vegetables sub-sector covers the industry, which processes fruits and vegetables, namely tomatoes. Companies mainly produce processed tomatoes and cooked vegetable products. Processed tomato is a large component of Jordan's agro-food sector. The industry produces a wide range of products coming from the local tomato crops (peeled tomatoes in cans, tomatoes cubes in cans, tomatoes concentrate, triple concentrate, ketchup, etc.). There are also other companies which use Jordanian raw materials in the processing of ready cooked meals. There is scope for producing freeze and de-hydrated

dried fruits and vegetables, right now most of the freeze products are imported from Central and Eastern Europe.

Jordan produces 35 litre of milk per capita while the domestic milk consumption is equivalent to 50 litres per capita. The country imports about 8000 tons of powder milk each year. Dairy products are generally yogurt and cheese (Halloumi type). Milk in bottles or pack is available on the local market but highly priced as it is pasteurised milk, (Unido, 2011).

Bakery includes mills, cereals and breads, is very dynamic and scattered, in fact it accounts for the greatest number of companies in the local food production. Statistics from Jordan Investment Board indicate that the grain milling firms represent 20 – 40% of total investments in the food sector.

Cocoa, chocolate, and sugar product are traditional ones in the Arab world, in addition to the ethnic production (Halawa). The companies export to their traditional Arab and Gulf countries' market and even to the US, for an amount of 2.184 million JD (15% of domestic production).

The size of the market of the soft drinks, including fruit juice, and supply of mineral water are close to 80,000 tonnes of which 65,000 ton locally produced and 12,000-15,000 imported. In fact the sector is ready to receive new investments; recently a big multinational enterprise has entered the mineral water market to satisfy the local demand, (World Economy Watch, 2011)

1.4.3 Structure and typology

The food industry products in Jordan are either, entirely, from domestic production, partially from domestic production, or completely from imports. (Table 26), shows such classification, using ratio of processed value to production volume as an indicator. Nevertheless, the products that have "NA" across its row under the column of the percentage of processed products from the total production implies that it is totally from imports, where there is no domestic production. This class includes rice, Cassava, Sesame oil and sesame meal, palm oil, other oil crops and butter and ghee. Except sesame oil, which is imported as seeds and then totally processed at home, the rest are imported as oils and are packed locally in commercial packages. Wheat, barley, maize, pulses, and animal fats are domestically produced at a limited level. Therefore, the bulk of processed products relies mainly on imports. The food industries of these products are milling in domestic plants, oil extraction plants and then they are packed.

Only fruits and vegetables that include other types of industries, such as making juices, marmalades, Jams, and peeled fruits, frozen and preserved fruits and vegetables. Jordan produces, relatively a considerable volume of alcoholic beverages, particularly beer and non-food alcohol products. The produce is from either domestic produced barley or grapes, while the non-food alcohol products are entirely from imported raw materials, (Unido, 2011).

1.4.4 Investments

About US\$747 million was invested in agro-food industries. Growth areas already identified for investment include packaging, freezing and de-hydration, and the production of fruit and vegetable juices and pastes. A recent initiative of the Jordanian Ministry of Trade and Industry aims to promote and develop national agro-food industries during the period 2009-2011 as a platform for regional expansion, (United Nations, 2005).

Agro-industrialization is not without challenges, however, and the country faces climate change (with decreased rainfall and risk of further desertification), shortages of fresh water, instability of energy

supplies and prices. Given the reality of geo-position, leads to the instability of neighboring territories which may have negative impacts on the national economy. This is not; however, sufficient reason not to plan and invest with confidence for a country has the intellectual capacity to provide the services, facilities, technical resources, skilled manpower, R&D centers and more, that could enable it to become a regional focal centre for agro-industrial development, (Market Publisher, 2011).

1.4.5 Agro-food trade flows

The main agro-industry competitors in regional markets are likely to be Saudi Arabia, Syria, Lebanon and Egypt. Global competition will come from Turkey, Italy, Spain and the US. There are, however, major opportunities for agro-food processing industries to supply domestic, regional and international markets and not necessarily dependent upon limited quantities of Jordanian produce. Agro-food exports represent the third most important manufactured goods after textiles and pharmaceuticals, (WTO, 2009).

Among the first 11 export markets to Jordanian food Domestic market, there was no EU country or even American one in 2009 imports flow of agro-food commodities, (Table 27). The share of the first 11 countries exported to Jordan was around two thirds of the imports value, which reached around \$2.323 thousand millions in 2009. The Jordanian food imports flow by commodity in 2009 showed that the 15 commodities which occupied the first rank, value wise represented about 61% of the total imports value which reached 2323 thousand million US\$.. The cereals and Feed (Soybean Cake) represented about 38% of imports value of food in the year 2009, (Table 28). The share of animal Products imports was more than 16% of the total imports. Beverages and tobacco products together shared by more than 5% in total food imports of Jordan. Beverages and tobacco, as individual commodities, had a share more than any animal product commodity, even though the first was a healthy set of food items while the later set is harmful to health.

The exports flow of food items of Jordan by country in 2009 is presented in (Table 29). The total agricultural exports value of Jordan reached around 1.31 billion US\$ in 2009. There are 15 countries occupied the first fifteen ranks in terms of exports value. Twelve countries of those 15 were Arab countries, besides, Israel, Russian Federation, Turkey, and Rumania. The only EU country among these countries was Rumania. However, the Rumanian market share was around 1.1% of the agricultural exports of Jordan. The total value of Jordanian exports to those 15 markets represented more than 92% of total Jordanian Agro-food exports.

The exports flow of food items of Jordan by commodity in 2009 is presented in (Table 30). The 15 commodities that occupy the first rank according to their share in the total exports value represent two-thirds of such value. Within these 15 commodities, vegetable exports occupy the first share, i.e. around 33%, followed by animal products and feeds, of about 22% and non-alcoholic beverages sharing by 4.5%, then fruits with a share of less than 3% of total agro-food exports.

2. Current Agricultural and Food Policies

2.1. Retrospective View of Agricultural Policies

In the past, subsidies were widely used to support the rural sector. However, under Jordan's agricultural sector restructuring program, subsidies have been abolished and support is now provided through other, non-market distorting means. In November 1996, the legislature enacted the "Agricultural Policy Charter", called simply the Charter, which institutionalizes the policy reform undertaken as part

of the restructuring program and establishes long term goals and objectives for the Kingdom's agricultural sector and agricultural policies. The Charter is developed on the premise that rural areas in Jordan and the holding of farmland links current generations to a "homeland and natural and cultural habitat". In addition, because of the fragility of the environment in much of the country, rural peoples can play important roles in protecting the environment and managing natural resources efficiently. Agricultural policy therefore, aims to promote efficient and sustainable use of rural resources while increasing economic opportunities in rural areas so that farm incomes are more equitably distributed within the sector and are closer to urban incomes, (Hjort, 1998).

The Government of Jordan also faces the absolute necessity of ensuring that the population has access to basic foodstuffs at stable prices that preserve the living standards of limited opportunity and the lowest-income groups. As a result, policies also are directed at increasing Jordan's food self-sufficiency through export of high-value agricultural products and import of lower value goods. To support a growing horticultural export economy, the government is promoting production of quality products at internationally competitive prices. This is being implemented through provision of more water for irrigation, an enhanced research and extension program, and expanded marketing services such as grading and residue testing using internationally accepted measures of quality assurance, (Chapin, 1989).

Another mandate in the Charter is the expansion of private sector participation in the agricultural sector. This is being supported in several ways. The most important mean is removal of the government from the role of both primary buyer and supplier of feed and food grains and pulses. In addition, economic incentives, such as exclusion of 75 percent of investment expenditures on agricultural projects from trade and domestic general sales taxes, are being provided to the private sector to encourage investment. Overall, the idea is to limit government's role in agriculture to provision of institutional support such as extension, research and infrastructure investments.

The transition from a government-dependent or highly subsidized sector to a completely free market oriented sector under the agricultural adjustment program is not without costs. For example, most livestock holders have reduced, or in some cases liquidated, their holdings in the last decade because the reduction in, and then subsequent elimination of, feed subsidies resulted in non-cost effective production. Vegetable farmers have faced significantly higher prices for water, challenging their competitive export position. Even so, the government has not slowed its pace of reforms

In general, the Government of Jordan has supported producers through a combination of means including procurement of domestic production and provision of inputs (seeds for cereals, water, credit, and livestock feed). The following two profiles provide two lists of laws and regulations that were issued to implement the economic adjustment program in agricultural sector in Jordan during the last decade.

2.1.1 Laws Related to Agro-Food Sector in Jordan⁶

- 1 Drugs & Pharmaceuticals and Temporary Law and amendments no. 80 for 2001 Published in the Official Gazette no. 4522 Dated 13 Dec. 2001.
- 2 Food Control Temporary Law and amendments no. 79 for 2001, Published in the Official Gazette no. 4522 , Dated 13 Dec. 2001.

⁶ Ministry of Industry and Trade (2011) Jordan (<http://www.mit.gov.jo/tabid/475/Jordan.aspx> , 2/12/2011)

- 3 Imports & Exports Law and amendments no. 21 for 2001 Published in the Official Gazette no. 4494, Dated 1 July 2001.
- 4 New Botanical Items Protection Law no. 24 for 2000 Published in the Official Gazette no. 4443, Dated 2 July 2000.
- 5 Specifications & Standards Law no. 22 for 2000, Published in the Official Gazette no. 4426, Dated 16 April 2000.
- 6 Patents' Law and amendments no. 32 for 1999, Amending few articles of the law in accordance with amended, law no. 71 for 2001
- 7 General Sales Tax Law and amendments no. 6 for 1994, Several articles of the law were amended separately such as: Amended law no. 32 for 2004, Amended law no. 23 for 2003, Amended law no. 36 for 2000, Amended law no. 15 for 1995.
- 8 Customs Law and amendments no. 20 for 1998, Several articles of the law were amended separately such as: Amended law no. 16 for 2000, Amended law no. 27 for 2000, Amended law no. 10 for 1999.

2.1.2 Regulations Related to Agricultural Sector in Jordan

- 1 Non-Jordanians Investments Regulation no. 54 for 2000 canceling Non-Jordanian Investment Promotion Regulation no. 39 for 1997, Published in the Official Gazette no. 4465 Dated 16 Nov. 2000.
- 2 National Production Protection Regulation no. 55 for 2000, Published in the Official Gazette no. 4465 Dated 16 Nov. 2000.
- 3 Regulation no. 37 for 2000 amending Trademarks' Regulation no. 1 for 1952, Published in the Official Gazette no. 4453 Dated 13 Aug. 2000.
- 4 Consular Fees & Services Regulation no. 77 for 2000 canceling Consular Fees & Services Regulation no. 1 for 1989 and amendments Published in the Official Gazette no. 4767 Dated 31 Oct. 2000.
- 5 Imports & Exports Permits Regulation no. 114 for 2004 Published in the Official Gazette no. 4677 Dated 30 Sep. 2004 issued in accordance with Article 12 of Imports & Exports Law and amendments no. 21 for 2001
- 6 Food Control Fees Regulation and amendments no. 99 for 2003 Published in the Official Gazette no. 4620
- 7 Dated 16 Sep. 2003 issued in accordance with Article 27, a of Food Control Temporary Law and amendments no. 79 for 2001
- 8 Anti-Dumping and Subsidy Regulation no. 26 for 2003 Published in the Official Gazette no. 4587 dated 2 Mar. 2003 issued in accordance with Article 26 of National Production Protection Law no. 50 for 2002
- 9 Integrated Circuits Designs Protection Regulation no. 93 for 2002 Published in the Official Gazette no. 4571 Dated 31 Oct. 2002 issued in accordance with Article 23 of Integrated Circuits Designs Protection Law no. 10 for 2000
- 10 Industrial Drawings and Forms Regulation no. 52 for 2002 Published in the Official Gazette no. 4547 dated 16 May 2002 issued in accordance with Article 18 of Industrial Drawings & Forms Law no. 14 for 2000

11 Patents' Regulation no. 97 for 2001 Published in the Official Gazette no. 4522 Dated 13 Dec. 2001 issued in accordance with Article 38 of Patents' Law and amendments no. 32 for 1999

12 Audiovisuals Classification Licensing and Monitoring Regulation no. 63 for 2004 Published in the Official Gazette no. 4656 Dated 29 April 2004

2.2 Objectives of Current Agro-Food Policies

Although the country's ultimate agricultural potential is small, both economic factors and environmental constraints, apparently, limited production, as reflected by up to 100,000 hectares of potentially arable land that has laid fallow. The government has expressed considerable concern about its "food security" and its high food import bill. Therefore, it has plans to increase crop production since the last decade of the passed century. However, despite increasing investment there is a slow pace of progress.

Therefore, Jordan is implementing a two-pronged agricultural development policy. The long-term strategy which aims at to increase the total area under cultivation by better harnessing water resources to increase irrigation of arid desert areas for the cultivation of cereal crops, the country's most pressing need. In the short term, the government is attempting to maximize the efficiency of agricultural production in the Jordan River valley through rationalization or use of resources to produce those items in which the country had a relative advantage, (Agriculture in Jordan, 2011).

Rationalization has started with a controversial government decision to regulate cropping and production, primarily in the Jordan River valley. Farmers there had repeatedly produced surpluses of tomatoes, cucumbers, eggplants, and squashes because they were reliable and traditional crops. At the same time, underproduction of crops such as potatoes, onions, broccoli, celery, garlic, and spices led to unnecessary imports, (Cordella, 2006). The government has offered incentives to farmers to experiment with new crops and cut subsidy payments to those who continued to produce surplus crops. Thereof, cucumber production dropped by 25 percent and tomato harvests dropped by more than 33 percent, while self-sufficiency was achieved in potatoes and onions.

Production of wheat and other cereals fluctuated greatly from year to year, but never came close to meeting demand, because even a high yield harvested crop of a good rainfall year has not met domestic demand. Accordingly, expansion of dry-land cereal farming in the southeast of the country is a major agricultural development goal. There is a plan called for the irrigation of a 7,500-hectare area east of Khawr Ramm (known as Wadi Rum) using 100 million cubic meters per year of water pumped from a large underground aquifer. Another plan envisioned a 7,500-hectare cultivated area in the Wadi al Arabah region south of the Jordan River valley using desalinated water from the Red Sea for irrigation.

2.3 Price and Income Support Policies

The Jordan Valley Authority is under the institutions of the Ministry of Water and Irrigation. While, the ministry, in general, oversees the supply of water to Jordanian citizens, municipalities, industry, and agriculture, the Jordan Valley Authority provides water to agriculture and oversees development within the Valley to ensure that water demand does not exceed availability. The water has been supplied to horticultural producers at below cost until recently Producers in other areas of the country do not have access to subsidized water, relying instead on tube wells or rainfall.

The Agricultural Credit Corporation makes soft loans available to farmers and investors in agribusiness. The loans fall into one of two classes—either operational or developmental. Operational loans are from 12-24 months in duration while development loans may be made for up to 15 years, although the bulk of long term loans are for 8 years, (Johansson, Dahl and August, 2009)

Prior to the fall of 1997, the ministry of supply announced a minimum and maximum purchase price for durum wheat before or during the planting season. Announced prices would have had little effect on subsistence farmers' planting decisions—instead rainfall expectations are the most important factor. However, large-scale commercial operations in the south would base their planting decisions on those prices. After harvest, most farmers with surplus wheat transported the grain to ministry of supply collection centers located throughout the country. At the ministry of supply centers, the grain is tested for quality, priced between the minimum and maximum based on its quality, and the farmer is issued a check. A very small proportion of farmers sold wheat to traders at the farm gate who then in turn took it to the ministry of supply collection centers. The subsidy to wheat producers under the announced purchase program has varied from JD0.05 million to JD2.5 million since 1990. The value of the subsidy varies because domestic prices are measured against fluctuating world prices for wheat. For example, in 1996, when world commodity prices were quite high, wheat producers were actually taxed but then in 1997, a subsidy was given to producers, (Altenburg, and Eckhardt, 2006).

No procurement price was announced during the 1998 planting season for non-seed durum wheat. However, as the main harvesting season began, the government did announce that it would purchase wheat from producers at a base price, which could be below that of previous years but it would reflect the international wheat prices.

The government of Jordan, has almost phased out the wheat price subsidy. The only remaining specific subsidy to wheat producers is the sale of certified seed. The Ministry of Supply (MOS) purchases seed at announced prices from registered seed producers. The seeds are then sold by the Jordan Cooperatives Corporation to farmers in the next planting season. The seed discount had been about 10-15 percent of the average cost of seeds purchased by MOS. Nevertheless, currently, the the Jordan Cooperatives Corporation spends significant costs for cleaning, fumigating, and other handling costs associated with preparing the seeds for sale to farmers. These costs generally are not recovered by JCC when selling to farmers.

It seems that Jordan has great opportunity to expand its vegetables and fruits exports and even to expand in production. The time trend farm price per ton in US\$ of vegetables and fruits produced in Jordan was compared with EU and USA along the same time trend series, (Table 31). Almost along most of the series, the domestic Jordanian farm price per ton was much less than the EU average farm price of tomatoes giving Jordan high comparative advantage than both EU and USA production in such vegetable crop. With respect to potatoes Jordanian farm price was less than EU farm price, except the last three years (2007-2009), where Jordanian price surpassed the EU price. Such analysis coincides with the policy analysis text shown above abstracted from the review of literature. Watermelon has the same relative trend of tomatoes, giving Jordanian production a high comparative advantage relative to EU and USA production.

With respect to Fruits, olive farm price was all years less than EU farm price, providing the indicator of the comparative advantage for Jordan in producing such crop for imports to EU market. However, it was not the case of the USA farm price. However, due to distance difference, it is not a precise comparison, as

the cheaper farm price of olive in USA could be due to the high cost of transportation. It seems logical to see the farm price of apple in Jordan is higher than USA price, as USA is one of the most important market of apple. Concerning Citrus, the farm price in Jordan was fluctuated between less than to equal EU farm price of citrus and was higher than the USA price, for the same reasons mentioned to explain the differences of apple farm price.

Although, Jordan has less farm price of several vegetable crops and fruits than, at least EU market, the high fluctuation in such prices along the last decade makes the conclusion about the comparative advantage of Jordan in production of these crops thoughtful. The set of (Figure 17) to (Figure 22) of the time trend of the farm price in Jordan EU and USA provide illustrative evidences of such fluctuation in Jordan's price level over time. Reasons were mentioned above when the study described the agricultural sector structure in Jordan. The main one was the pattern of rainfall fluctuations.

2.4 Input Use Policies

The Jordan Cooperatives Corporation focuses on provision of inputs and supplies, throughout the country, to farmers at its outlets. Producers who are members of the Jordan Cooperatives Corporation can purchase inputs at a slight discount relative to market prices. The Jordan Cooperatives Corporation does not participate in any marketing functions. Prior to 1989, the Jordan Cooperatives Corporation made below-market interest loans to members. Many of those loans remain outstanding today and so the Jordan Cooperatives Corporation has offered at various times to forgive some portion of the principal and interest on outstanding loans. One of the primary functions of the Jordan Cooperatives Corporation was to distribute certified seeds to farmers at subsidized prices. This role has been abolished in 1999, as mentioned under price and income policies, (Hjort, et al, 1998).

2.5 Rural Development Policies

Agriculture employment is dominated by non-Jordanians due to rural-urban migration, the unfavorable working environment, and low wages, thus making the sector unattractive to Jordanian employees. Therefore, only 38% of paid employees in this sector are Jordanians.

Studies analyzing cross-country data have shown that the percentage of Microfinance of Medium and Small Enterprises (MSMEs) in an economy has not been definitively correlated with economic growth. Nations with highly varying numbers of small and large enterprises are found to be equally competitive with similar results, regarding productivity and economic growth, (Wright 2005). Job creation follows an equally distorted pattern. In some of the least developed nations, microenterprises in rural areas employ significant percentages of the workforce and offer the lion's share of paid employment for poor populations. However, much of the conducted microeconomic research undermines the possibility that Microfinance of Small and Medium enterprises (MSMEs) are especially effective job generators, especially if the overall net impacts (job creation minus loss) are factored in Altenburg, (Eckhardt, 2006) Regarding child mortality, the Jordanian MDG is to reduce child mortality of those less than 5 years old by 67% between 1990 and 2015. In 2008, approximately 99% of births in Jordan were attended to a specialist. Also, approximately 103% of children were immunized against measles in 2009 (the fact that the percentage is over 100% is due to the fact that many non-Jordanian children, principally Iraqi children, have also been immunized), (WHO, 2009). The percentage under 5 mortality rate realized for 1990 – 2009 dropped by 28.2% within the same period (from 39 deaths per 1000 live births to 28 deaths per 1000 live births). The continuing improving mortality rates can be attributed to increased vaccination levels. Iodine deficiency has

also been reduced, from 38% to 33% between 1994 and 2000; new laws ensure that salt has iodine, flour has iron and vitamin A is given at schools. However, one important issue is regional disparity; while Amman has relatively low infant mortality rates, the North, South and rural areas all show increased rates of mortality, (WHO, 2009). Also, many of these infant deaths occur in the first month after birth (neonatal mortality), at a rate of 14 deaths per 1000 births in for 2009 onwards. Jordan appears to be underachieving on this front, as shown by the sharp jump in under 5 mortality, between 2007 and 2009, (WHO, 2009)

Rural-to urban migration has become a core fact of life in Jordan. The percentage of citizens living in urban areas almost doubled from 40% to 72% between 1952 and 2004, (UNDP, 2004), By 2009, the percentage of citizens living in urban areas grew to 82.6%, (DOA, 2009), This is due to rural-to-urban migration and the fact that immigrants usually prefer to immigrate to cities rather than rural areas. Combined, the three largest cities (Amman, Zarqa and Irbid) makeup 71.4% of the Jordanian population as of 2009. However, rising rural-to-urban migration leads to increasing pressure on housing, basic amenities, increasing demand for food (leading to inflation) and rising inequalities in living standards, both within the country, and within urban centers themselves, (UNDP, 2004).

From 2006 to 2008, Jordanians spent 29% more on food, while their expenditure on housing increased by 4.6%, and transportation expenditures increased by 21.7%. Although, it should be noted that spending on medical care declined by 20.9%, and spending on education dropped by 17.2%. Expenditure growth hits a 13.2% mark, (DOS, 2008) The real income of households decreased by 10.4% between 2002 and 2008.

Average household spending rose from JD 6,205 (US\$ 8,760) in 2002, (DOS, 2002) to JD 8,520 (US\$ 12,000) in 2008 (DOS, 2008), with an increase of 37.3%; hence, growth in family spending exceeded income growth by 12.2% (22.3% increase in average family annual income less the 37.3% increase in spending). To cover the income expenditure gap, the poor have had to either borrow or sell existing assets, such as land and family heirlooms, in order to survive - an indication of the further deterioration of the meager wealth of the poor and the widening gap in wealth between rich and poor. While it is noted that families may have under reported earnings and over reported expenditures, causing some of the disparity between income and spending, it is important to note that even if this explanation holds true, the gap between spending and income has been rising since 2002, which indicates a deterioration in the spending power of households relative to income. The average Jordanian households spend JD 8,520 (US\$ 12,000) annually. One quarter of this is spent on housing related expenditures; 37.6% is spent on food items and 5% on education.

In addition to poverty, the other aspect, directly affecting equitable growth is regional disparities. Outside of urban areas, there are drops in educational levels, employment opportunities, and access to services, due to a lack of economic activity in rural areas, (Johannisson, et al, 2009). Agricultural employment is dominated by non Jordanians due to rural – urban migration, the unfavorable working environment, and low wages, thus making the sector unattractive to Jordanian employees. Therefore, only 38% of paid employees in this sector are Jordanians. From a purely geographic perspective, the growth of large enterprise in Jordan throughout the past decade was associated with increasing concentration in major Jordanian cities, especially Amman as shown in Table 3.6.

The MSMEs have been seen as a vehicle to help control the urban-rural divide. Although the widespread growth of MSMEs in Jordan created many growth poles in small towns and rural areas, their

density still favors Amman, Aqaba and Zarqa. The nature of the employment generated by (Micro finance of small and medium enterprises) MSMEs also ensures that they play a greater role in pushing for the equality of income distribution, (Patricof, et al, 2005). Certain empirical data reveals that nations with a high percentage of MSME industrial companies have indeed shown greater levels of equitable income distribution. MSMEs are dispersed in both urban and rural communities, and provide employment and salaries for disadvantaged laborers and employees, such as the unskilled, women with household obligations and the elderly, as opposed to commercial banks.

Even though, MSMEs tend to advance a more egalitarian distribution of income than larger enterprises, as they are usually more labor-intensive, microfinance has not served the poorest of the poor. That is, the individuals and households who require a loan the most. This is a result of the high expenses related to each small loan, and the higher risks associated with non-collateral loans. The very poor typically are unable to obtain any formal loans, as they do not possess collateral, nor can they join a borrowing group. Even with moderate improvements, interest rates on micro-finance loans are still excessive, as opposed to commercial banks. Rates are also excessive, compared to the return on investment rates of projects typically found in rural areas, such as trading and husbandry. This is understandable, as no microfinance institution declared that it is in their mission statements to serve the poorest of the poor, (CGAP, 2009). Thus, it is imperative that stakeholders find other methods of poverty alleviation, such as grants, subsidies and other services, (Nelson, 2007)..

Though the role of cooperative societies in development of MSMEs in Jordan remains small, this is not because of limited number of them and volunteer activity in the country. There are over 1,000 cooperative societies registered, yet only 25% of them, mostly in rural areas, indicates lack of effectiveness of rural cooperatives in conducting such an aim. Furthermore, micro-finance institutions need to reach the poor and thus operate in rural areas where population density is low (with large covered areas), increasing the cost of operating in these areas, (Montgomery, et al, 2003)

2.6 Agro-Environmental Policies

Organic agriculture is one of the main priorities in Jordanian agricultural policy agenda. As its role in magnifying the value added is vital. Total area certified as organic reaches about 1.06 thousand hectares, Table 32). Most of it is devoted for permanent crops, in particular fruit trees, i.e. 96% and only 1% is organic vegetables' acreage. 300 hectares are under conversion to organic.

In addition, because of the fragility of the environment in much of the country, rural peoples can play important roles in protecting the environment and managing natural resources efficiently. Agricultural policy therefore aims to promote efficient and sustainable use of rural resources while increasing economic opportunities in rural areas so that farm incomes are more equitably distributed within the sector and are closer to urban incomes, (Namrouqa, H. June 2009).

Still, the Jordanian environment is faced with many challenges. The Jordanian Ministry of Environment estimates that environmental neglect and abuse costs the Kingdom JD 330 million yearly (approximately 5% of GDP) due primarily to the fact that the environment is not taken into account in national and regional development plans. Water wastage alone costs the Kingdom approximately 100 million Jordanian Dinars yearly, (Namrouqa, 2010).

Energy exploitation, natural resource depletion, land degradation, chemicals, and waste are among Jordan's leading environmental concerns. The main cause of Jordan's increasing air pollution is the rapid increase, at 7% yearly, in the number of automobiles in the country, ((GFN, 2010).)

This problem is likely to grow in the coming years, affecting national health significantly. A recent Country Environmental Analysis has shown that the collective damage caused by CO₂ emissions from road vehicles in Jordan amounted to 130 million Jordanian Dinars annually. In specific, heavy-duty automobiles, minivans, minibuses, and light duty automobiles accounted for 60% to 90% of these gasses. However, passenger cars were the main cause of carbon monoxide and hydrocarbons, that is, 80% of such pollution. Electricity production, mining, and cement creation were among the worst industrial polluters, (Namrouqa, June 2009)

Regarding solid waste collection, Jordan collects approximately 90% of urban solid waste and 70% of rural solid wastes, although frequently dumping them in open, unregulated sites, except for Amman, which has more sophisticated waste disposal mechanisms. Regarding dangerous wastes (such as medical wastes), disposal is insufficient. For example, roughly, half of such waste is burned in old-fashioned incinerators, and the remainder is dumped in open municipal landfills, (Namrouqa, 2009).

The Arab Sustainability Leadership Group (ASLG) has noticeable efforts to bring awareness of environmental issues. This group is an amalgam of enterprises, NGOs, and public agencies, designed to promote sustainability in the work place, in conjunction with strong business growth. In addition, in May 2002, the heads of Jordan's 99 municipalities offered a declaration of support, regarding the World Earth Charter⁷ By implementing this Charter, governmental municipalities have agreed to the concept of strategic, sustainable development, in conjunction with the JOHUD and the Ministry of Rural Affairs.

The productivity of Jordan's farmland has decreased by approximately 50% over the last 15 years, due to the overuse of various animals for food, and Jordan's rapid population increases. On the other hand, Jordan is increasing the amount of land that is designated 'protected areas,' reaching 6% of forest spaces (that is, twice the MENA average), (Namrouqa, September, 2009)

Starting in 2008, there has been an increase in the number of illegal logging violations across Jordan's green cover, covering less than 1% of Jordan's total area. In rural forest areas, deforestation has become a significant issue, with lumber transferred to the capital, where each ton is sold for over 120 million JD, even though the practice carries a fine of at least JD 100 per tree and a three-month imprisonment. In 2008 alone, the Ministry of Environment and the Royal Environment Protection Department (Rangers) fined approximately 17,670 individual firms for illegal practices. The majority of which constituted logging without public authorization, and improper industrial waste disposal. Of these individuals firms, the vast majority (17,600 individuals/firms) received warnings and/or reprimands, while the remaining 74 companies/farms were shut down, (Namrouqa, June 2009.)

⁷ The Earth Charter is an international declaration of fundamental values and principles considered useful by its supporters for building a just, sustainable, and peaceful global society in the 21st century. Created by a global consultation process, and endorsed by organizations representing millions of people, the Charter "Seeks to inspire in all peoples a sense of global interdependence and shared responsibility for the well-being of the human family, the greater community of life, and future generations."

The Royal Society for the Conservation of Nature (RSCN) is designed for the preservation of nature, in conjunction with rural economic growth. It seeks to do this via the private sector and free market. The collective impact of these initiatives and the general adoption of business approaches have been to revolutionize nature conservation strategies in Jordan.

No longer, are protected areas seen as the preserves of the elite, of little relevance to the social and economic needs of 'ordinary' Jordanians; they are now being recognized as engines of rural development, able to offer alternative and sustainable livelihoods for some of the poorest communities in the Kingdom. Such environmental entrepreneurship, combined with a people-centered philosophy, has also enabled RSCN to generate more popular support for conservation, minimize its need for government financial support, and become a national and regional leader in sustainable development", (www.rscn.org).

2.7 Infrastructure Policies

Jordan has good infrastructure including an extended network of permanent roads, a seaport at Aqaba, three international airports capable of handling modern freight planes and a number of grain storage silos. A modern information and communications technologies (I.C.T) sector has been established in recent years and estimated 96 percent of all households have telephone, 40 percent with home computers and Internet connection and 98 percent are connected to the national electricity grid. It is considered an excellent base to build up a viable agro-industries sector that has regional implications. No other regional country has such advanced I.C.T facilities, (Market Publisher, 2011)

Jordan has a reliable and stable banking industry with a variety of services available but, notwithstanding assets of this kind, neither agriculture nor agro-industries have featured as focus for investment. The same holds true for small and medium enterprises investment. Some effort will be required to redirect investment and to take advantage of on-going efforts to simplify financial business practices, complex laws, and cumbersome regulations. The private sector has become recognized as a leading service provider – in the financial sector and elsewhere within industry, and is expected to take an increasing role with the shift to an open market economy. The country is well served with a stable and technically skilled labor force that is generally cheaper than that of neighboring countries. Table 81; throw lights on the time trend of infrastructure investments of agricultural sector along the period (1994-1997). Table 81, presents the investments in infrastructures related to agricultural sector in Jordan.

2.8 Consumer Policies

Like most countries, Jordan has conflicting interests in terms of its agricultural sector policies. Because some portion of the population is very poor and therefore vulnerable to high food prices, the government is very sensitive to the price of food staples. At the same time, in the interest of food security, it is also important to provide farmers with positive production incentives that maximize efficient and sustainable production of suitable agricultural products. In the past, subsidies were widely used to support the rural sector. However, under Jordan's agricultural sector restructuring program, subsidies have been abolished and support is now provided through other, non-market distorting means.

The government of Jordan also faces the absolute necessity of ensuring that the population has access to basic foodstuffs at stable prices that preserve the living standards of limited opportunity and the lowest-income groups. As a result, policies also are directed at increasing Jordan's food self-sufficiency through export of high-value agricultural products and import of lower value goods. To support a growing

horticultural export economy, the government is promoting production of quality products at internationally competitive prices. This is being implemented through provision of more water for irrigation, an enhanced research and extension program, and expanded marketing services such as grading and residue testing using internationally accepted measures of quality assurance

3. Trade policies

3.1 General presentation of agro-food trade

Jordan ranked fourth in the Middle East in the 2009 Global Trade Enabling Report, after the UAE, Bahrain, and Qatar. The nation is emerging as a free market economy and a member of the WTO (World Trade Organization).

Jordan's trade sector is growing rapidly, in spite of the regional insatiability in Iraq and Lebanon, Jordan is emerging as a stable alternative. Jordan also has more Free Trade Agreements than any other Arab country in the world. For instance, it has signed FTA with the European Union, the United States, Canada, Syria, Algeria, Tunisia, Singapore, Malaysia, and Libya. The country is also a partner of the Agadir Agreement, the Greater Arab Free Trade Agreement, and the Euro-Mediterranean free trade agreement (Ministry of Industry and Trade "MOIT", 2006).

Jordan has abundant sources of potash and phosphate, which contribute a major share to its exports. In addition, there has been an annual increase of 9% in the exports of manufactured goods. The nation relies on foreign trade to fulfill its requirement for energy. Transport, mining, manufacturing, and other export-oriented sectors of Jordan were severely impacted in the late 2000s by the global financial crises. Re-exports also declined sharply during the recession (World Economy watch, 2011).

Exports fell to \$6.989 billion from \$7.782 billion in 2008. Jordan imported goods worth \$12.31, which was lower than the \$14.99 billion worth of goods imported in 2008 (Ministry of Industry and Trade, Jordan, 2011), (Table 34 and Figure 18). Jordan primarily exports the following commodities: Clothing, Fertilizers, Potash, Phosphates, Vegetables, and Pharmaceuticals. Jordan exports primarily to the following partners: India (16.2% of exports), Iraq (16.1%), US (13.2%), Saudi Arabia (6.9%) and UAE (4.6%).

Jordan primarily imports the following commodities: Crude oil, Machinery, Transport, equipment, Iron and Cereals. Jordan has some tiny oil reserves, which it is not exploiting, so all its oil needs are imported. It has 6.031 billion cu m of gas reserves. It produces 250 million cu m for domestic use, and imports a further 2.72 billion cu m. Jordan imports primarily from these countries: Saudi Arabia (21.2% of imports), China (10.4%), Germany (6%), US (4.6%), Egypt (4.5%) and Ukraine (4.3%), (Table 34 Figure 19).

Jordan's foreign trade policy is based on the norms of economic openness and integration into the rapidly globalizing world economy. It incorporates the country's vision and possessiveness in viewing economic partnerships as necessarily achieving both mutual interests and fair dividends. Jordan has made giant strides on the path of economic and trade liberalization in addition to reinforcing mechanisms and functioning of a market-oriented economy that is built on an active role of the private sector in managing economic activities. This was made possible through an intensive reform process bringing about a modern and conducive regulatory environment for business and investment.

Today, Jordan is at the forefront of the Middle Eastern liberal economies that gained wide respect and recognition for their reforms and economic endeavors. In fact, Jordan is cited as an example in economic policy for emerging nations that could creatively overcome the dilemmas of the scarcity of material and natural resources, (MOIT, 2006)

3.2 Trade agreements

Jordan continues to face some challenges in its stride movement towards improving its terms of references and competitiveness in the international market. The political and economic stability of the country and a sound track record of social development and inward investment in recent times have considered recognition of good governance until the Arabic spring movements in 2011, which has shown a breath flow around such stability in Jordan. Jordan has made effort to liberalize the economy, to seek open borders and to become a respected partner in international trade. The country has enforced copyright and intellectual property laws. Trade-related legislation has been passed, pro-privatization programs implemented and inward investment has been encouraged, which have resulted in a number of multilateral trade agreements with key multi-national companies.

3.2.1 Intra MPCs trade

Free Trade Area Agreement with Egypt

It was signed: Dec 10 1998 and entered into Force in Dec. 28 1999. The trade preferences as of January 1st , 2005 were a total exemption of customs duties and charges having equivalent effect on all traded goods of national origin, except textiles, ready made clothes and enforcement iron products as shown in the table 1 of the agreement.

Free Trade Area Agreement with Syria

The date of Signature was Oct. 8, 2001, and entered into Force: May 21. -. The trade preferences as of January 1, 2005 were a total exemption of customs duties and charges having equivalent effect on all exchanged goods of Jordanian and Syrian origin.

Free Trade Area Agreement with Morocco

The date of Signature was June 16 1998. The date of Entry into Force was Oct. 3 1999. The trade preferences as of January 1st , 2005 were a total exemption of customs duties and charges having equivalent effect on all exchanged goods of Jordanian and Moroccan origin mentioned in table (1) of the agreement, of a total of 56 goods. In addition, other group of goods of customs category is of 0-25% duties). There is third group of commodities under customs duties of more than 25%. The customs and charges having equivalent effect to be reduced gradually for five years of the agreement date of effect according to reduction percentages mentioned in table (2) of the agreement for the Jordanian side, and table no (3) for the Moroccan side to reach 25% of the customs duties and other charges having equivalent effect. Moroccan goods exempted from reductions are mentioned in annex (4) of the agreement, and Jordanian goods are mentioned in annex 4 of the agreement.

Free Trade Area Agreement with Tunisia.

The date Signature was April 22 1998, and the date of entry into force was June 16 1999. Item recorded in annex 4 of the agreement are exempted of gradual liberalization and reduction is postponed. In addition, there are total exemption of customs duties and charges having equivalent effect on exchanged

goods of Tunisian origin mentioned in annex no., 1 and goods of Jordanian origin mentioned in annex No., 2 of agreement date of effect. Except what is mentioned in paragraph 2-1 of the agreement, gradual reduction of 10% on Jordanian and Tunisian goods as of agreement date of effect. There are items of Tunisian origin mentioned in annex 3 of the agreement and items of Jordanian origin mentioned in annex 4 of the agreement.

Free Trade Area Agreement with United Arab Emirates

The date it was signed was May. 21st 2000, and the date of entry into force was Nov. 24 2001. The trade preferences as of January 1, 2005 were a total exemption of customs duties and charges having equivalent effect as of Jan. 1 2003 on all goods of Jordanian and UAE. origin.

Trade Cooperation Agreement with Algiers

It was signed in May 19 1997. The date of Entry into Force: was Jan. 31 1999. The trade preferences as of January 1st , 2005 were a total exemption of customs duties and charges having equivalent effect on all exchanged goods of Jordanian and Algerian origin, except goods mentioned in annex 1 of the agreement.

Free Trade Area Agreement with Lebanon

It was signed in Oct. 1 1992. The date of Entry into Force was July 8 1993. The trade preferences as of January 1st , 2005 were exemption of fruits and vegetables of all customs duties and other charges having equivalent effect when importing directly within the adopted agricultural calendar among both countries, exemption of live stock, botanical and meat products and non-processed natural materials exchanged between countries of customs duties and other charges having equivalent effect. In addition, there is exemption of all industrial products of national origin of both countries. All customs duties and other charges having equivalent effect mentioned in annex (1) of the agreement, and goods mentioned in annex (2) of the agreement are exempted of one third of fees and other charges having equivalent effect.

Trade Cooperation Agreement with Palestinian National Authority

It was signed: Jan. 26 1995. The date of Entry into Force: was to be valid from the date of signature. The trade preferences as of January 1st , 2005 were a total exemption of customs duties and other charges having equivalent effect on all exchanged goods of Jordanian and Palestinian origin, taking into consideration goods allowed to be exchanged mentioned in lists (A) & (B) according to Paris Protocol.

Free Trade Area Agreement with Kuwait

The date of signature was Dec. 25 2001 and entered into Force since April 9 2005. The trade preferences as of January 1st , 2005 were a total exemption of customs duties and other charges having equivalent effect on all industrial and agricultural products of origin of any contracting parties

Free Trade Area Agreement with Sudan

It was Signed: Feb. 6 2003 and entered in force Aug. 29 2003. The trade preferences as of January 1st , 2005 were a total exemption of custom duties and other charges having equivalent effect on all goods of Sudanese origin to be exported directly to Jordan as of agreement date of effect. It cited that there would be gradual reduction of customs duties and charges having equivalent effect on goods of Jordanian origin exported to Sudan by 25% on Jan. 1st. 2005, by 40% on Jan. 1st. 2006, by 70% on Jan. 1st. 2007 and 100% on Jan. 1st. 2008

Free Trade Area Agreement with Bahrain

It was signed in July 21 2001 and entered in force by May 29 2005. The trade preferences as of January 1st , 2005 were a total exemption of custom duties and other charges having equivalent effect on all industrial and agricultural goods of Jordanian and Bahraini origin exchanged between countries. The following items are excluded: Tobacco and similar products (chapter 24), liquors and alcohols.

Free Trade Zone with Saudi Arabia

Jordan has been actively involved in promoting inter-regional free-trade zones, signing an agreement with Saudi Arabia that provides for a free-trade zone before 2005.

Djibouti Agreement

It is a multi-objectives agreement of Economic, Trade, and Technical objectives. It was signed on 3 April 1984, which was the same date of entry

Greater Arab Free Trade Area (GAFTA)

GAFTA was declared within the Social and Economic Council of the Arab League as an executive program to activate the Trade Facilitation and Development Agreement that has been in force since January 1, 1998. The GAFTA includes in its membership 17 Arab countries (MIT, Jordan, 2011):

GAFTA is one of the most important economic achievements in the area of Arab common work. It contributes to efforts towards establishing the Arab Common Market. As of January 1st, 2005, the agreement reached full trade liberalization of goods when the full exemption of customs duties and charges having equivalent effect between all Arab countries members of the GAFTA. Sudan and Yemen are excluded as being less developed countries where customs duties and charges having equivalent effect are reduced by 16% annually on January 1st , 2005. Both countries reach full exemption by the end of 2010 (pursuant to the resolution of the Arab League Council at its 14th meeting in Beirut regarding offering less developed Arab countries preferential treatment). The Arab countries that do not require authentication of certificates of origin and accompanying documents by embassies and consulates (Ministry of Industry and Trade, Jordan, 2011):

To contribute further to economic integration among Arab countries through liberalizing trade in both goods and services, Arab countries are currently engaged in negotiations to liberalize services and investments among them.

Council of Arab Economic Unity:

The Council of Arab Economic Unity agreement was established in June 1957 by a resolution of the Arab Economic and Social Council of the Arab League. The Council's objective is to achieve economic integration among Arab countries with the view of establishing an Arab Common Market. The Council of Arab Economic Unity held its first session in Cairo in June 1964, being responsible for administrating the Agreement on Arab Economic Unity and supervising its implementation (Ministry of Industry and Trade, Jordan, 2011). Jordan, Somalia, Egypt, Iraq, Sudan, Tunisia, Yemen, Syria, Mauritania, Emirates, Palestine, and Libya signed establishing Countries of The Council of Arab Economic Unity. However, the current embers of the Council of Arab Economic Unity are Jordan, Egypt, Sudan, Yemen, Mauritania, Palestine,

Somalia, Iraq, and Syria. It should be mentioned, that certification fees were cancelled but authentication is still required among the member's governments.

The Council of Arab Economic Unity has under its umbrella a number of agreements that aim to encourage Arab investments. These agreements have the following objectives:

Non-Double Taxation, Tax Evasion, and Establishing Common Rules on Income and Capital Agreement, signed on Dec. 3 1997. Members up to date are Jordan, Sudan, Egypt, Syria, Iraq, Libya, and Yemen.

- 1 Non-Double Taxation and Income Tax Evasion Agreement, signed on Dec. 6 1998. Members up to date are Jordan, Sudan, Egypt, Syria, Iraq, Libya, and Yemen.
- 2 Investment Promotion and Protection Agreement signed on June 7 2000. Members up to date are Jordan, Sudan, Egypt, Syria, Iraq, and Libya.
- 3 Investment Dispute Settlement in Arab countries signed on Dec 6 2000. Members are Jordan, Egypt, Syria, Iraq, and Libya.

Agadir Agreement

Agadir Agreement is the Agreement establishing a free trade area amongst Arab Euro-Mediterranean Countries. Agadir Agreement was signed in Rabat on Feb. 25, 2004 pursuant to Agadir Declaration, which was signed by Jordan, Egypt, Tunisia, and Morocco on May 8. 2001. Building on the common grounds that the four countries share within the context of their bilateral trade agreements and Association Agreements with the EU, they perceived the importance of Arab joint cooperation in line with the Executive Program for Establishing the Greater Arab Free Trade Area. The aim is establishing an Arab Common Market.

It is entered into force on July 6th 2006, adopts the "Pan-EUROMED Rules of Origin" that allow for diagonal accumulation of origin amongst its member countries through the possibility of using production input components originating in any of the member countries of the following agreements: Agadir Agreement, EU countries or EFTA countries. All have to comply with the required rules of origin in order to export their products to EU markets exempted from customs duties under their Association Agreements with the EU.

The Agreement also aims at harmonizing of general and sector's economic policies in member countries in relation to foreign trade, agriculture, industry, financial and taxation systems, services, and customs with the view of achieving objective competition amongst member countries. The agreement provides for full liberalization of trade in industrial and agricultural goods as of its date of entry into force. Moreover, member countries are committed under the Agreement to eliminate all non-tariff barriers including quantitative restrictions, financial, administrative, and technical barriers that may be imposed on imports. A Technical Unit is established in Amman, Jordan to supervise the implementation of the Agadir Agreement and offer advice and technical support in all related matters, (MOIT, Jordan, 2011).

3.2.2 Trade agreements with the EU

Since 1991, its economic policies have focused on economic stabilization, market liberalization and reducing the size of the government. Jordan has participated in the WTO General Agreement on Trade in

services since 2000. It was one of the seven Mediterranean partners that officially opened negotiations on liberalization of services and establishment of the Euro-Mediterranean Trade at the Ministerial Conference in Marrakech. This liberalization provides Jordan with access to the EU services market, the largest in the world, and provides benefits from EU service technologies, company links, and investments, (Economy Watch Internet Site, Jordan, 2011).

Jordan signed with EU an association Agreement on 24 Nov., 1997, which has been entered into application since the first of May, 2002. Recently, a protocol between European Union & Jordan has been signed to establishing dispute and Settlement Mechanism of the bilateral trade in 11 Feb. Its date of entry was 1 July 2011

Such important free trade agreement was signed between Jordan and the European Union, which took effect in January 1999. It aims to eliminate tariffs on nearly 500 industrial goods over 5 years and to spur local industrial activity. Essentially, Jordan's products will be eased onto the European market as duties and taxes on European products are removed. Another significant part of the agreement will lift the ban on majority foreign ownership of Jordanian firms. Jordan also became a member of the World Trade Organization (WTO) in December 1999 and is currently in talks with the European Union regarding a free-trade agreement with the European Free Trade Association (EFTA), (WTO, 2008) and (World economy watch, 2011).

3.2.3 International trade agreements & globalization

Within the context of its accession to the World Trade Organization (WTO), which came into effect on April 11, 2000, Jordan undertook several reforms to bring its economic policies and trade regime into compliance with the WTO agreements. Special legislations of intellectual property rights were amended and drafted. Laws of Standards and Metrology, Agriculture, National Production Protection, General Sales Tax, Customs, and Import and Export were amended, as well as non-Jordanians' Investments Regulations.

On the other hand, and because of joining WTO, Jordan liberalized its services sectors providing market access to foreign investors and service providers of WTO Members in accordance with Jordanian laws and regulations. Whereas in goods' trade, Jordan committed to reduce customs tariffs to reach 30% as a maximum in 2000, to be reduced to 25% in 2005, and to reach 20% in 2010 with the exclusion of a limited number of goods. Customs tariffs on some agricultural products, such as tomatoes, cucumbers, and olive oil are bound at 30%. while the maximum tariff on certain agricultural products such as citrus products, grapes, garlic, and figs, and would not exceed 50% in specific calendar months.

Jordan finished with success the first review of its trade policy within the framework of the World Trade Organization during the period 10-12/11/2008, which is first review since Jordan's accession to the WTO in 2000. In its statement addressed to the trade policy review body and the Member States Jordan shed the light on the importance of the role played by the review mechanism in promoting the principle of transparency and deepening the understanding of Member States of the policies exercised by the member under review. The revision was conducted for the reforms made by Jordan to promote its economy,

assuming that the adoption of the economic liberalization leads to economic growth despite the various challenges facing the Jordanian economy. These challenges are mainly poverty, unemployment and inflation as well as the current global financial crisis. Jordan also highlighted its next steps to liberalize further the economy to ensure full integration in the world economy and stressed its commitment to fulfill all its obligations under the World Trade Organization, which have contributed positive results in terms of economic growth and increased exports.

During the meeting many of the Member States praised the policy of economic openness and liberalization of trade regime adopted by Jordan during the past few years. the Government's efforts in improving the business environment resulting in high rates of growth in GDP as a result of steady growth in the volume of Jordanian exports and attract a lot of Arab and foreign investments, and promoting trade and economic relations and enhancing Jordan's trade and economic relations with countries worldwide, (Cassing, J., 2006).

3. 2.4 Other Bilateral agreements with non-Arab countries

Associated with opening economy policies of Jordan, several bilateral agreements were established with Asian, North, and South American countries, (Table 83). It seems that such agreements have promoted the Jordanian trade volume. E.g., In July 1997 Jordan signed an -Investment Promotion and Protection Agreement with USA. However, it was entered into application in June 2003. In October 2000, Jordan also signed a free trade agreement with the United States, and as a result, exports to the United States have risen rapidly. In 1999, Jordan provided US\$13.1 million worth of exports to the United States, and in 2000, this figure had jumped to US\$27 million (www.nationsencyclopedia.com/economies/Asia-and-the-Pacific/Jordan, 2011). It should be mentioned that, the recorded agreements with EU countries in (Table 83) are addendum to EU common agreement with the Union.

3.3 Tariff and non-tariff barriers

Regarding subsidies in the agricultural sector, Jordan is to reduce total domestic subsidies offered by the government to local agricultural producers by 13.3% out of JDs (1,539,199) over a period of seven years as of date of joining WTO. The ceiling of agriculture exports subsidies has been fixed at 0%. While for export subsidies in the industrial sector, which are considered, prohibited under WTO agreements, a special program by the Central Bank of Jordan to subsidize exports loans' interests was cancelled by December 31, 2002. In addition, under Jordan's commitments under the WTO, the exemption of profits resulting from exports from income tax is to end by the end of the year 2007. (This program was extended to the end of 2007 as a result to the exemption given to Jordan and other developing countries during the fourth ministerial meeting of WTO in 2001).

It is noteworthy that Jordan submitted its application in 1994 to what was known then the General Agreement on Tariffs and Trade (GATT) which was changed later to become an application request to join WTO in 1995 (the legal successor to GATT). Accession negotiations were concluded in signing the Accession Protocol that became part of Law No. 4 for the year 2000 (Law of Ratification of Jordan's Accession to the World Trade Organization).

Accession to WTO provides Jordan's goods and services with market access to more than 150 countries within clear and transparent trade procedures and laws and regulations in accordance with WTO rules and agreements. On the other hand, national economic reform procedures and new legislations that were enacted in preparation to joining WTO, contributed to creating a conducive business environment attracting investments. In addition, joining WTO provides new market access opportunities for Jordan's goods and services that would result from the Doha Development Agenda (Multilateral trade negotiations round that was launched in WTO Fourth Ministerial Conference in Doha in 2003

4. Future prospects

4.1 Agro-food sector outlook

The scarcity of water resources is one of the main challenges for Jordan and a limiting factor for economic development especially for agriculture. The demand on water resources is increasing with time for both agriculture and non-agricultural purposes.

Jordan receives rainfall of about 6,000 million cubic meters, and the Syrian catchment of the Yarmouk River Basin receives an additional 2,065 million cubic meters. High evaporation and infiltration results in a relatively small annual stream flow of about 878 MCM, excluding Jordan River flow. The potential for further development of surface water resources rests principally with the construction of the proposed Al Wehdeh Dam on the Yarmouk River. This dam would provide an annual safe yield of about 105 million cubic meters, of which 55 million cubic meters for manufacturing and industrial uses in Irbid region. The remaining 50 million cubic meters would be used to intensify agricultural production in the Jordan Valley, (Raddad, 2005).

In addition to the overall constraints of this resource, there are other problems which limit its large scale usage for irrigation purposes. One of the most significant problems is the exceeding of the safety limits which leads to the depletion of fresh water resources and an increased salinity of water. Other problems include the growing costs of water pollution and excessive pumping of groundwater especially in

the highlands e.g. the Dheleil and Azraq basins, (Ministry of Water resources, Water Authority Report, 2010).

Jordan is considered among the poorest countries in the world in terms of water resources. The climate is generally arid, with more than 90% of Jordan's total area receiving less than 200 millimeters rainfall per year and more than 70% of the country receiving less than 100 millimeters of precipitation on a year. Only around 2% of the land area, located in the north-western highlands, has an annual precipitation exceeding 300 millimeters. The northern highlands may receive as much as 600 millimeters. About 5.5% of Jordan's area is considered dry land with annual rainfall ranging from 200 to 300 millimeters. The pattern of rainfall is characterized by an uneven distribution over the various regions, and strong fluctuation from year to year in terms of quantity and timing.

Jordan is characterized by a pronounced scarcity of renewable fresh water resources, which averages at about 680 million cubic meters per year, or approximately 135 m³ per capita for all uses. Thus, Jordan's water resources are, on a per capita basis, among the lowest in the world.

The water resources of Jordan consist of groundwater and fossil water which are found in aquifers at different depths throughout Jordan. Other sources of water include surface water flows from precipitation in the Jordan River Basin, increasing treated waste water as well as non-conventional water resources such as brackish water

Jordan is located at the heart of a difficult regional grouping of countries. The country has faced internal challenges because of the changing patterns of regional allegiances, conflicts within neighboring states and across international borders, the large-scale movement of displaced people within states, and the refugees that have crossed into the country and taken temporary residence. Conflict and displaced people in large numbers bring additional risk to the many complex socio-economic and political issues that have affected the region since the demise of Turkish hegemony in the region in the early part of the 20th century and the establishment of the state.

The current global economic recession and follow-on effects are expected to have mixed impact on the Jordanian economy. Economic growth will slow, and there are likely to be reduced remittances from Jordanians working in the countries of the Arabian Gulf as salaries are cut and jobs are lost. Reductions in foreign aid and in DFI are also likely. Economic forecasts suggest that 2010 and 2011 will see a return to greater normality in international finance markets, but Jordan will continue to confront difficulties and not least with factors that remain largely outside the control of the state. The country remains vulnerable to fluctuations in international oil markets, high unemployment is socially destabilizing and projections for climate change show further pressure on natural resources and particularly water supplies. However, Government can do much to continue to foster a socio-economic environment that increases the role of the private sector and improves the competitiveness of the domestic economy. This remain, perhaps, the greatest opportunity for making change into the next period, (Cordella, 2006).

Migration remains a complex issue within the country. This is the out-migration of well educated Jordanians seeking to gain experience and higher earnings mainly in countries of the Arabian Gulf. The inward-migration of people who are willing to undertake the low-skilled jobs those are no longer attractive to Jordanians. Sometimes migration is temporary and people return home, although increasingly people are remaining for longer periods and establishing the networks and social stability that comes with a

permanent move. This is particularly so with minority populations within the country that provides services, occupy unskilled posts and accept low-paid employment.

Jordanians are moving professionally and socially into levels of employment demanding skills, academic education and advanced technologies such as I.C.T and, in so doing, are following regional and international markets of supply and demand for people with training and mobility. The challenge for Jordan and for national development long-term will be to provide the resources, funds, facilities and infrastructure, which will encourage these qualified people to remain, linked to their home country. Given the technical base required of modern agro-processing industry human resources - technicians, managers, entrepreneurs and services people – are likely to become the crucial industrial resource into the next period, (Wright, 2005).

Public supported agricultural and agro-industrial R&D is invested largely in the national agricultural R&D centers and the universities, but sharing across programs and sectors is poor with lack of coordination, competition, and inefficiencies arising. This results in duplication of work and wasted effort and funding. The country recognizes existing deficiencies and efforts are in hand to make the changes required, but the limited financial and human resources available with which to improve the institutional and technical performance of existing systems hinder this. It is essential, however, that more emphasis be placed on unifying national R&D investment – that some form of strategic direction be defined that will provide the support services, information, technologies and human resources required of agro-industries development. This will be essential for prioritizing the use of limited R&D funds available. More commercially led R&D investment is required, (United Nations, 2005)

4.2 Agro-food policies' evolution outlook

4.2.1 Evolution of Water Resources Use

The current Problem: There is a severe scarcity in water for irrigation, associated with overuse, inefficient use, decline in aquifers, which lead to serious shortages in the very near future.

In addition, there is under pricing of water, inefficiencies of conveyance and inequitable pricing between uplands and Jordan Valley.

Table 85, shows Jordan's increasing need for water during the next quarter of a century as predicted by concerned ministries' planners and officials in Jordan. Jordan allocates around 340×10^6 m³/year of water to irrigation. This comes from several sources. 74.5% from surface water, 17% from treated wastewater and 8.5% from groundwater. Jordan allocates more than 30% of its water resources to irrigation in the Jordan Valley, and 80% of the water is of good quality. The water consumed by crop are 200 million cubic meters for fruit trees, 110 million cubic meters for vegetables and only 30 million cubic meters for field crops, (Khamis Raddad, 2005).

Jordan would achieve more water savings if they grew crops with low water requirements. Using a new, modified drip-irrigation system, especially for fruit trees, farmers would save at least 30×10^6 m³/year. Accordingly, the decision makers should keep the following in mind:

1. To give priority to water harvesting and storage projects.
2. To control water waste as much as possible.
3. To conduct studies on pumping water from greater depths seeking for new water sources.
4. Respecting water agreements with neighboring countries and making sure others respect them.

5. To replace old water networks with newer ones.
6. Desalinate the seawater.
7. To develop the people's awareness towards saving water consumption.

Policy Change

• Raise the price of water to social opportunity cost. Richard, (1993) provided evidence that the comparison of the various estimates of operating and maintenance fees of water (0.024 JD/Cu. M. - 0.112 JD/Cu. M) as long run marginal costs, implies that VAMP of water > operating and maintenance fees. The following list presents a profile of the shadow price estimates per 1-cubic meter of water in Jordanian Dinar in 1993.

Crop	Shadow price of Water (JD/Cu. M) (1)
Oranges	0.775
Grapes	0.737
Straw berries -	0.926
Onions	0.387
Eggplant	0.201
Tomatoes-w	0.189
Tomatoes-s	0.290
Bananas	0.179

(1) Under the assumption of constant return to scale: AP = MVP = Shadow price of Water

- Reduce conveyance losses through investment and upgrading of system.
- Expand water supplies through investments in dams/weirs
- The changes must be gradual: e.g., raising water fees over a period of four to five years. This is linked to "compensations," as improvements in the water conveyance system will not happen overnight
- Pushing on water pricing must be accompanied by offsetting benefits to growers. Privatization and improved delivery efficiency are plausible benefits, which are also consistent with Mission Goals.
- Political considerations strongly suggest that water pricing will be instituted, if at all, gradually and in phases.
- Trade policy change may be a more effective political economy lever than O&M water pricing to achieve water conservation goals.
- Jordan's relatively unsubsidized agriculture can be an asset in multilateral negotiations over water rights. Particularly, if increasing reliance on markets is seen as strengthening Jordan's hand, the government is likely to push for further liberalization of the sector.

- Jordan would achieve more water savings if they grew crops with low water requirements. Using a new, modified drip-irrigation system, especially for fruit trees, farmers would save at least 30×10^6 m³/year

Constraints

- The efficiency gains of setting the price of water equal to Operating and Maintenance costs may not be very large if this is the case, there will be fewer benefits to distribute to strengthen the winners and appease the losers from the policy change.

- Farmers would be willing to pay OPERATING AND MAINTENANCE fees of water if the government bared the costs of maintaining the irrigation system.

- From a budgetary perspective, water charges are a sideshow: the water subsidy is between one and two

- Trade policy may be the most economically effective and politically feasible lever of water policy change. If the marginal revenue of water in fruit cultivation has decreased from the current value that greatly exceeds any suggested OPERATING AND MAINTENANCE charge, by increasing competition from abroad may be the most effective way of encouraging water conservation. Currently, allowing subsidized fruit from Syria, for example, to enter into the country raises equity and foreign policy issues.

- In any case, the bottom line should be the marginal value product of water, not total water use. Economizing on water "for its own sake" makes no economic sense. Is water "scarce" for municipalities and industry? What is the marginal value product of water in phosphates mining in Jordan? What is the marginal utility of water to urban consumers? There are no studies of these questions. Yet they need to be done to be able to talk sensibly about the political economy of water.

- Jordan allocates around 340×10^6 m³/year of water to irrigation. This comes from several sources. 74.5% from surface water, 17% from treated wastewater and 8.5% from groundwater. Jordan allocates more than 30% of its water resources to irrigation in the Jordan Valley, and 80% of the water is of good quality. The water consumed by crop are 200 million cubic meters for fruit trees, 110 million cubic meters for vegetables and only 30 million cubic meters for field crops, (Khamis Raddad, 2005)

4.2.2 Evolution of Range Management and Livestock

The Current Problem: Over grazing, Range degradation, erosion, and desertification, leading to inefficient resource allocation in livestock subsector.

Policy Change:

- Allocation of the land as private property with restrictions, e.g., prohibiting use of tractors beyond the 200 mm. isohyets' as in Syria.

- To establishment a proper range management system and associated institutions.

- To adapt the strategy of establishing the program for Availability and Accessibility and Adequacy of Supplementary feed mix during poor years.

- Abolishing the government holding of the land as state land as a mechanism to try to control the Bedouins and other Trans-Jordanian pastoralists

As Bedouin do not see how proposed changes will help them and their families, a part of the solution may lie in improved education, information, and strengthening the extension service in this area.

- Amelioration of the range requires changes in property rights, which implies the need for extensive consultation between the government and the local population if serious political costs are to be avoided

- Reform of barley prices will partially compensate those livestock owners who are also rain-fed farmers; it should be strongly encouraged. The impact on increased cultivation of marginal land should be monitored

- Four phases are recommended to assure the success of the program:

A. Set up pilot perimeters to monitor systems and demonstrate benefits.

B. Set up informal grazing associations "using perimeters whose utilization would not be challenged by other groups."

C. Require herders who are able to settle disputes with their neighbors.

D. Once the concept is well defined and accepted (presumably because of success), then extend the system legally to the whole country, (World Bank, 1990)

Constrains:

- Some large farmers have already acquired land as private property through plowing and want to keep it

- Any calls to solve the problems of range management though the government would face with negative response of the Bedouins

- Any proposal to ameliorate these problems will create some opposition: because allocating land in private property will alienate small herders, while cooperative proposals will face the opposition of the "big men."

- Given the manifest difficulties of the extension service, the probability of success in this area in the near term is not encouraging

- Allocating land rights to groups (COOP.) is skeptical given the pride and individualism for which Bedouins are famous

4.2. 3. Evolution of Rain-fed Farming

Current Problem: Such Area suffers from Low productivity and incomes, urbanization of agricultural land and land holdings fragmentation associated with inheritance laws. In addition, there are lack of investment, lack of profitable appropriate technological packages, distortion in barley price policy, and poor infrastructure

Policy Change:

- Raise barley prices up to international level.

- Encourage fruit production on land with slopes over 8 percent.

- Use urban wastewater for supplementary irrigation instead of for Jordan Valley farmers.

- Tax the conversion of agricultural land to urban real estate.
- "Impose a minimum plot size for (various crops).
- Additional external funds are needed to:
 - a) Improve the quality of wastewater treatment,
 - b) To complete the various water projects
 - c) To satisfy the environmental conservation conditions.
- To limit the expansion of Amman in every direction except to the East, thereby minimizing the impact of reducing agricultural land loss on urban real-estate values

Constrains:

- It will be difficult to persuade Jordan Valley farmers of the need to pay water charges if they are simultaneously being deprived of urban wastewater in addition to the costs of environmental concerns with using this water.
- Slowing the expansion of cities will add to the government's political difficulties with the urban poor, especially in the current context of structural adjustment, with phasing out subsidies and increased unemployment.
- Proposals for coping with land fragmentation typically evade the real issue. Accordingly, progress against fragmentation will be marginal at best. Therefore, it is unlikely to receive much attention from important policy makers.

4.2.4 Evolution of Technology

Conservation of genetic resources requires funds and technology. However, the developing countries generally lack these funds and the technology to protect these resources. Therefore, funds should be made available from the rich countries. Therefore; International cooperation is needed to advance the interest in the genetic resources to a high priority level since it is hard for a nation, troubled by food production problems and high national debt to have genetic resources on their high priority.

In the light of the weak infrastructure availability of funds, availability of trained human resources in many of developing nations, the international agriculture research centers should take a leading role in the biodiversity activities

Human resources development is very essential for the maintenance of biodiversity activities. Higher education outside the developing countries are expensive and therefore unless scholarships are made available for people from these nations it would be difficult to build such base.

The efforts in biodiversity may be done by individuals who have special need for germ plasma and therefore these collection will be at serious risk degree programs can be started at national universities and training for higher degree can be obtained at selected universities in North America and Europe. Furthermore short term courses for technicians can be held at the international centers or regional institutes. Considered based on three inter-related sectors – public goods, innovative institutions and finance.

1. Public goods and facilitative policies are required that will increase public investment in agro-food R&D and market information systems. This can be accomplished with the establishment of a national fund that will direct R&D into a number of key agro-technologies and agro-industrial technologies. These should include:

2. Agro-technologies: They include alternative energies, biotechnologies, clean production practices, water efficiency in agriculture, modern agro-food practices, high quality/value products, market-led processing, and good agricultural practices.

Three Agro-industries: They include establishing a national agro-food database, food-testing and quality-monitoring/analysis laboratories, maintenance of quality standards, adoption of traceability practices, contracting systems for producer associations/groups to supply processors, industrial services for providing marketing, technical, finance, etc. Agro industries also include information, linking agro-industries services into existing R&D centers and universities and generally constructing an agro-industrial public sector to augment existing services in support of agro-production.

4 Infrastructure: It covers the augmenting and improving existing supplies of energy, water and transportation at reasonable cost; development of industrial manufacturing centers that will foster SME development; priority investment in pro-environmental issues – energy, water, climate mitigation, early warning systems for food supply/demand and similar.

‘Agribusiness’ as a sector needs to be recognized and promoted, and this can be done by establishing a national food and agricultural marketing company with responsibilities to promote, guide and lead by example in support of ‘Jordanian Agro-Industries’. Industrial sector support will come from access to incentives and soft loans for establishing more agro-food projects (and in particular those that target ‘small-scale’, ‘income-generating’, ‘rural’ and similar). Jordanian exporters should be encouraged to exploit foreign markets, which will help stabilize prices, improve food safety, and raise the quality of products manufactured in the country. Agreements are required across the region to encourage integration and harmonization between countries that will help improve regional food security and price stability. Regional producers should be seeking to exploit distant markets as shared ventures (and particularly markets in the EU)

5. Concluding remarks

Jordan is divided into three main geographic areas with different climate: the Jordan Valley, the Highlands, and the Eastern Desert. The cultivated area is equivalent to 3.4% of the total land, mostly in the Jordan Valley. Although intensive irrigation and modernization processes are available, the local agriculture has to cope with the limited water resources. The contribution of the agricultural sector to the country’s GDP is 3.8% in 2000 and currently it employs 5.7% of the workforce in Jordan.

About 80% of local agricultural production consists of fruits, vegetables, and citrus. These constitute 70% of agricultural exports, where agricultural exports (mainly to the Gulf markets) are 10% of Jordan’s total export.

The meat production in Jordan is limited, though the production of poultry is more active. The total national poultry production is about 120-140000 tons per year, and it accounts for a small share in the region’s market. However, imported poultry from Brazil and Thailand contributes progressively in reducing

the domestic production. The meat processing industry is active and it has specialized in frozen processed meat products, these products are exported to the neighboring countries

The major vegetables grown locally are tomatoes (representing about 31% of total production), potatoes (about 10%), and cucumber (about 9%). Among the fruit tree products, olives represent the most important production (see the special brief). As shown in figure 2, most importantly Jordan exports tomatoes, cucumbers, eggplants, and currettes, while it mainly imports grain (wheat and barley). The Jordanian Government has signed a bilateral agreement with Syria, Lebanon, and Turkey, in order to import/export according to their respective needs. This sub-sector covers the industry, which processes fruits and vegetables, namely tomatoes by companies specialized mainly in producing processing tomatoes and cooked vegetable products. Processed tomato is a large component of Jordan's agro-food sector. The industry produces a wide range of products coming from the local tomato crops (peeled tomatoes in cans, tomatoes cubes in cans, tomatoes concentrate, triple concentrate, ketchup, etc.). There are also other companies, which use Jordanian raw materials in the processing of ready cooked meals. There is scope for producing freeze and de-hydrated dried fruits and vegetables, right now most of the freeze products are imported from Central and Eastern Europe.

Dairy products With an output of 165 000 tons of fresh milk, Jordan produces 35 liters per capita while the domestic milk consumption is equivalent to 50 liters per capita. The country imports about 8000 tons of powder milk each year. Dairy products are generally yogurt and cheese (Halloumi type). Milk in bottles or pack is available on the local market but it is highly priced as pasteurized milk.

Bakery products this sub-sector, which includes mills, cereals and breads, is very dynamic and scattered, in fact it accounts for the greatest number of companies in the local food production. Statistics from Jordan Investment Board indicate that the grain milling firms represent 20 – 40% of total investments in the food sector.

Cocoa, chocolate, and sugar product this sub-sector is a traditional one in the Arab world, with all its industries representing the ethnic production (Halawa). The companies export to their traditional Arab and Gulf countries' market and even to the US, for an amount of 2.184 million JD (15% of domestic production).

Soft drinks, production of mineral water the size of the market should be close to 80,000 tones of fruit juice of which 65,000 ton locally produced and 12-15 000 imported. In fact, the sector is ready to receive new investments; recently a big multinational enterprise has entered the mineral water market to satisfy the local demand.

Microfinance has not served the poorest of the poor, that is, the individuals and households who require a loan the most. The very poor typically are unable to obtain any formal loans, as they do not possess collateral, nor can they join a borrowing group. Even with moderate improvements, interest rates on micro-finance loans are still excessive, as opposed to commercial banks. Rates are also excessive, compared to the return on investment rates of projects typically found in rural areas, such as trading and husbandry. This is understandable, as no microfinance institution declared that it is in their mission statements to serve the poorest of the poor. Thus, it is imperative that stakeholders find other methods of poverty alleviation, such as grants, subsidies and other services.

Though the role of cooperative societies in development of MSMEs in Jordan remains small, this is not because of limited number of them and volunteer activity in the country. There are over 1,000

cooperative societies are registered, yet only 25% of them, mostly in rural areas, indicate such an aim. For example, the Jordan Hashemite Fund for Human Development (JOHUD) provides services in supporting MSMEs start up and growth.

ANNEX of TABLES

Table 49 Agricultural Sector Share in Jordanian GDP

Year	GDP	Agricultural Production (million US\$)	% (Agricultural Prod./GDP)
2006	15,645	963	6%
2007	17,765	1,197	6.7%
2008	22,697	1,514	6.7%
2009	25,092	1,500	6.0%

Source: Compiled and Calculated from World Bank (2011) "World Bank Indicators", Wash. D.C., USA

Table 50 Employment in Crafts small and medium firms

Crafts Professions	Sales in ('000) JD	Number of Employees	Productivity/ Employee (JD)
Ceramics as crafts	8,962	317	28,271
Metal, copper and silver	18,923	1,125	16,820
Leather Works	1,774	287	6,181
Weaving	37,941	790	48,027
Wood works	62,423	545	114,538
Pottery	23,056	350	65,874
Total	123,420	3,414	36,151

Source: Department of Statistics (2008) "Economic Surveys", Amman, Jordan

Table 51 Land Use in Jordan,

Type of Land	2008		2009	
	(000) Ha	%	(000) Ha	%
Inland water	54	1%	54	1%
Forest area	97.5	1%	97.5	1%
Pastures	742	8%	742	8%
Agricultural Area	197.8	2%	224.1	3%
Fallow land	31.4	0%	58.9	1%
Country area	8878	100%	8932	100%

Source; Compiled and Calculated from: FAO, UN (2011) "FAO STAT, [www.fao.org]"

Table 52 Agricultural Land Pattern by Irrigation System

Year	Irrigated Area (000 hectares)	Rain-fed Area (000 hectares)	Total Area	% irrigated Area from total area
2003	713.170	1673.210	2386.381	29.89%
2004	761.248	1947.505	2708.752	28.10%
2005	800.452	1673.416	2473.867	32.36%
2006	834.530	1687.826	2522.356	33.09%
2007	810.998	1060.884	1871.882	43.33%
2008	928.364	1385.514	2313.878	40.12%
2009	948.195	1293.712	2241.907	42.29%
2010	1025.021	1568.780	2593.801	39.52%
Average	852.747	1536.356	2389.103	36.09%
Annual Growth Rate %	5.2%	-0.9%	1.2%	

Source; Compiled and Calculated from: Department of Statistics (2011), Amman, Jordan

Table 53 the Area of Fruit Trees (000) Ha in Jordan (2003- 2010)

Year	Irrigated Area (000) Ha	Rain-fed Area (000) Ha	Total Area	% irrigated Area
2003	331.98	525.930	857.912	38.70%
2004	334.292	526.013	860.305	38.86%
2005	334.570	526.014	860.583	38.88%
2006	337.346	526.014	863.359	39.07%
2007	433.267	379.787	813.054	53.29%
2008	439.065	379.787	818.853	53.62%
2009	442.681	379.882	822.563	53.82%
2010	447.246	379.882	827.128	54.07%
Average	387.556	452.913	840.469	46.29%
Annual Growth Rate %	4.3%	-4.6%	-0.5%	

Source; Compiled and Calculated from: Department of Statistics (2011), Amman, Jordan.

Table 54 the Area of Vegetables (000) Ha in Jordan (2003- 2010)

Year	Irrigated Area	Rain-fed Are	Total Area	% irrigated Area
2003	323.992	20.243	344.235	94.12%
2004	349.651	19.391	369.042	94.75%
2005	380.539	21.117	401.656	94.74%
2006	408.617	14.490	423.107	96.58%
2007	326.068	8.697	334.765	97.40%
2008	402.057	16.646	418.703	96.02%
2009	388.680	23.114	411.794	94.39%
2010	448.851	31.956	480.806	93.35%
Average	378.557	19.457	398.014	95.17%
Annual Growth Rate %	4.7%	6.5%	4.8%	

Source; Compiled and Calculated from: Department of Statistics (2011), Amman, Jordan

Table 55 the Area of Field Crops (000) Ha in Jordan (2003- 2010)

Year	Irrigated Area	Rain-fed Area	Total Area	% irrigated Area
2003	57.196	1127.038	1184.234	4.83%
2004	77.305	1402.101	1479.406	5.23%
2005	85.343	1126.285	1211.628	7.04%
2006	88.568	1147.323	1235.891	7.17%
2007	51.663	672.400	724.064	7.14%
2008	87.242	989.081	1076.323	8.11%
2009	116.834	890.716	1007.550	11.60%
2010	128.925	1156.943	1285.868	10.03%
Average	86.634	1063.986	1150.620	7.64%
Annual Growth Rate %	11.6%	0.4%	1.2%	

Source; Compiled and Calculated from: Department of Statistics (2011), Amman, Jordan

Table 56 Area (000) Ha of Major Vegetables Cultivated in Jordan

Year	Tomatoes	Potatoes	Watermelon
1999	81.919	40.184	23.314
2000	73.694	40.087	22.794
2001	80.299	37.199	31.666
2002	81.152	36.731	10.652
2003	85.057	37.636	15.653
2004	76.562	35.021	16.398
2005	90.248	37.97	25.769
2006	90.229	45.475	12.864
2007	112.38	48.475	13.918
2008	112.656	52.87	21.155
2009	105.403	35.431	17.598

Source: Department of Statistics, Amman, Jordan

Table 57 Production (tons) of Major Vegetables Cultivated in Jordan

Year	Tomatoes	Potatoes	Watermelon
1999	323.992	94.659	105.13
2000	299.916	88.052	89.844
2001	293.278	96.338	120.666
2002	354.292	97.075	35.011
2003	310.195	101.344	34.248
2004	359.832	105.334	71.777
2005	415.871	122.396	94.586
2006	449.487	165.332	83.903
2007	598.933	172.077	84.998
2008	545.566	160.028	91.876
2009	610.246	98.866	85.65

Source; Department of statistics, Amman, Jordan

Table 58 Comparison of Vegetables Productivity in Jordan versus World Average

Year	Potatoes			Tomatoes			Watermelons		
	Worl	Jorda	Jordan/	Worl	Jorda	Jordan/	Worl	Jorda	Jordan/
2000	16.3	2.2	13%	27.3	4.1	15%	24.5	3.9	16%
2001	15.8	2.6	16%	27.1	3.7	13%	25.3	3.8	15%
2002	16.5	2.6	16%	28	4.4	16%	26.8	3.3	12%
2003	16.5	2.7	16%	28.5	3.6	13%	25.5	2.2	9%
2004	17.5	3	17%	28.6	4.7	16%	27.4	4.4	16%
2005	16.8	3.2	19%	28	4.6	16%	27.7	3.7	13%
2006	16.6	3.6	22%	28.1	5	18%	27.8	6.5	23%
2007	17.3	3.5	21%	32.8	5.3	16%	28.1	6.1	22%
2008	18.1	3	17%	33.5	4.8	14%	28.7	4.3	15%
2009	17.7	2.8	16%	34.8	5.8	17%	28.7	4.9	17%
Averag	16.9	2.9	17%	29.7	4.6	15%	27.1	4.3	16%
SD	0.7	0.4		2.9	0.7		1.5	1.3	
C. V.	4%	15%		10%	15%		5%	30%	

Source: compiled and calculated from: "FAOSTAT" "Statistics Division, (2011) (www.fao.org), and Department of statistics, Amman, Jordan

Table 59 Number of Major Fruit Trees in Million (1999-2009)

Year	Olive	Citrus	Apples
1999	5.58	1.884	1.824
2000	7.287	1.878	2.186
2001	6.383	1.93	2.313
2002	6.384	2.024	2.369
2003	5.322	2.135	1.922
2004	5.904	2.199	2.59
2005	5.332	1.788	2.297
2006	6.793	1.905	2.158
2007	5.152	1.899	2.158
2008	6.225	1.938	2.156
2009	6.825	1.882	1.503

Source; Department of statistics, Amman, Jordan

Table 60 Major Fruits Production in Jordan (1999- 2009)

Year	Olive	Citrus	Apples
1999	57.145	168.923	31.009
2000	137.549	162.227	38.527
2001	38.313	85.644	31.035
2002	134.285	124.595	37.468
2003	65.701	136.624	37.134
2004	180.9	124.207	39.23
2005	117.958	147.153	41.754
2006	160.738	127.774	42.424
2007	113.069	136.282	45.563
2008	146.828	139.242	46.381
2009	125.029	90.414	31.423

Source; Department of statistics, Amman, Jordan

Table 61 Yield/ Tree of the Major fruits Cultivated in Jordan 91999- 2009)

Year	Olives	Citrus	Apples
1999	10.241	89.662	17.001
2000	18.876	86.383	17.624
2001	6.002	44.375	13.418
2002	21.035	61.559	15.816
2003	12.345	63.993	19.320
2004	30.640	56.483	15.147
2005	22.123	82.300	18.178
2006	23.662	67.073	19.659
2007	21.947	71.765	21.114
2008	23.587	71.848	21.513
2009	18.319	48.041	20.907

Source; Department of statistics, Amman, Jordan

Table 62 Comparison of Orange Productivity Level and Variation in Jordan versus World Average

Year	Ton/Ha		Jordan/World
	World	Jordan	
2,000	17.4	18.3	105.0%
2,001	16.7	14.9	89.5%
2,002	16.8	15.3	90.8%
2,003	16.3	17.7	109.1%
2,004	17.0	17.7	103.9%
2,005	16.5	19.1	115.8%
2,006	16.6	19.7	119.0%
2,007	15.9	12.2	76.6%
2,008	16.7	14.1	84.6%
2,009	16.3	16.7	102.6%
Average	16.6	16.6	100%
SD	0.4	2.4	
Coefficient of Variation	3%	14%	

Source: Compiled and calculated from: FAO, (2011) "FAOSTAT" FAO "Statistics Division, Rome, Italy (www.fao.org)

Table 63 Livestock Performance in Jordan: Cattle Stock

Year	Stocks (Heads)	Slaughtered Animals (Heads)	Off-Take (%)	Carcass Weight (Kg)	Meat Production (Ton)	Milking animals	% of Stock	Yield/ Milking Head	Milk Production (Ton)
2000	65308	40,200.0	62%	162	6,500	46,363	71%	3,490	161,812
2001	65370	61,700	94%	195	12,001	46,326	71%	3,514	162,765
2002	68067	55,850	82%	209	11,650	49,956	73%	3,541	176,913
2003	66260	53,265	80%	190	10,136	32,300	49%	5,257	169,800
2004	69280	83,540	121%	187	15,630	35,000	51%	5,729	200,530
2005	67520	39,911	59%	189	7,531	34,200	51%	5,751	196,680
2006	69100	67,467	98%	220	14,822	34,826	50%	5,891	205,148
2007	81000	60,000	74%	230	13,782	48,540	60%	5,282	256,380
2008	79380	95,000	120%	201	19,133	47,560	60%	6,601	313,960
2009	64520	65,000	101%	200	13,000	36,900	57%	6,629	244,600

Source: Compiled and calculated from: FAO, (2011) "FAOSTAT" FAO Statistics Division, Rome, Italy (www.fao.org)

Table 64 Livestock Performance in Jordan: Sheep Stock

Year	Stocks (Heads)	Slaughtered Head	Off-take (%)	Carcass Weight (Kg)	Meat Production (Ton)	Milking animals (Head)	% of Stock	Yield/ Milking Head	Milk Production (Ton)
2000	1,933,99	962,335	50%	12	11,900	751,934	39%	40	30,077
2001	1,484,090	1,004,220	68%	12	12,423	577,013	39%	40	23,081
2002	1,457,910	1,177,000	81%	12	14,122	566,447	39%	40	22,658
2003	1,476,470	1,077,930	73%	12	12,668	860,000	58%	60	51,406
2004	1,529,090	1,286,400	84%	12	15,444	1,015,940	66%	58	58,443
2005	1,890,440	1,125,480	60%	12	13,300	1,158,860	61%	57	65,752
2006	1,971,520	1,050,000	53%	12	12,610	1,304,710	66%	65	84,544
2007	2,251,450	1,628,000	72%	12	19,545	1,325,940	59%	52	69,501
2008	2,493,360	1,290,000	52%	12	15,445	1,661,660	67%	45	75,263
2009	2,070,940	1,290,000	62%	12	15,658	1,340,290	65%	42	56,030

Source: Compiled and calculated from: FAO, (2011) "FAOSTAT" FAO Statistics Division, Rome, Italy

(www.fao.org)

Table 65 Livestock Performance in Jordan: Goats Stock

Year	Stocks (Heads)	Slaughtered Animals (Heads)	Off-Take (% of Stock)	Carcass Weight (Kg)	Meat production (Ton)	Milking animals	% of Stock	Yield/ Milking Head	Milk Production (Ton)
2000	461,393	138,000	30%	11	1,573	179,390	39%	71	12,648
2001	425,907	140,000	33%	12	1,610,000	183,692	43%	67	12,384
2002	557,289	120,000	22%	12	1,452,000	165,597	30%	68	11,324
2003	547,490	185,165	34%	13	2,481,211	410,000	75%	59	24,094
2004	501,120	237,340	47%	13	3,180,356	306,756	61%	59	18,150
2005	516,140	149,910	29%	14	2,023,785	280,968	54%	55	15,455
2006	473,810	127,000	27%	12	1,536,700	289,917	61%	70	20,187
2007	569,370	229,500	40%	13	3,075,300	310,615	55%	62	19,239
2008	1,083,330	314,200	29%	13	4,210,280	649,970	60%	43	28,127
2009	919,740	314,200	34%	14	4,304,540	255,930	28%	74	18,810

Source: Compiled and calculated from: FAO, (2011) "FAOSTAT" FAO Statistics Division, Rome, Italy

(www.fao.org)

Table 66 Livestock Performance in Jordan: Chicken Stock

Year	Broiler Chicks Million Birds	Carcass Weight (Kg)	Meat Production (Ton)	Laying Hens (000) Birds	Yield (eggs/Hen)	Production million Eggs
2000	105	1.13	118,503	3610	254	917
2001	104	1.12	117,201	3371	337	1,136
2002	103	1.06	109,998	3160	316	999
2003	113	1.09	123,362	1967	197	387
2004	127	1.00	126,659	2125	213	452
2005	133	1.00	132,638	1860	186	346
2006	116	1.00	115,815	2070	207	428
2007	134	1.00	133,821	2012	201	405
2008	140	1.00	140,459	2100	210	441
2009	140	1.01	141,189	1900	190	361

Source: Compiled and calculated from: FAO, (2011) "FAOSTAT" FAO Statistics Division, Rome, Italy
(www.fao.org)

Table 67 Livestock Performance in Jordan: Other Poultry Stock

Year	Duck			Turkey		
	Slaughtered(000)	(Kg) / Dressed Bird	Meat(Ton)	Slaughtered(000)	Kg / Dressed Bird	Meat (Ton)
2001	8	2.8	22	130	4	520
2002	2	2.8	6	86	4	344
2003	14	2.8	39	117	4	468
2004	36	2.8	101	57	4	228
2005	5	2.8	14	330	4	1320
2006	33	2.8	92	108	4	432
2007	66	2.8	190	382	4	1528
2008	6	2.8	17	3	4	12
2009	6	2.8	17	12	4	48

Source: Compiled and calculated from: FAO, (2011) "FAOSTAT" FAO Statistics Division, Rome, Italy
(www.fao.org)

Table 68 Average World Productivity of Livestock Types

year	Dressed Weight/ Bird (Kg)	carcass Weight/ Head (Kg)			Milk Yield/ Head (Kg)		
	Chicken	Cattle	Goats	Sheep	Cattle	Goats	Sheep
2000	1.46	205	12	15.7	2,218	83	42
2001	1.46	204	12	15.7	1,420	84	43
2002	1.47	206	12	15.6	1,437	84	44
2003	1.48	203	12.1	15.5	1,421	85	45
2004	1.51	205	12.2	15.6	1,437	87	46
2005	1.49	207	12.2	15.6	1,445	85	46
2006	1.51	210	12.2	15.6	1,466	85	46
2007	1.51	213	12.5	16.1	1,479	85	45
2008	1.53	212	12.4	15.7	1,445	84	45
2009	1.53	202	1.2	15.8	1,471	84	45

Source: Compiled and calculated from: FAO, (2011) "FAOSTAT" FAO Statistics Division, Rome, Italy
(www.fao.org)

Table 69 Food Consumption Pattern in Jordan in 2007

item	(000) Tons							Food Consumption		(Self-Sufficienc
	Product	Impo	Expor	Domesti	Feed	Seed	Processin	Tota	(kg/capita/	
Total Cereals	50	2610	36	2344	127	6	101	970	163.3	2.1%
Wheat	21	1108	30	819		2	25	802	135	2.6%
Barley	13	804	0	817	769	4	43	1	0.2	1.6%
Maize	15	533	2	546	507	0	28	11	1.9	2.7%
Other cereals	1	165	4	162	1	0	5	156	26.2	0.6%
Potatoes	97	74	28	143		15	35	93	15.7	67.8%
Sugar		315	35	280			0	280	47.1	0.0%
Honey	0	1	0	1			0	1	0.2	0.0%
Total Pulses	2	44	2	44	0	0	2	41	6.9	4.5%
Total Tree	1	12	0	13			0	13	2.1	7.7%
Olives	125	1	13	112			92	20	3.4	111.6%
Total Oils	23	123	17	129			22	107	18	17.8%
Sesame seed	3	0		3			3	3	0.6	100.0%
Olive Oil	20	0	2	17			20	16	2.7	117.6%
Total	1333	99	715	717	0		114	605	101.8	185.9%
Tomatoes	610	34	401	243			61	182	30.6	251.0%
Other	723	65	314	474	0	0	53	423	71.2	152.5%
Fruits	238	133	110	260			31	292	49.1	91.5%
Citrus	85	42	16	110	0	0	11	99	17.1	77.3%
Apples	32	23	2	52			5	47	8	61.5%
Other Fruits	121	68	92	98	0	0	15	146	24	123.5%
Total Meat	171	88	13	245			0	247	41.6	69.8%
Bovine Meat	14	46	8	51			0	53	9	27.5%
Mutton &	23	12	1	34			0	34	5.7	67.6%
Poultry Meat	134	29	3	159			0	159	26.8	84.3%
Meat, Other	0	1	1	1	0	0	0	1	0.1	0.0%
Eggs	39	3	3	38		12	2	24	4.1	102.6%
Milk	345	237	42	541	0		17	523	88.1	63.8%
Fish	1	49	2	48	14		0	34	5.7	2.1%

Source; Compiled and Calculated from: FAO (2011) "FAOSTAT", [www.fao.org]

Table 70 Daily Per Capita Food Supply in Jordan in 2007

Nutrient	Grand total	Vegetal Sources	Animal Products	Cereals (Total)
kcal/capita/day	3015	2631	384	1409
% of Total	100%	87%	13%	47%
Protein (g/capita/day)	78.2	50.9	27.4	39.5
% of Total	100%	65%	35%	51%
Fat (g/capita/day)	90.7	64.7	26	7.1
% of Total	100%	71%	29%	8%

Source: Compiled and calculated from: FAO (2011) "FAOSTAT", [www.fao.org]

Table 71 Farm Size Distribution of Agricultural Holdings in Jordan

Holding Size	% of Total Holdings
Landless	18%
< 30 Dunums	60%
31-100 Dunums	15%
101 -500 Dunums	6%
> 500 Dunums	1%
Total	100%

Source: Compiled and Calculated from Department of Statistics (2005) "Agricultural Census of Jordan for the year 1997", Amman, Jordan

Table 72 Share of Agricultural Labor in Man Power in Jordan (000) Habitants

Year	Total	Rural	% (Rural/Total)	Agricultural	% (Agri./Rural)	Total Economically Active	Economically Active in Agriculture	% (Agri./Total)
2006	5,495	1,191	22%	407	34%	1,565	116	7%
2007	5,667	1,226	22%	401	33%	1,617	114	7%
2008	5,849	1,263	22%	398	32%	1,683	115	7%
2009	6,026	1,298	22%	395	30%	1,746	114	7%
2010	6,187	1,329	21%	390	29%	1,803	114	6%

Source: Compiled and calculated from: FAO, (2011) "FAOSTAT" FAO Statistics Division, Rome, Italy (www.fao.org)

Table 73 Input Density in Jordanian Agriculture (2000-2007)

Year	Nitrogen Fertilizers (N Nutrients) Kg/Ha(of Agri. Area(1)	Hectare/ Tractor(2)
2000	83	186
2001	55	177
2002	21	178
2003	22	174
2004	11	NA
2005	36	NA
2006	22	NA
2007	5	NA

World Average: (1) 18Kg, (2) 183 Ha/ Tractor, Note: Jordan's Irrigated area ranged between 7% in 2000 to 9% in 2009, while the World average = 25%

Source: Compiled and calculated from: FAO, (2011) "FAOSTAT" FAO Statistics Division, Rome, Italy (www.fao.org)

Table 74 Share of Agro-Food Industries in Food Supply (000) Tons) of Jordan in 2007

item	Production	Import Quantity	Export Quantity	Domestic supply quantity	Processing and Industries	
					quantity	% of Production
Wheat	21	1108	30	819	25	119.0%
Rice (Milled Equivalent)	0	159	3	156	6	NA
Barley	13	804	0	817	43	330.8%
Maize	15	533	2	546	28	186.7%
Starchy Roots + (Total)	97	76	28	145	35	36.1%
Cassava	0	1	0	1	1	NA
Potatoes	97	74	28	143	35	36.1%
Pulses + (Total)	2	44	2	44	2	100.0%
Pulses, Other	2	41	2	41	2	100.0%
Sesame seed	0	17	0	16	12	NA
Olives	125	1	13	112	92	73.6%
Vegetable Oils + (Total)	23	123	17	129	22	95.7%
Palm Oil	0	52	13	39	19	NA
Olive Oil	20	0	2	17	1	5.0%
Oil crops Oil, Other	0	2	0	2	2	NA
Vegetables + (Total)	1333	99	715	717	114	8.6%
Tomatoes	610	34	401	243	61	10.0%
Onions	29	28	1	56	6	20.7%
Vegetables, Other	694	37	313	418	47	6.8%
Fruits - Excluding Wine + (Total)	238	133	110	260	31	13.0%
Oranges, Mandarins	55	32	10	77	8	14.5%
Lemons, Limes	22	6	2	26	3	13.6%
Apples	32	23	2	52	5	15.6%
Dates	7	9	3	12	1	14.3%
Grapes	28	8	2	34	3	10.7%
Fruits, Other	52	29	87		5	9.6%
Alcoholic Beverages + (Total)	11	7	9	9	4	36.4%
Alcohol, Non-Food	0	4	0	4	4	NA
Animal Fats + (Total)	1	5	0	7	1	100.0%
Butter, Ghee	0	2	0	2	1	NA
Eggs + (Total)	39	3	3	38	2	5.1%
Milk - Excluding Butter + (Total)	345	237	42	541	17	4.9%

NA = Not Applicable. It is processed from imports, if the share is .greater than 100% of the production; it implies that a proportion is processed from imported raw materials.

Source: Compiled and calculated From: FAOSTAT, FAO Statistics Division 2011 [www.fao.org]

Table 75 Agro-Food Imports of Jordan by Country in 2009

Rank	Country	% of total
1	United States of America	9.98%
2	Saudi Arabia	9.20%
3	Egypt	7.09%
4	Russian Federation	6.96%
5	Syrian Arab Republic	6.42%
6	Brazil	5.48%
7	Argentina	4.56%
8	Ukraine	4.37%
9	Australia	3.47%
10	Turkey	3.43%
11	India	3.10%
12	Ireland	2.35%
13	Netherlands	2.30%
14	Lebanon	2.10%
15	France	2.04%
Other countries		27.15%
Total (000) US\$		2,323,183

Source: Compiled and calculated from: FAO (2011) "FAOSTAT", [www.fao.org]

Table 76 Jordanian Agro-Food Imports Flow by Commodity

Rank	commodity	% of Total
1	Rice Milled	7.43%
2	Maize	6.64%
3	Other food reparations	5.77%
4	Sugar Refined	4.94%
5	Wheat	4.71%
6	Cake of Soybeans	4.59%
7	Barley	3.89%
8	Beef and Veal Meat	3.68%
9	Cheese of Whole Cow Milk	3.65%
10	Milk Skimmed Dry	3.22%
11	Sheep meat	3.14%
12	Non-Alcoholic Beverage	2.75%
13	Chicken meat	2.41%
14	Other Tobacco Products	2.40%
15	Palm oil	2.06%
Other Commodities		
Total 000) US\$		2,323,183

Source: Compiled and calculated from: FAO (2011) "FAOSTAT", [www.fao.org]

Table 77 Jordanian Food Exports Flow by Country in 2009

Rank	Country	% of total
1	Iraq	39.66%
2	Syrian Arab Republic	11.26%
3	United Arab Emirates	7.34%
4	Saudi Arabia	7.15%
5	Unspecified	6.46%
6	Kuwait	3.99%
7	Qatar	3.44%
8	Lebanon	2.77%
9	Israel	1.94%
10	Bahrain	1.92%
11	Turkey	1.61%
12.	Russian Federation	1.51%
13	Occupied Palestinian Territory	1.26%
14	Oman	1.25%
15	Romania	1.12%
Other Countries		
Total Value US\$		1,030,966

Source: Compiled and calculated from: FAO (2011) "FAOSTAT", [www.fao.org]

Table 78 Jordanian Exports Flow by Commodity in 2009

Rank	items	% of total
1	Tomatoes	16.39%
2	Cucumbers and gherkins	6.77%
3	Other food preparations	5.57%
4	Non-Alcoholic Beverage	4.19%
5	Eggplants (aborigines)	3.91%
6	Oil Hydrogenated	3.62%
7	Milk Skimmed Dry	3.62%
8	Chicken meat	3.42%
9	Chilies and peppers, green	3.25%
10	Cigarettes	2.89%
11	Peaches and nectarines	2.86%
12	Cheese of Whole Cow Milk	2.70%
13	Sheep	2.35%
14	Other fresh vegetables	2.26%
15	Other feed compounds	2.26%
16	Preparations of Beef Meat	2.08%
17	Beef and Veal boneless meat	1.96%
18	Sheep meat	1.84%
19	Infant Food	1.84%
20	Hen eggs, in shell	1.61%
Other Items		24.6%
Total in US\$		1,030,966

Source: Compiled and calculated from: FAO (2011) "FAOSTAT", [www.fao.org]

Table 79 Time trend of Farm Prices of Vegetables and Fruits in Jordan, EU and USA (\$/Ton)

Commodity	Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Tomatoes	Jordan	100	62	100	116	109	97	104	128	159	189	126
	EU	734	705	627	723	930	847	1060	1123	1186	1297	1080
	USA	569	677	661	697	827	825	917	963	767	1003	895
Potatoes	Jordan	166	214	144	158	199	184	154	161	332	303	320
	EU	192	140	150	153	213	224	200	291	329	302	253
	USA	127	112	154	147	130	125	155	161	166	186	176
watermelon	Jordan	71	92	71	93	97	126	171	101	155	192	130
	EU	171	176	198	167	204	212	221	276	314	401	306
	USA	144	141	149	183	198	187	256	229	249	276	254
Olive	Jordan	434	513	441	353	515	516	564	705	992	986	1056
	EU	1082	987	891	995	1149	1272	1281	1305	1496	1469	1355
	USA	427	723	741	632	451	622	622	850	854	739	595
Apple	Jordan	341	343	279	250	332	315	221	311	366	426	496
	EU	441	353	384	412	549	587	533	581	736	804	682
	USA	470	282	348	417	414	300	381	500	635	511	509
Citrus	Jordan	323	258	264	257	253	344	360	378	471	508	494
	EU	347	256	289	290	372	392	355	423	485	536	535
	USA	142	93	100	110	92	97	114	158	255	175	165

Source: Compiled and calculated from: FAO, (2011) "FAOSTAT" FAO Statistics Division, Rome, Italy (www.fao.org)

Table 80 Potential Organic Agriculture

Type of Land	2009	
	(000) Ha	%
Agricultural area certified organic, of which:	1.03	97%
Permanent crops area certified organic	1.02	96%
Other Crops (Mainly vegetables)	0.01	1%
Permanent crops area in conversion to organic	0.03	3%
Agricultural area organic, total	1.06	100%

Source; Compiled and Calculated from: Source: Department of Statistics (2011), Amman, Jordan

Table 81 Infrastructure Expenditures Related to Agriculture, 1994-97 (1,000 JD)

Purpose	1994	1995	1996	1997	average
Agricultural Roads	173	181	224	193	193
Dams	521	1,021	1,160	901	901
Irrigation Systems	793	1,120	660	858	858
Rural Electricity	7,100	7,100	3,969	4,000	6,056
Total expenditure	8,587	9,422	6,013	5,951	8,007

Source: Compiled from Hjort Kim C, (1998) "An Introduction to Jordan's Agriculture Sector and Agricultural Policies" WTO Accession Unit Ministry of Industry and Trade, Amman, Jordan

Table 82 Foreign Trade Time Trend in (000) US\$ in Jordan (2006-2010)

Foreign Trade Indicators	2006	2007	2008	2009	2010
Imports of Goods (million USD)	11,548	13,681	16,995	14,236	15,262
Exports of Goods (million USD)	5,204	5,725	7,938	6,375	7,023
Imports of Services (million USD)	2,854	3,356	3,926	3,657	4,158
Exports of Services (million USD)	2,850	3,436	4,353	4,192	4,880

Source: WTO - World Trade Organization - Last Available Data.

Table 83 Non-Arab Countries Bilateral Trade Agreements with Jordan

Country	Agreement	Date Signed	Date of Entry into Force
Tanzania	Promotion and Protection of Investment Agreement	8 Oct. 2009	
Azerbaijan	Non-Double Taxation Agreement	05-May-08	1 Jan. 2009
	Trade Agreement	7 Nov. 2006	1 Jun. 2007
	Investment Promotion Agreement	05-May-08	24 Dec. 2008
Bosnia and Herzegovina	Investment Promotion and Protection Agreement	02-Jul-06	24-Jul-07
Kazakhstan	Investment Promotion and Protection Agreement	29 Nov. 2006	01-Jul-08
Ukraine	Non-Double Taxation Agreement	30 Nov. 2005	1 Jan. 2009
	Economic and Trade Cooperation Agreement	2002	Valid
	Investment Promotion and Protection Agreement	30 Nov. 2005	Not in effect yet
	Non-Double Taxation Agreement	30 Nov. 2005	Not in effect yet
Italy	Investment Promotion and Protection Agreement	21-Jul-96	9 Nov. 1999
Bulgaria	Non-Double Taxation Agreement	9 Nov. 2006	1 Jan. 2009
	Trade Agreement	2001	Valid
	Investment Promotion Agreement	7 Aug. 2002	27-May-03
Poland	Investment Promotion and Protection Agreement	4 Oct. 1997	14 Oct. 1999
	Non-Double Taxation and Tax Evasion Agreement on Income.	4 Oct. 1997	1 Jan. 2000
Czech	Association Agreement with the European Union	24 Nov. 1997	01-May-02
	Investment Promotion and Protection Agreement	20 Sep. 1997	25-Apr-01
U.S.A.	Free Trade Agreement	24 Oct. 2000	2001
	Investment Promotion and Protection Agreement	02-Jul-97	12-Jun-03

Argentina	Framework Cooperation Agreement with MERCOSUR Countries	30-Jun-08	
	Trade and Economic Cooperation Agreement	22-Oct-08	Not in effect yet
Australia	Trade Cooperation Agreement	1988	Valid
Canada	Promotion and Protection of Investment Agreement	28-Jun-09	14 Dec. 2009
	Economic and Trade Cooperation Agreement	1986	Valid
	Non-Double Taxation and Tax Evasion Agreement on Income.	6 Sep. 1999	1 Jan. 2001
Mexico	Trade Cooperation Agreement	1975	Valid
Ethiopia	Trade Cooperation Agreement	1984	Valid
Guiana	Trade Cooperation Agreement	2003	Not in effect yet
Brazil	Trade Cooperation Agreement	1989	Valid
	Framework Cooperation Agreement with MERCOSUR Countries	30-Jun-08	
	Trade and Economic Cooperation Agreement	23-Oct-08	22 Sept 2010
Spain	Association Agreement with the European Union	24 Nov. 1997	01-May-02
	Investment Promotion and Protection Agreement	20 Oct. 1999	13 Dec. 2000
U.K.	Investment Promotion and Protection Agreement	10 Oct. 1979	24-Apr-80
Holland	Investment Promotion and Protection Agreement	17 Nov. 1997	1 Aug. 1998
Germany	Investment and Capital promotion and Protection Agreement	15-Jul-74	10 Oct. 1977
	Investment Promotion and Protection Agreement	23 Jan. 2001	25 Nov. 2001
Vietnam	Trade Cooperation Agreement	1997	Valid
Russian Federation	Economic and Technical Cooperation Agreement	21 Jan. 1969	Valid
Lithuania	Investment Promotion Agreement	13 Oct. 2002	05-May-03
Philippines	Trade Cooperation Agreement	1996	Valid
Congo	Economic, Scientific and Technical Cooperation Agreement	26 Sep. 2004	
	Investment Promotion Agreement	23-Jun-04	Not in effect yet
Romania	Trade Agreement	1995	Valid
	Economic and Technical Cooperation Agreement	20 Nov. 1968	Valid
	Investment Promotion and Protection Agreement	02-Jul-92	16-Mar-99
	Agreement	Date Signed	Date of Entry into Force
Turkey	Trade Agreement for Business Relations Development between two countries on	17-Jun-80	Valid

	basis of equity and mutual interest.		
	Trade and Economic Agreement	1980	Valid
	Mutual Investment Promotion and protection Agreement	2 Aug. 1993	23 Jan. 2006
	Agreement on Non-Double Taxation and Other Issues related to Income and Capital.	06-Jun-85	1 Jan. 1987
France	Investment Promotion and Protection Agreement	23 Feb. 1978	18 Oct. 1979
	Non-Double Taxation and Tax Evasion Agreement on Income.	28-May-84	01-Apr-85
Croatia	The (G-11) Framework Agreement on Economic, Trade and Cultural Cooperation	16-May-09	
	Trade Cooperation Agreement	10 Oct. 1999	14-Apr-05
	Investment Promotion and Protection Agreement	10 Oct. 1999	27-Apr-00
Belarus	Economic and Trade Cooperation Agreement	2002	2003
	Investment Promotion Agreement	16 Dec. 2002	Not in effect yet
China	Trade Cooperation Agreement	1979	Valid
Uzbekistan	Economic and Trade Cooperation Agreement	1997	Valid
Uruguay	Framework Cooperation Agreement with MERCOSUR Countries	30-Jun-08	
Indonesia	The (G-11) Framework Agreement on Economic, Trade and Cultural Cooperation	16-May-09	
	Trade and Economic Cooperation Agreement	03-Apr-86	Valid
	Investment Promotion and Protection Agreement	12 Nov. 1996	9 Feb. 1999
	Non-Double Taxation and Tax Evasion Agreement on Income.	12 Nov. 1996	1 Jan. 1999
Switzerland	Trade and Economic Cooperation Agreement	11 Nov. 1976	1 Sep. 2002
	EFTA Agreement	21-Jun-01	1 Sep. 2002
	Investment Promotion and Protection Agreement	25 Feb. 2001	11 Dec. 2001
Liechtenstein	EFTA Agreement	21-Jun-01	1 Sep. 2002
Norway	EFTA Agreement	21-Jun-01	1 Sep. 2002
Iceland	EFTA Agreement	21-Jun-01	1 Sep. 2002
India	Economic and Trade Agreement	1976	Valid
	Non-Double Taxation and Tax Evasion Agreement on Income.	20-Apr-99	1 Jan. 2000
Pakistan	The (G-11) Framework Agreement on Economic, Trade and Cultural Cooperation	16-May-09	
	Trade Cooperation Agreement	17 Feb. 2000	Valid
Seri Lanka	The (G-11) Framework Agreement on Economic, Trade and Cultural Cooperation	16-May-09	
	Trade Cooperation Agreement	1965	Valid
Korea	Trade Cooperation Agreement	19 Nov. 1972	Valid
Israel	Economic and Trade Cooperation Agreement	1995	Valid
North Korea	Trade Agreement	1979	Valid

	Investment Promotion Agreement	24-Jul-04	25 Dec. 2004
Malaysia	Trade Agreement	1994	Valid
	Investment Promotion and Protection Agreement	2 Oct. 1994	03-Mar-95
	Non-Double Taxation and Tax Evasion Agreement on Income.	2 Oct. 1994	1 Jan. 2001
Country	Agreement	Date Signed	Date of Entry into Force
Iran	Non-Double Taxation Agreement	28-May-03	1 Jan. 2009
	Trade Cooperation Agreement	19-Jun-95	4 Aug. 1998
Singapore	Free Trade Agreement	16-May-04	22 Aug. 2005
	Investment Promotion Agreement	16-May-04	Valid
Hungary	Trade Cooperation Agreement	1976	Valid
	Association Agreement with the European Union	24 Nov. 1997	01-May-02
Finland	Association Agreement with the European Union	24 Nov. 1997	01-May-02
Cyprus	Promotion and Protection of Investment Agreement	20 Dec. 2009	
Ecuador	The (G-11) Framework Agreement on Economic, Trade and Cultural Cooperation	16-May-09	
Georgia	Economic and Trade Cooperation Agreement	26-Apr-10	29-Jul-10
	The (G-11) Framework Agreement on Economic, Trade and Cultural Cooperation	16-May-09	
Honduras	The (G-11) Framework Agreement on Economic, Trade and Cultural Cooperation	16-May-09	
Paraguay	The (G-11) Framework Agreement on Economic, Trade and Cultural Cooperation	16-May-09	
	Framework Cooperation Agreement with MERCOSUR Countries	30-Jun-08	
Portugal	Promotion and Protection of Investment Agreement	17-Mar-09	
	Economic Cooperation Agreement	12-Feb-08	11-Sep-08
	Economic and Technical Cooperation Agreement	13-May-80	Valid

Source: Ministry of Industry and Trade, Amman, Jordan "<http://www.mit.gov.jo/tabid/475/Jordan.aspx>, 2/12/2010".

Table 84 Custom Duties Applied By Jordan after Joining the WTO Membership

Goods	Bound Customs Tariff Rate	Implementation Date of Commitment
Cigarettes and Tobacco	150%	April 11th, 2000
Certain types of Tobacco	200%	April 11th, 2000
Liquors	200%	April 11th, 2000
Specific goods that are subject to customs tariffs of:	15%	2005

20% in 2000 30% in 2000 30% in 2000	20% 25%	2005 2005
Specific goods that are subject to customs tariffs of: 30% in 2000	20%	Customs tariffs to be reduced gradually to reach 20% by 2008
Specific goods that are subject to customs tariffs of: 10% in 2000 20% in 2000 30% in 2000 30% in 2000 30% in 2000	5% 15% 25% 20% 15%	Customs tariffs to be reduced gradually to reach the bound rate by 2010
Sector Initiatives		
Agricultural machinery	0%	April 11th , 2000
Medical equipment	0%	April 11th , 2000
Chemicals (except 58 tariff line items)	5.5% and 6.5%	Customs tariffs to be reduced gradually to bound rate by 2003 or 2007
Information Technology		Customs tariffs to be reduced gradually to reach 0% in 2003 or 2005

Source: Ministry of Industry and Trade (2011), Jordan (<http://www.mit.gov.jo/tabid/475/Jordan>, 2/12/2010).

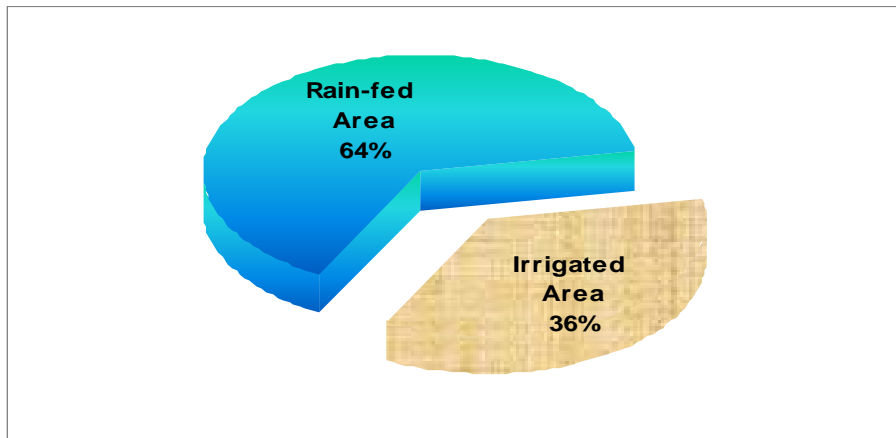
Table 85 Prediction of the water requirements in the fourth coming decades in Jordan

Year	Population (millions)	Water volume (MCM)
1995	4.3	1036
2000	4.95	1151
2005	5.69	1260
2010	6.54	1377
2015	7.52	1450
2020	8.85	1523
2025	9.95	1596

Source; Compiled from Kareem, Asem et al. (2000) water resources in the Arab world, Proceeding of the International Conference of agriculture economics in the Islamic world, Al-Azhar University,.Conference hall, Nasr City, Cairo, Egypt

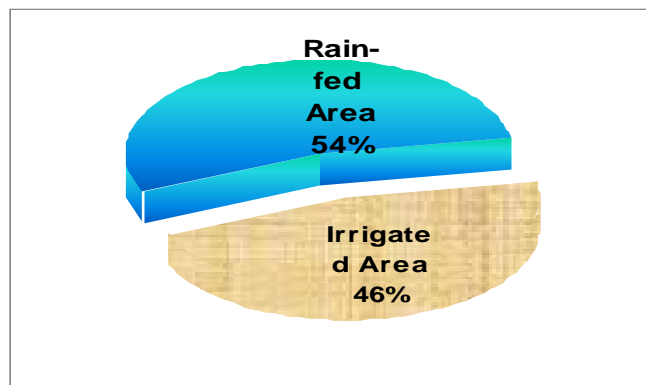
ANNEX of GRAPHS

Figure 6 the Total cultivated Irrigated and Rain Fed Areas in Jordan (Average of 2003- 2010)



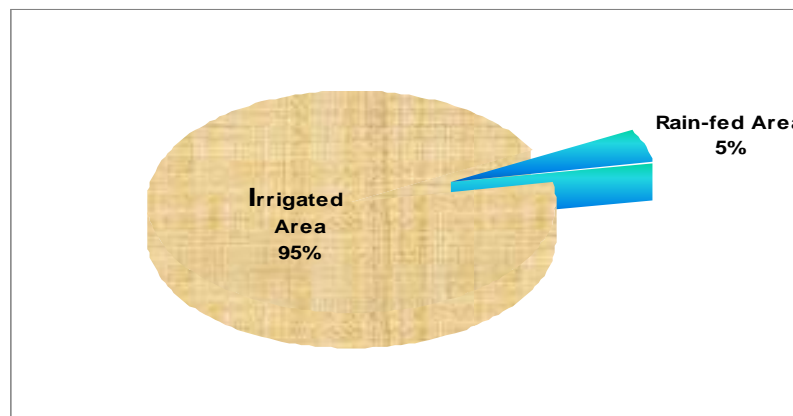
Source: Drawn from (Table 4)

Figure 7 the irrigated and rain fed areas of Fruits in Jordan (Average of 2003- 2010).



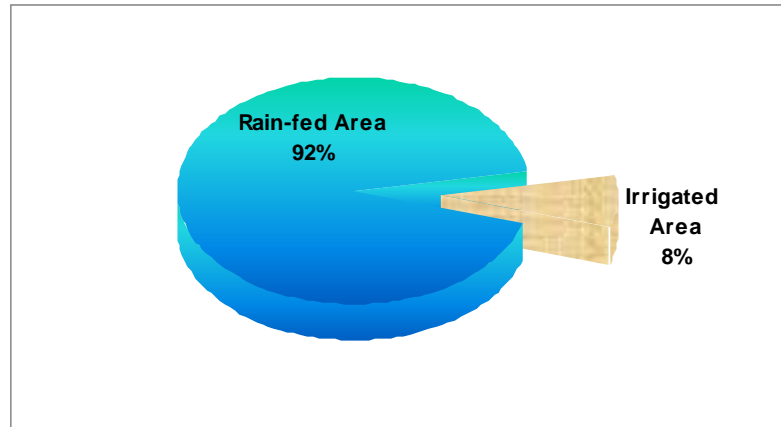
Source: drawn from (Table 5)

Figure 8 the irrigated and rain fed areas of vegetables in Jordan (Average of 2003- 2010).



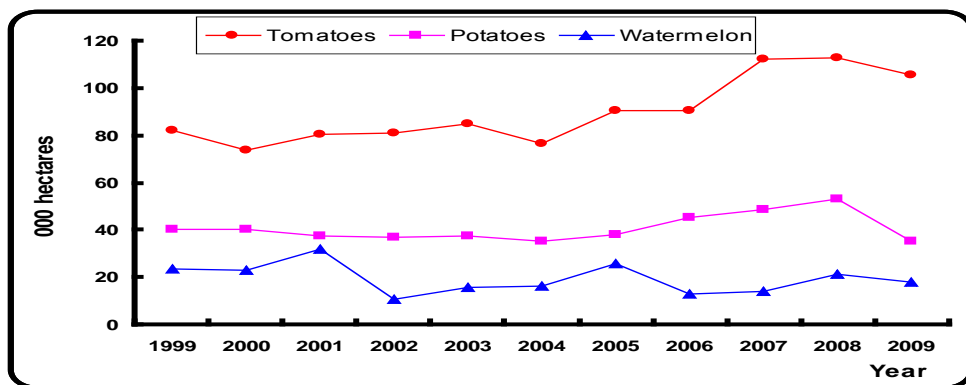
Source: Drawn from (Table 6)

Figure 9 the irrigated and rain fed areas of Field Cops in Jordan (Average of 2003- 2010).



Source Drawn from (Table 7)

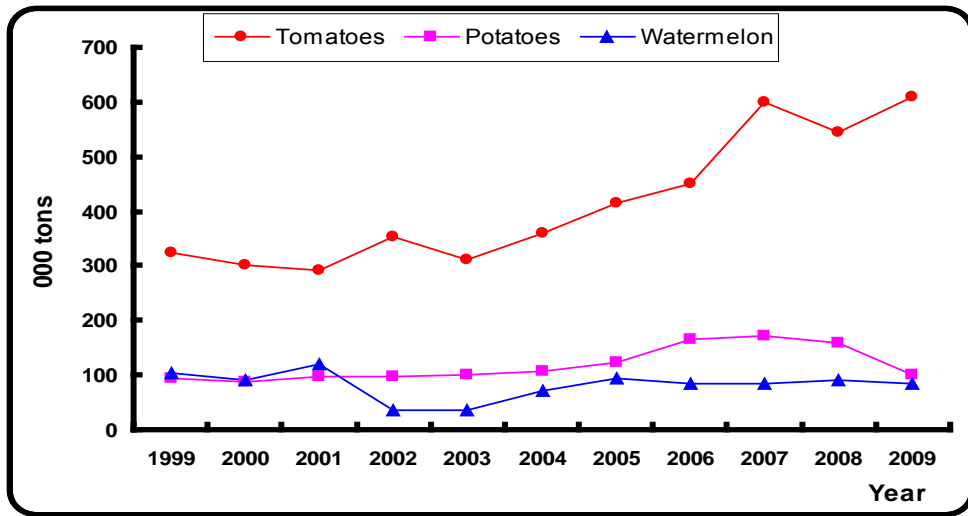
Figure 10 Area of major vegetables (000 hectares) in Jordan during the period 1999-2009



Source: Drawn from (

Table 56 8)

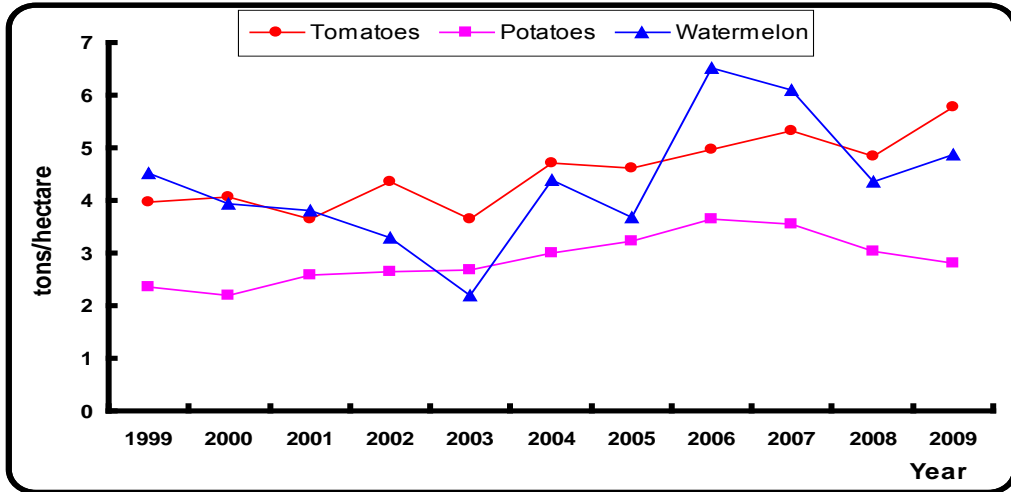
Figure 11 Production of major vegetables (000 tons) in Jordan during the period 1999-2009



Source: Drawn from (

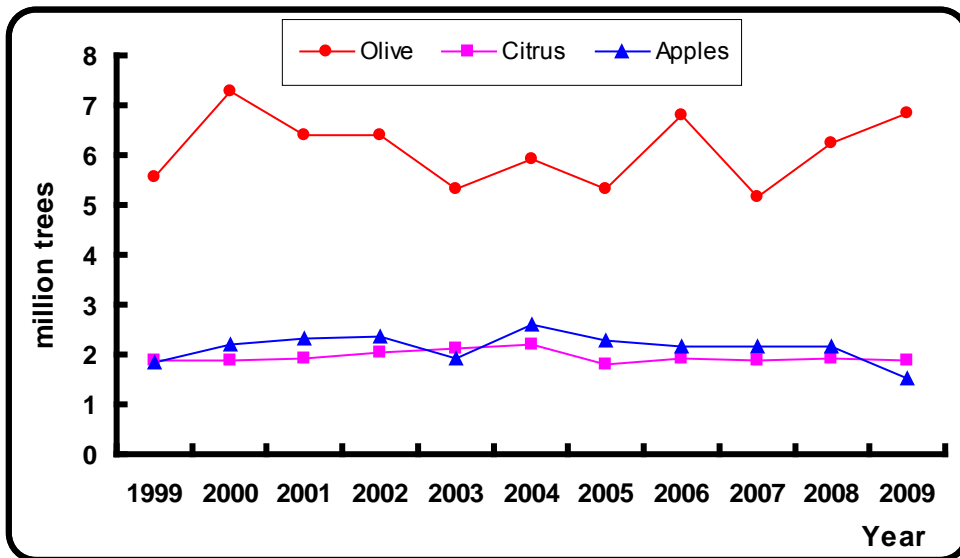
Table 58)

Figure 12 Yield/ Ha of Major Vegetables in Jordan (1999-2009)



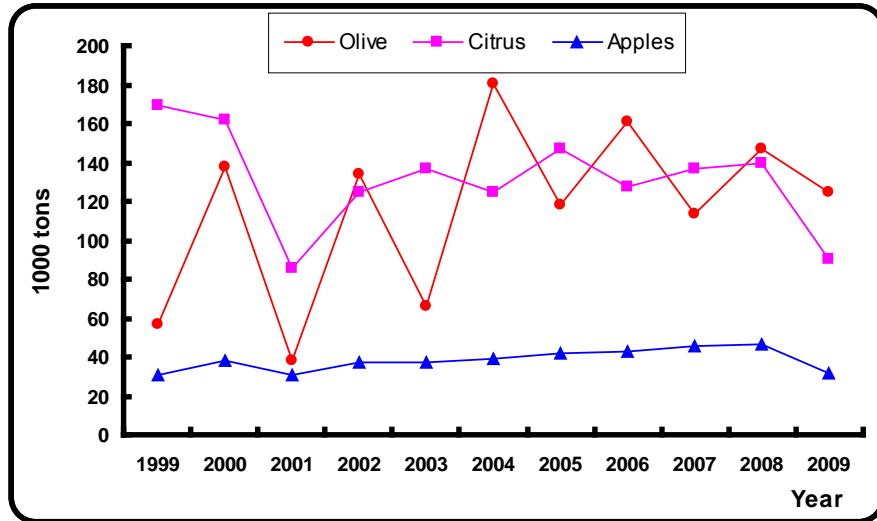
Source: Drawn from (Table 10)

Figure 13 Number of Major Fruit Trees in Jordan (1999-2009)



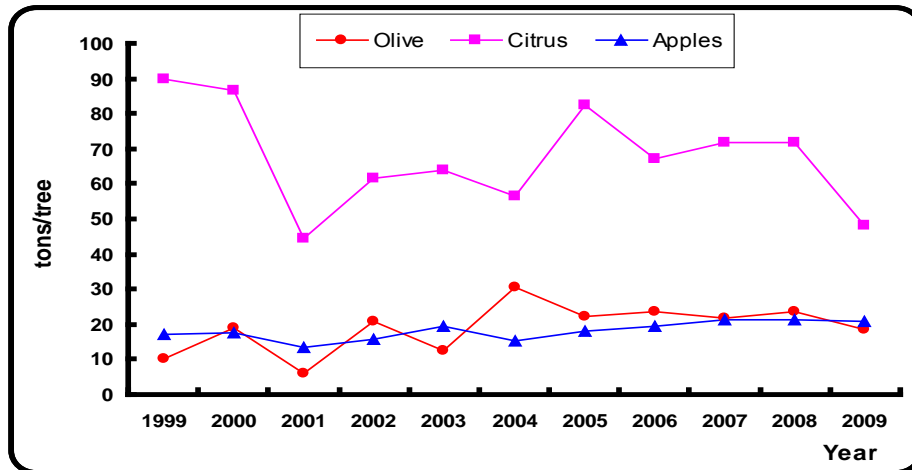
Source: Drawn from (Table 11)

Figure 14 Production (Tons) of Major Fruits in Jordan (1999- 2009)



Source: Drawn from (Table 12)

Figure 15. The Yield/ Tree of Major Fruits in Jordan (1999 – 2009)

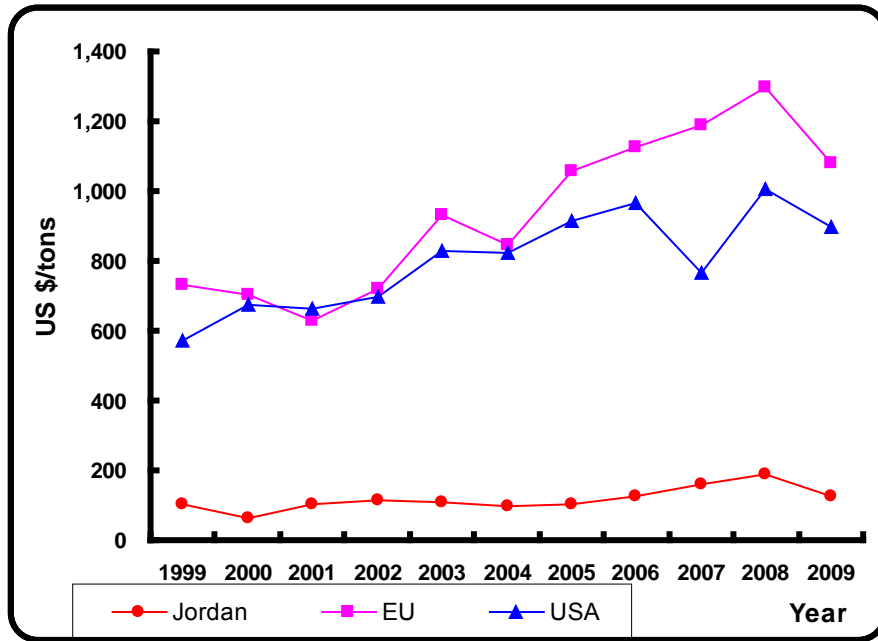


Source: Drawn from (Table 13)

Figure 16 Labor Structure in Jordan in 2009

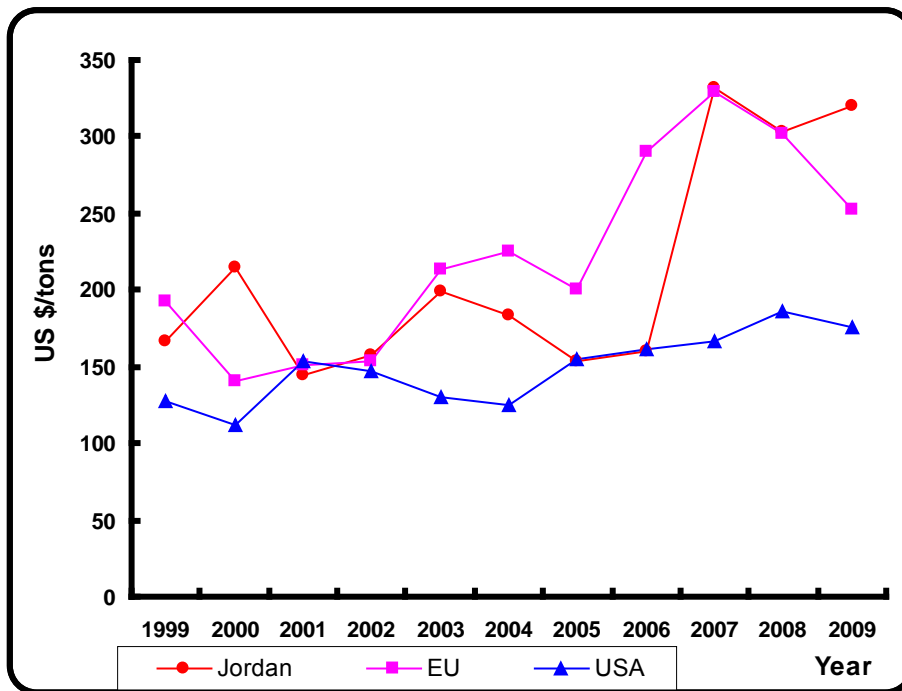


Figure 17 Time Series Trend of Farm Price in Jordan, EU, and USA of Tomatoes



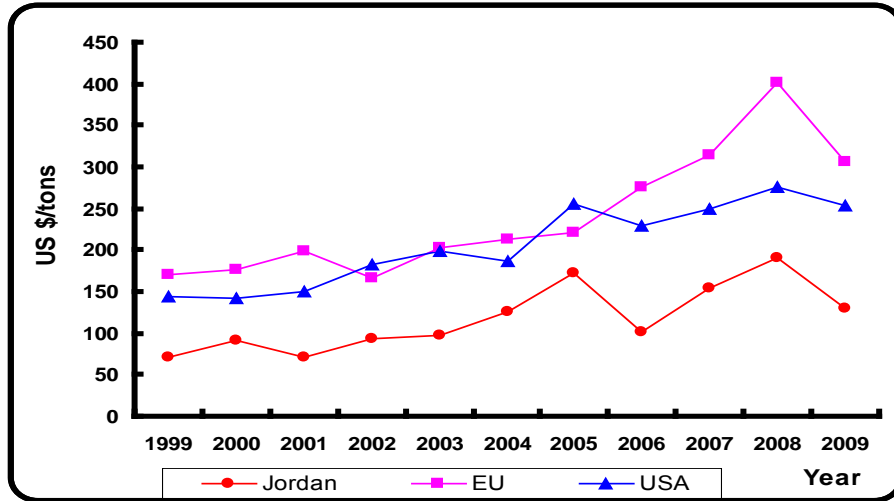
Source: Drawn from (Tabl 31)

Figure 18 Time Series Trend of Farm Price in Jordan, EU, and USA of Potatoes



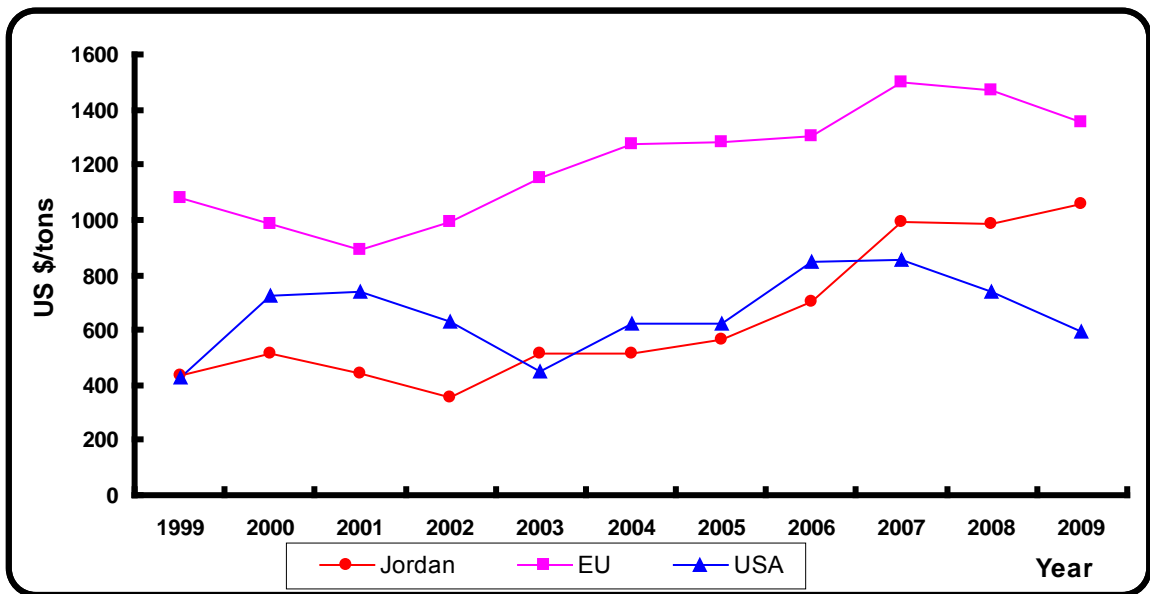
Source: Drawn from (Table 31)

Figure 19 Time Series Rend of Farm Price in Jordan, EU, and USA of Watermelons



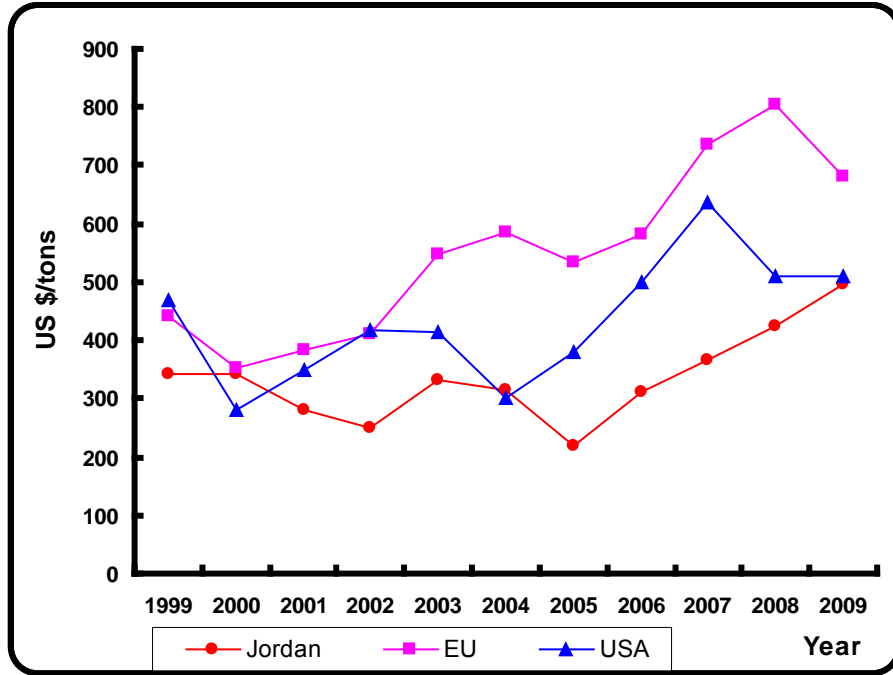
Source: Drawn from (Table 31)

Figure 20 Time Series Rend of Farm Price in Jordan, EU, and USA of Olive



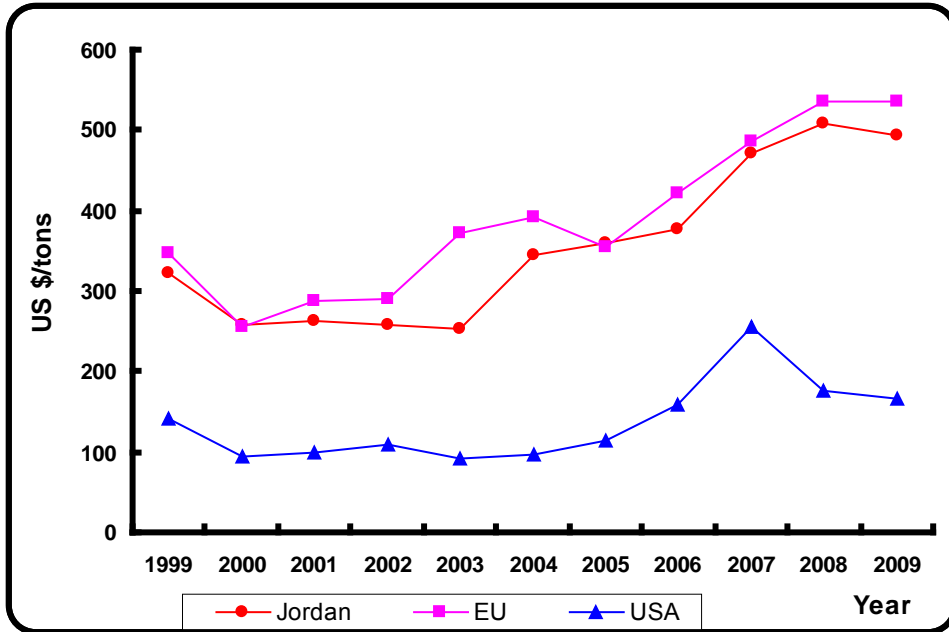
Source: Drawn from (Table 31)

Figure 21 Time Series Rend of Farm Price in Jordan, EU, and USA of Apple



Source: Drawn from (Table 31)

Figure 22 Time Series Rend of Farm Price in Jordan, EU, and USA of Citrus



Source: Drawn from (Table 31)

Figure 23 Jordan's Export Partners in 2008



Source: Ministry of Industry and Trade, Jordan (<http://www.mit.gov.jo/tabid/475/Jordan.aspx>, 2/12/2011)

Figure 24 Jordan's Import Partners in 2008



Source: Ministry of Industry and Trade, Jordan (<http://www.mit.gov.jo/tabid/475/Jordan.aspx>, 2/12/2011).

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National agro-food policies in Libya:

Team of Tunisia

Led by

Boubaker Thabet

National agricultural and food policies in Libya

General background

Libya is located in the Mediterranean basin with a coast of over 1200 Km on the northern side and an area of 1.8 MSK⁸; i.e., more than 11 times the size of neighboring Tunisia, for example; but only about half its population (6 millions). Libya is the fourth largest country in Africa by area. This gives an idea about how large is the country and how low is its population density (4 persons per Km²).

Typically, agricultural activities are limited to the northern strip bordering the coast, plus a number of cultivated spots in hilly areas and oases. Based on soil and climate, one can distinguish four major agro-ecological regions in Libya⁹:

- The costal belt, a narrow plain along the Mediterranean coast with a width of 5-25 Km, extending to about 100 Km on the western side at the Jefara plain, and with an average annual rainfall of up to 200-250 mm,

- Hilly areas, flanking the coastal belt from the south and cover the Jabal Al Gharbi (western mountain) to the west and the Jabal Al Akhdhar (green mountain) to the East, with an average yearly rainfall of 200-300 mm and 250-600, respectively,

- Pre-desert areas, neighboring the hilly areas from the south, and receiving up to 50-150 mm of rain/year

- Desert areas, except for the scattered oases, they are barren desert lands with no potential for agricultural activity with no irrigation.

By and large, Libyan agriculture is confronted with a highly variable rainfall, which is very concentrated in the winter season, thus constituting a severely limiting factor on the growth of plants and therefore on agricultural production. Furthermore, such rain limitation, implying long periods of droughts, along with the depth of the water table (or its absence) put heavy stress on agricultural production in areas of consideration.

Libya is considered a quite arid country as most parts of the country are either semi-arid or arid. Only about two percent of the country's arable lands; i.e., 36000 Km² (or 3.6 million hectares), receive enough rain to envisage cultivation.

Libya has sought to expand its agriculture since the early 1970s; following the 1969 revolution. Its success in this regard has rather been limited despite the heavy public investments that equaled 30 percent of government expenditures in the 1970's. For example, production of cereals in 1998 (207,000 metric tons) met only 15% of the country's needs. Therefore, Libya has been all along dependent on large food imports, estimated at about 75 percent or more of its annual needs.

⁸ Million square kilometers

⁹ Excerpts from ARC Libya-ICARDA Collaborative Program, ICARDA, 2009.

The fate of Libya's agricultural economy has been inversely related to the discovery, extraction, and exportation of petroleum. After the discovery of oil in the late nineteen fifties, agricultural production declined sharply as migration into cities began in earnest. Peasant farmers left in droves for better pay and more opportunities in the new oil economy of the coastal cities.

Before the outbreak of the recent civil war Libya had the highest human development index in Africa and the fourth highest GDP (PPP) per capita in Africa, behind Seychelles, Equatorial Guinea and Gabon. Libya has the 10th-largest proven oil reserves of any country in the world and the 17th-highest petroleum production (wikipedia.org) The discovery of significant oil reserves as early as 1959 and the subsequent income from petroleum sales enabled one of the world's poorest nations to establish an extremely wealthy state.

The Libyan economy depends primarily upon revenues from the oil sector, which constitute practically all export earnings and about one-quarter of gross domestic product (GDP). The discovery of the oil and natural gas reserves in the country in 1959 led to the transformation of Libya's economy from a poor country to one of Africa's richest.

Today¹⁰, high oil revenues and a small population give Libya one of the highest GDPs per capita in Africa and have allowed the Libyan state to provide a somewhat extensive level of social security, particularly in the fields of housing and education. http://en.wikipedia.org/wiki/Libya_-_cite_note-155

Compared to its neighbors, Libya apparently has enjoyed lower levels of both absolute and relative poverty. Libyan officials in the past decade have carried out economic reforms as part of a broader campaign to reintegrate the country into the global market economy.

The non-oil manufacturing and construction sectors, which account presently for about 20% of GDP, have expanded from processing mostly agricultural products to include the production of petrochemicals, iron, steel and aluminum.

Agriculture in the general economy:

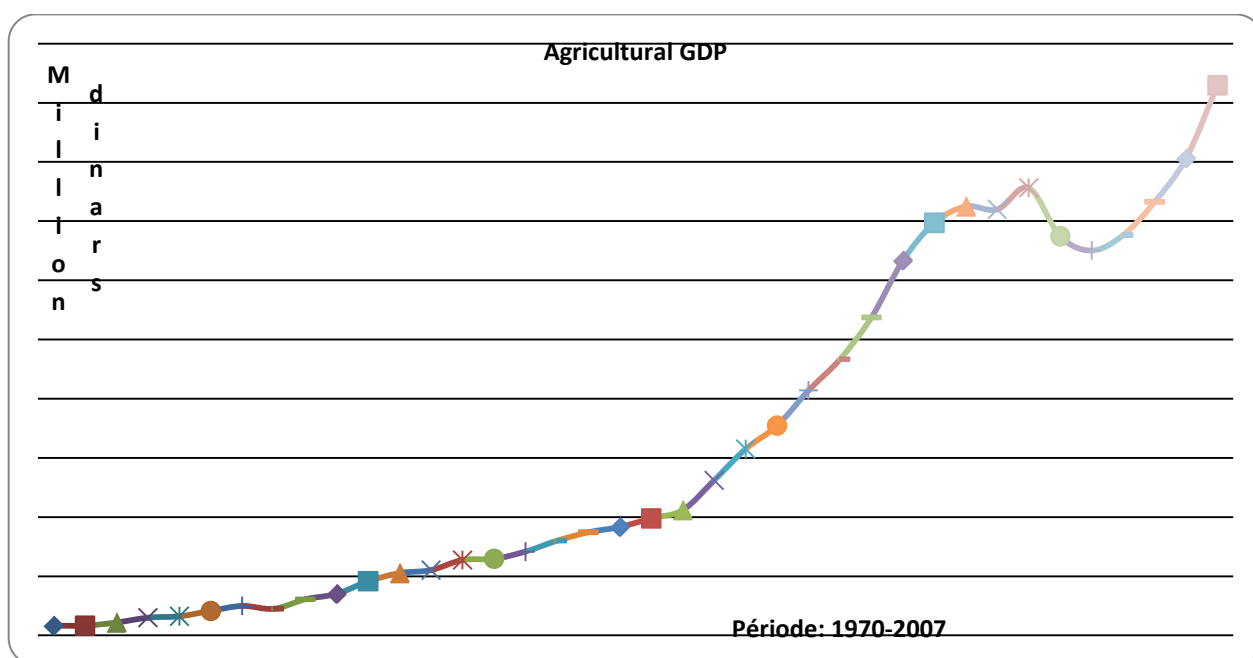
In 1958, just before the beginning of the oil wealth, agriculture contributed over 26 percent of the GDP and Libya actually exported food. This amount tumbled to just 2% by 1978, and fluctuated since to remain presently at about 5%.

In general terms, and unlike neighboring countries, Libyan agriculture is a small contributor to GDP. The primary reason is the predominance of increasing oil revenues. In addition to that, major barriers limit its growth. The very limiting nature of arable land (2% of Libya's area), the scarcity of water resources, the over-use of arable and grazing land and fertilizers, along with the shortage of labor are among the typical explanatory variables for the sluggish agricultural growth in Libya.

¹⁰ At the end of the year 2010

Despite these limitations the current value of agriculture output has grown over the years, as did the general GDP of Libya. This growth has been accompanied though by a continuous depreciation of the currency of the country (dinar) along with a moderate rate of controlled inflation¹¹. In constant monetary and/or real terms, however, the registered nominal growth would be obviously much less impressive.

The graph below shows the steady nominal growth of agricultural GDP in Libya all the way since the seventies, with the exception of the 2 to 3 year drop in the early eighties.



The share of agriculture in the total GDP of Libya has grown much less favorably than nominal agricultural output. On average, during the 70's the contribution of agriculture to total Libyan GDP was on average as low as 2.2%. Later in the 80's that average went up to 3.8% and then surprisingly up to 8.6% during the 90's. Over the last decade that contribution declined to 5.9%. The table below gives the comparable figures for the respective decades.

Agriculture in the general economy of Libya (averages)

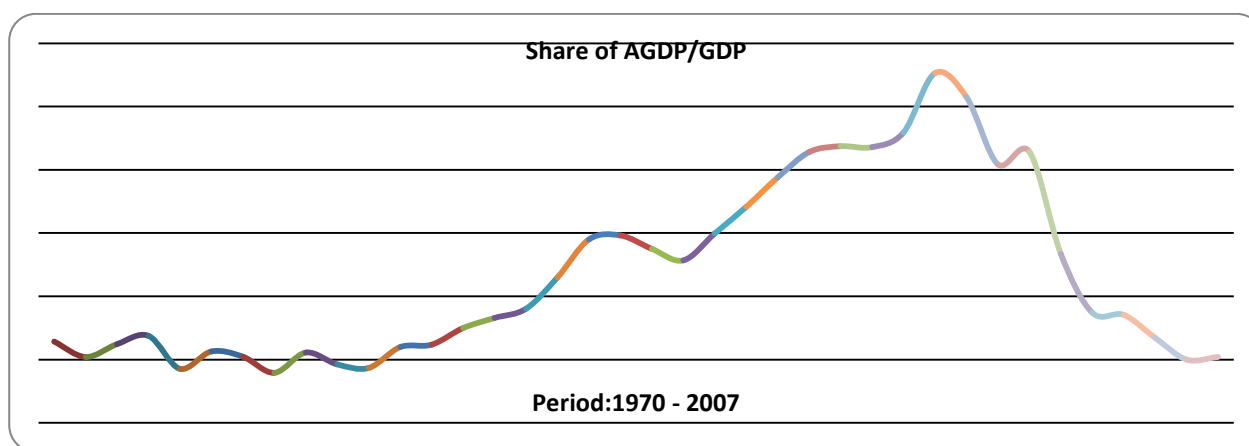
Ite	Periods	Seventies	Eighties	Nineties	Two thousands
Population (000's)		2577.4	3735.7	5025.8	4579.3
GDP (millions of dinars)		3784.0	7880.2	11142.5	36421.0
Agricultural	GDP				

¹¹ As an illustration, during the seventies; the Libyan currency (dinar) used to be exchanged for more than three times the currency of neighboring Tunisia's currency (also named dinar). During the 2010, that exchange rate, while variable according to political circumstances, became almost one to one.

(millions of dinars)	77.0	284.2	978.9	1229.1
Share of Ag. GDP in total GDP (%)	2.2	3.8	8.6	5.9

Source: Libyan national institute of statistics

On a yearly basis, available statistics do suggest however that the contribution of agriculture in Libya had been steady from the seventies all the way up to the early nineties, then grew significantly to exceed the mark of 10% in the year 1999 and then started to decline consistently through almost the present, to about 2% in 2007. The figure below illustrates that evolution.



Agricultural Production

Most arable land is in the Jabal Akhdar region near Benghazi, and the Jefara Plain near Tripoli. The highest parts of Jabal Akhdar receive 400-600 mm of rain annually, and the adjacent area, north to the Marj Plain, receives 200-400 mm. Central and eastern Jefara Plain and Jabal Nafusa average 200 to 400 mm.

These climatic conditions limit Libya's grain production to two main cereal crops: wheat and barley. Furthermore these crops are restricted to just a narrow, rain-brushed ribbon of land (and its adjacent highlands) along the coast, and a few irrigated areas in isolated oases. Cultivation of autumn-sown wheat and barley is made possible because there are two main water sources. First, there are important reserves of shallow groundwater in Tripolitana, along Libya's northwest coast. This source permits significant irrigation. Second, the scant coastal precipitation that does occur fortuitously falls during the winter grain growing season (November through April).

While wheat is the generally preferred food grain by farmers as it is typically grown on better quality land and produces typically about 125,000 tons per year, whereas barley yields just 80,000 tons barley is grown increasingly on larger areas as it is more adaptable to the marginal climate and soils, so it is a popular choice for the Libyan farmer located in the drier agro-climatic zones.

The country's cereal yields are generally paltry due to moisture scarcity and marginal soils. Wheat averages just 0.8 tons per hectare and barley averages around 0.5 tons per hectare. Both wheat and barley are in the end harvested on similar areas of about 170,000 hectares each¹². Other grains produced include less than 10,000 tons of millet yearly, and 2,000 tons of irrigated corn.

Other crops are also grown in Libya. Their average productions are shown in the table below.

Non-Grain Agricultural Production (Metric Tons)	
Potatoes	210000
Onion	180000
Tomatoes	158000
Watermelons	210000
Oranges	3000
Dates	130000
Olives	190000
Source: FAO Statistics for Libyan agriculture production, 1998	

These crops make up about 80% of annual Libyan agricultural production. Most agricultural activities take place mainly along the coastline. In general, inland farming is very limited because of water shortages.

Libya's animal husbandry which includes mainly sheep and goats and to a smaller degree cattle and camels, has suffered from the international sanctions that were imposed on the past Libyan Government during the nineties, thus limiting imports of animal feed on which local livestock activities depend heavily. For example, the production of beef and veal dropped from 22,100 metric tons in 1994 to 2,100 metric tons in 1998. Apart from these imports, the main source of feed is rangeland which amounts to two and a half times the arable land (5%)¹³ but provide a quite variable supply of feedstuffs.

Concerning sea food production, one notices the low annual catch (34,500 metric tons in 1997) despite the richness of its waters in exportable fish (e.g., tuna and sardines). For comparison purposes, neighboring Tunisia which has a Mediterranean coast of a similar length produces about 3 times more sea food commodities.

Low investments in fishing boats, ports, and processing facilities are major obstacles to the growth of sea food production. The country has 1 major fishing port (Zlitan), 1 tuna plant, and 2 sardine factories with small processing capacities (1,000 metric tons per year each).

¹² Planted areas of barley are significantly higher though. Depending on the weather conditions of the year, much of the barley area gets grazed out.

¹³ Together with forests (90000 Km²)

To some extent, these trends of low agricultural performance in Libya are not surprising. The advent of oil wealth provided many Libyan peasants with opportunities to engage in less exacting and more remunerative work in the urban areas, resulting in a huge rural migration to the cities. The large number of people that used to be engaged in agriculture prior to 1960 reflected, therefore, not a thriving agricultural economy but merely the absence of attractive alternatives, particularly in comparison with the oil sector.

Agricultural development programs

The number of peasants who gave up farming to look for jobs in the oil industry and in urban areas rose dramatically throughout the 1955-62 period. Another adverse effect on agricultural production occurred during the 1961-63 period, when the government offered its citizens long-term loans to purchase land from Italian settlers. This encouraged urban dwellers to purchase rural lands for recreational purposes rather than as productive farms, thereby inflating land values and contributing to a decline in production.

Since the seventies the Libyan government had paid more attention to agricultural development. The government has given inducements to absentee landlords to encourage them to put their lands to productive use and initiated high agricultural wage policies to stem the rural-to-urban flow of labor. These policies met with some success. Production levels began to rise slightly, and many foreign workers were attracted to the agricultural sector, particularly from Egypt and Tunisia and subsequently from other African countries.

Agricultural development became the cornerstone of the 1981- 85 development plan, which attached high priority to funding the GMMR¹⁴ project, designed to bring water from the large desert oasis aquifers of Sarir and Al Kufrah. Interest free agricultural credit was provided by the National Agricultural Bank, which in 1981 made almost 10,000 loans to farmers at an average of nearly 1,500 Libyan dinars each. The substantial amounts of funds made available by this bank may have been a major reason why a large number of Libyans, nearly 20% of the labor force in 1984, chose to remain in the agricultural sector.

Agricultural trade

Much of Libya's oil profits have resulted in increased food imports for its growing population. Italy, is by far Libya's largest exporter (about 25% in 2000), with Germany being a distant second at 10%. Exports of truly Libyan agricultural products are nowadays negligible¹⁵.

Despite the greater attention given to agriculture during the seventies and the eighties, however, this sector only accounted for about 3.5 % of GDP in 1984, and Libya still imported over 1 million metric tons of cereals (up from 612,000 metric tons in 1974). Also in 1984, the average index of food production

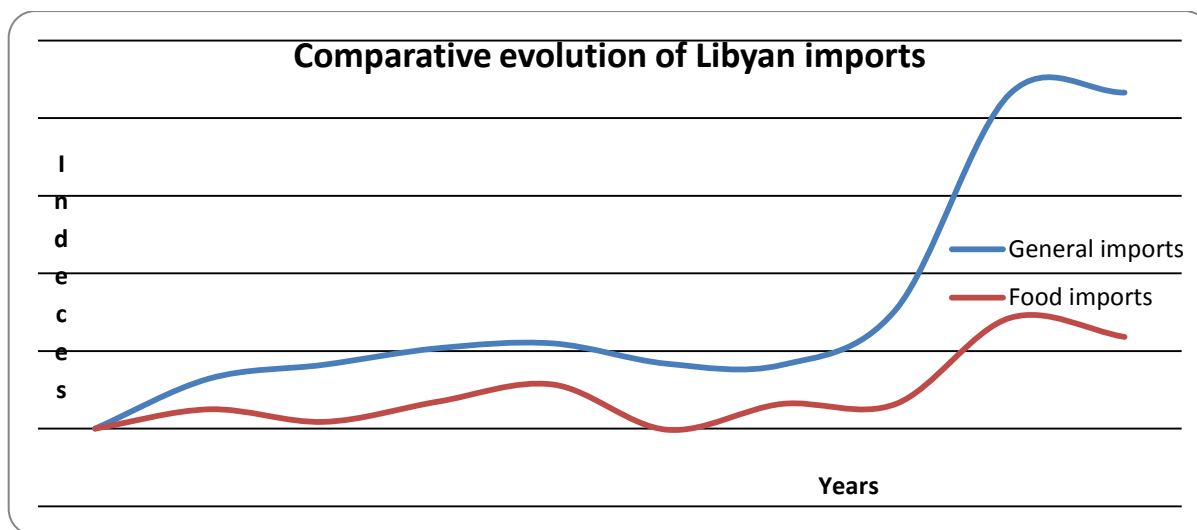
¹⁴ Great man made river

¹⁵ Should there be registered statistics along these lines during certain historical periods, they would in all likelihood reflect re-exported Libyan imports of food commodities.

per capita indicated a decline of 6% over the period 1974 to 1976. On the average, about 70% of Libya's food needs were met by imports during the mid-1980s.

Consequently, Libyan food imports have grown significantly over the years and general imports have grown even more. As a result, the share of food imports in the total import bill has declined from about 33% in 1990 to about 13% in 2003¹⁶.

The picture below depicts the general trend in both general and food import expenditures since the year 1990.



Climatic conditions and poor soils severely limit agricultural output, and Libya imports presently imports about 75% of its food.

On the other hand, trade among neighboring countries was minimal and it did not exceed 2.5% of all Libya's imports. Most of the agricultural trade was with neighboring Tunisia and Egypt with which trade almost peaked just prior the political uprising that took place during the first half of the year 2011.

Physical Landscape

The land in Libya is largely unsuited for agriculture. Ninety-three percent of the country's land is classified as either arid or semi-arid. Four percent is classified as suitable for pasture, at maximum two percent is categorized as arable, and about one percent is forested.

Deserts, principally the Sahara, comprise the vast majority of the country's extent. The desert is predominately comprised of sand, sand dunes, or rock, and all three are agriculturally useless. With the absence of permanent rivers, only small and scattered oases interrupt large and uncultivable areas throughout the country's central and southern regions. The largest and most important oasis is Kufra, in the southeast. It is situated above a large aquifer, allowing for limited agricultural production and several population settlements.

¹⁶ Discontinued data series on Libya prevented from analyzing trends on a longer basis

Irrigated areas and water resources

Water is also a major problem in Libya, with about a third of the population (28%) not having access to safe drinking water in 2000. The Great Manmade River project is tapping into vast underground aquifers of fresh water discovered during the quest for oil, it was intended to improve the country's agricultural output.

As was indicated above, Libya is an arid country with water resources that are not only limited but also poorly distributed both in time and space. Surface water runoff resulting from winter storms is less than 200 Mm³/year¹⁷. Along with direct infiltration from rainfall, water runoff contributes to the recharge of coastal and inland aquifers by an estimated annual volume of 650 Mm³. About 60 Mm³ are yearly accumulating behind dams for direct agricultural, industrial and domestic uses.

Generally, however, surface water represents less than 3% of total water use in the country. Groundwater therefore accounts for more than 97% of water supply for all purposes. Aquifer systems, varying in age, underlie practically all the surface area of the country at different depths that could exceed 1000 meters below surface.

Few of these aquifers are renewable, while those belonging to the great sedimentary basins in the central and southern parts are not renewable at present. Their exploitation is in fact a mining process that takes into consideration both hydro-geological and economical constraints.

The table below shows the available estimate water resources which amount to 3,820 Mm³/year of which 170 Mm³ is in the form of surface water, 650 Mm³ is the annual recharge to groundwater and 3000 Mm³ is the acceptable depletion rate of the non-renewable aquifers. The latter is independently determined for each basin on the basis of its hydro-geological characteristics.

Potentially available water	
(Mm ³ /year)	
Surface water	170
Renewable groundwater	650
Non-renewable groundwater	3000
Jefara Plain	25
Jabal Akhdar	25
Kufra & Sarir	1300
Hamada	150
<u>Murzuk</u>	<u>1500</u>
TOTAL	3820

¹⁷ Mm³: million cubic meters

Agriculture is the major user of the limited water resources in Libya, accounting for around 80 percent of total water use, just as its neighboring country Tunisia. The estimated water balance projected for the year 2025.

Water balance (Mm³)

Year	1995	2000	2005	2010	2015	2020	2025
Supply	3820	3820	3820	3820	3820	3820	3820
Demand	3885	4493	5128	5794	6495	7236	8022
Balance	65	673	1308	1974	2675	3416	4202

When calculated for each of the five regional water basins, the deficit in the water is more pronounced in the highly populated northern plains, namely Jefara, and Jabal Akhdar.

The deficit in the water balance has been continuously growing since the early sixties of the last century. It started in the coastal areas with intensive irrigation and spread southward to include oases, wadis, agricultural project areas and urban centers. The annual drop in water levels varies from less than one meter to over five meters and leads to the dryness of shallow aquifers and their invasion by seawater or surrounding saline water.

Of the total area of 36 000 km² of arable land Libya has, only 2,390 km² that are irrigable to irrigated agriculture; i. e., 6.6%. The Gefara Plain has an underground aquifer, enabling well-driven irrigation. Most farms in the Gefara Plain were irrigated by individual wells and electric pumps, although in 1985 only about 1% of arable land was irrigated.

Since the 1969 revolution a big concern was expressed about land reform, following the Government confiscation of foreign-owned farms (about 380 km²) and their distribution. The state retained some confiscated lands for state farming ventures, but overall, the government has not sought to eliminate the private sector from agriculture.

In 1971, uncultivated land was declared state property. This measure targeted tribes in the Jabal Akhdar claiming large land tracts. Another law in 1977 further restricted tribal groups, emphasizing use in determining land ownership. Since 1977 families receive enough land to satisfy their personal requirements; this policy was designed to prevent large private sector farms and end using fertile "tribal" lands for grazing. Partly as a result of these policies and Islamic inheritance law, which stipulate that each son receive an equal share of land upon the father's death, in 1986 farms tended to be fragmented and too small to efficiently use water. This was especially severe in the Jefara Plain, which has been Libya's single most productive agricultural region.

Falling water tables caused by over irrigation posed a long-term ecological threat. The government recognized this in 1976, and took measures discouraging citrus and tomato cultivation, which require large water amounts. However, the steps required to save coastal water resources; i.e., irrigation regulation and land tenure reform to make it more water-efficient which favored intensive irrigated cultivation of small

plots for family use. Thus, instead of reforming harmful practices, agricultural policy since 1983 focused on pumping water to the coast from fossil reserves in the desert as part of the GMMR project.

Labor market

Many problems still beset Libya's economy however; unemployment is the highest in the region at 21%, according to the latest census figures. Agriculture contributes to the general employment by about 17 percent. Libya posted a 3.3% rate of population growth during 1960-2003. In 2003, 86% of the population was urban, compared to 45% in 1970. Although no reliable estimates are available, unemployment is reportedly acute as over 50% of the population is under the age of 20. Moreover, despite the bias of labor market regulations favoring Libyan workers and the mismatch of the educational system with adequate labor skills and needs, the market demand has produced a large pool of expatriate workers, with apparently better-suited education and higher productivity.

However, because of shortages for manual labor, Libya has also attracted important numbers of less skilled immigrants. Expatriate workers represent an estimated fifth of the labor force. Although significant, the proportion of expatriate workers is still below comparable numbers for oil producing countries in the Persian Gulf.

Foreign workers mainly came from the Maghreb, Egypt but also from Turkey, India, the Philippines, Thailand, Vietnam, Poland, Chad, Sudan, and Bosnia and Herzegovina. Census data for the year 2000 show that the share of expatriates earning over 300 Libyan dinars (US\$230) per month was 20%, compared to 12% for Libyan nationals.

A campaign encouraging conversion of qualified civil servants to entrepreneurs, in the face of public sector over-employment and declining productivity, does not seem to have produced the desired results in view of the economic problems that led to the big uprising that the country has just went through and the economic chaos that subsequently got created.

Agricultural policies in Libya¹⁸

Libya has also begun some market-oriented reforms during the years 2000. Initial steps have included applying for membership in the World Trade Organization¹⁹, reducing subsidies, and announcing plans for privatization. Authorities have privatized more than 100 government owned companies since 2003 in industries including oil refining, tourism and real estate, of which 29 are 100% foreign owned. The following is a retrospective view of past public policies implemented during the past decades since political independence.

- **Policies prior to the 1969 revolution:**

From the beginning, the discovery of oil reserves in Libya has had a direct negative impact on agriculture as most of the labor force fled to oil related activities which were significantly higher remunerative of the human effort and capital than agriculture. As a result, agricultural activities declined in importance and contribution to the general economic output of the country. Planning efforts were made during the fifties and sixties to preserve the historical role of agriculture but with no significant impact on really enhancing it as the oil tide was running against it.

During those years, prices were freely determined by the market with no significant public authority intervention and consumption deficits of various food commodities were imported. So for the most part, Libya was a free market economy all the way through the 1969 political overthrow of the monarchy.

- **Post 1969 revolution policies**

From the start Libya, as many developing nations, set for itself the objective of food self-sufficiency in almost all commodities. While some production sectors performed relatively well during some periods (barley, vegetables, certain fruits and eggs), the objective of self-sufficiency for many other products turned out to be infeasible (wheat, milk, olive oil and most fruits). As a result, Libya has always been a continuous food importer.

In the meantime, Libya got involved in subsidizing most food commodities at the consumption level which boosted the Libyan intake of most food items. Subsidy levels were so high during the eighties and the nineties that many imported agricultural products from neighboring countries and elsewhere were re-exported to their countries of origin. As an illustration, the so called “Libyan markets” everywhere in Tunisia are regularly full with re-exported Libyan imports. They represent an important share of the domestic markets of agricultural commodities in Tunisia.

During the seventies, agricultural policy aimed at supporting producer prices way above international prices, while at the same time subsidizing most agricultural inputs, including interest free

¹⁸ Excerpts from a document titled “agricultural and food policies in Libya” by a Libyan socioeconomics group led by J. Ifhima, 2010

¹⁹ Where it has an observer status

credit. The data contained in the table below give an idea about how big the spread between the national and international price levels was.

Comparative prices for selected commodities (Dinars/ton)

Year	1976	1977	1978
Wheat			
(1) Import price	69.54	51.88	43
(2) Domestic producer price	150.00	150.00	150
Ratio (1)/(2) (%)	46.4	34.6	28.7
Barley			
(1) Import price	72.62	64.15	63.25
(2) Domestic producer price	130	130	130
Ratio (1)/(2) (%)	55.9	49.3	48.7

- **Agricultural policies during the 80's**

Construction of a storage and silo network along with cooling houses and road infrastructure was among the relevant achievements that public authorities realized during that period.

In view of the diagnostic of failure that excessive public intervention led to during the decade before, room began to be given to private entrepreneurs to market their produce themselves and commercialize farm inputs so as to rehabilitate market mechanisms and hope to reduce food shortages.

In so far as pricing policy of agricultural commodities, public support to basic food commodities continued (wheat and barley) along with providing a selection of farm inputs to farmers at cost. A stress was also put on accompanying agricultural research and financing activities.

Despite these efforts, national agricultural production was quite volatile which led to increased imports by about 50% between early and late 1980's.

- **Agricultural market liberalization, beginning 1986**

After many years of public domination over the Libyan economic systems new policies were introduced to promote private initiatives around the year 1987. In 1988 decisions were taken to open up borders with neighboring countries to enhance trade and labor movements. At the same time prices of vegetables and fruits were liberalized. This gave an important push to the development of these crops, particularly in irrigated areas, which had a positive impact on enhancing farm incomes. The development of cash crops was at the expense of cereals however.

To make up for the decline in cereals production, decisions were taken to grow wheat and barley in public projects in irrigated areas. During this period, reliance began on market forces (supply and demand) for most commodities whereas imported inputs were provided to farmers almost at cost.

Towards the end of the eighties, a gradual disengagement process got underway from providing input subsidies and supporting cereal and olive oil prices.

- **Policies during the nineties**

An attempt was made to structure agricultural activities according to regional comparative advantages of the country. Prices of agricultural produce and inputs became market determined. This automatically led to increasing input prices. In a parallel fashion and for food security reasons, Libyan authorities put together a strategic buffer stock program, enough to cover 3 to 6 month needs for most commodities. For this purpose a national institution was put in charge of either buying on the local market when local supply conditions or importing the required stocks

- **Policies during the years 2000**

The willingness on the part of Government authorities to liberalize the economy in general, and the agricultural branch, in particular continued. This got translated automatically into a significant cost price squeeze for farmers as the cost of inputs increased tremendously while the price of outputs were severely challenged by the competition from imports. As result incentives to carry out agricultural activities and much less to invest in the sector were fading away.

These problems were not obviously as visible as they would have been in other countries that are not similarly endowed with oil revenues as Libya.

Concluding remarks

Due to the predominance of oil revenues in the Libyan economy for about sixty years now, and particularly over the past forty ones during which economic policies have pretty much been confounded with pure and erratic politics, the mix and the reading of the agricultural activities along with their corresponding policies, is too complex to be analyzed in a systematic way.

Unlike countries that are not as endowed with natural resources the sale of which could generate direct revenues and where the economic concerns of efficiency in the allocation of resources could make the difference in terms of overall economic performance, Libyan policies have been overshadowed by political concerns of their past Governments.

Changes in public policies, particularly as regards opening up the country's borders to trade, were so frequent and so dependent on the political mood of the moment and the special relations of its Government with those of other and neighboring countries that no clear pattern could be identified and described.

One thing is clear however, had it not been for the sudden oil profits that the Libyan economy was able to reap over recent decades, the macroeconomic situation of Libya would be completely different today. Whether the welfare of the Libyans in general be higher, is hard to say.

In general it is safe to say that the performance of the agricultural and food sector in Libya has been over the past 40 years anything but stable and consistent. It is clear that the big factor explaining such instability is the availability of abundant financial resources generated by petroleum export earnings which together with the lack of political democracy pushed its past Government to extreme economic arrogance and neglect of basic economic principles going from introducing and changing economic policies as they pleased, opening and closing the country borders with neighboring countries according to their mood of the moment.

Hence economic performance of the agricultural sector not only was it erratic but was also relegated to minimal relevance. With the change they have had now, as part of the so-called Arab spring movement, it is expected that the economy of Libya will be based on a new and more predictable paradigm the aim of which would be a better use of the oil revenues, no doubt, but also a better reliance on the growth of the agricultural sector

Libya: Agricultural sector performance

Periods	GDP	AGDP	Growth rate	Share of AGDP/GDP	Population	GDP per capita	AGDP per capita
Average 70's	3784,0	77,0	11,8	2,2	2577,4	1387,3	28,5
Standard deviation	2105,6	36,8	16,0	0,4	402,0	596,1	9,8
Coeff. of variation	55,6	47,8	135,8	17,5	15,6	43,0	34,4
Average 80's	7880,2	284,2	0,1	3,8	3735,7	2146,2	75,3
Standard deviation	1381,8	71,3	0,1	1,5	320,5	547,2	13,6
Coeff. of variation	17,5	25,1	68,2	39,8	8,6	25,5	18,1
Average 90's	11142,5	978,9	0,1	8,6	5025,8	2207,5	193,0
Standard deviation	2173,6	363,7	0,1	1,8	257,6	339,4	64,9
Coeff. of variation	19,5	37,1	43,0	21,5	5,1	15,4	33,6
Average 2000's	36421,0	1229,1	4,3	5,9	4579,3	6387,7	219,5
Standard deviation	25078,5	528,8	13,6	5,9	2343,4	4260,8	86,2
Coeff. of variation	68,9	43,0	312,6	99,8	51,2	66,7	39,2

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National Agro-food policies Morocco

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Introduction

In Morocco, agriculture and food policy aims at covering food needs of the population while improving producer's income, opening the economy to the world market as well as protecting environment and natural resources. In fact, higher food prices in the world market during the years 2007 and 2008 had a direct impact on the domestic market of the essential commodities. Such circumstances raised again the question of the old concept of food self-sufficiency. The challenges include how to set various productive methods to protect the economy from the supply volatility and foreign prices fluctuation.

Taking into account the effects of trade liberalization and climate changes around the world, Morocco is expected to redefine its priority areas on food sector and agriculture. Therefore, the country has set up the "Green Morocco Plan" which aims at strengthening the role of agriculture as an engine of economic development for the next 15 years. Policymakers have given more attention for 'strengthening the competitiveness of the agricultural sector and achieving food security which required active promotion to grasp more investment'²⁰. Thus, the path is traced politically. It remains to precisely identify the priority needs related to food security, with consideration of the current situation and its expected action plans.

This report is intended to fulfill the task2 of the Sustainmed Work Package2 (Review of national and international agro-food policies and institutions in the Mediterranean Region). It firstly give a description of the Moroccan agro-food sector (Section 1). Section 2 describes the current agricultural and food policies. Section 3 reviews the trade patterns in Morocco. The future prospects regarding the main agro-food policies outlook are reported in Section 4.

²⁰ Statement by the Minister of Agriculture and Maritime Fishing, on the occasion of the convening of the meeting of the Maghreb Ministers of Agriculture in Marrakech October 29, 2009.

1. Description of the agro-food sector

Agriculture is considered one of the main pillars of the Moroccan economy. Its contribution to the GDP lies between 12 to 17% (14.5% in 2009) and can grasp almost 40% of the workforce for employment. The total agricultural area is about 9 million hectares of which nearly 85% are cultivated in rained production system. Irrigated agriculture is practiced in about 1.4 million hectares and in average contributes to 45% of the value added of the agricultural sector.

Incentives for investment in agriculture are mainly grants and subsidies provided by the State under the Agricultural Development Fund (ADF). The main components of the State intervention are farm equipment mechanics, soil amelioration and hydro-agriculture management, animal production intensification, agricultural products valuation and struggle against climatic hazards including drought. Moreover, the agricultural sector enjoys a tax exemption on income until 2013.

1.2 Main agricultural commodities

During the crop year of 2008-09, the climatic conditions were considered good for most areas of production. The average rainfall recorded a national roll of 545 mm against 357 mm in normal years (average age 30). The most important areas of rainfed agriculture represented by the plains of Sais, Chaouia, Haouz, Doukkala and Tadla enjoyed a surplus rainfall ranging between 33% and 92% compared to the normal average. Irrigated areas have also performed well with water supply readings in the dams for agriculture estimated at just over 6 billion m³, or 65% over the previous year. The effect on the level of grain production - which is the best indicator of performance of the agricultural sector - has been very positive with record sown. It is the same for other productions which have also recorded satisfactory results overall (CGDA, 2011).

1.2.1 Crops

Cereals are the major crops of the production system in the country. They annually cover nearly 60% of the total acreage, an area of about 5 million hectares. Barley remains the most widely grown cereal with nearly 42% of cereal area, followed by soft wheat (38%) and durum wheat (18%). The level of grain production is strongly linked to the climatic conditions, especially rainfall. Yields per hectare are relatively low with an average of 15 quintals for soft wheat, 13 quintals for durum wheat and 10 quintals for barley. For the agricultural campaign of 2008-09, which has been marked by optimal rainfall, the production of the three cereal species reached 4.5 million tons, 2 million tons and 3.7 million quintals respectively (Table1).

As for pulses, their acreage has reached 380,100 hectares in 2008-09. The bean is ranked first with 46% followed by chickpea (20.2%), lentils (13.5%) and peas (9.6%). Total production is estimated at 310,000 tons. It should be noted that the production of pulses has remained relatively stable over the past 10 years around 250,000 T but with higher levels during the years of good rainfall.

For sugar crops, the cultivation of sugar beet covers around 60,000 ha in the last ten years. In 2008-09, the area was relatively limited and the main reason was the bad weather that occurred early in the season. Indeed, the abundance of rain that fell in planting season especially in the Gharb region was reflected in a negative way about the possibilities of access to land.

Unlike the fall of the area (55,000 ha), yields have increased by almost 8% to 55 T/ha. With this performance, total production reached 2.8 million tons against almost 3 million tons in 2007-08, down by nearly 7.7%.

As for sugar cane, its total area averaged 18,000 hectares annually. But, it fell 7% to 15,700 ha in 2009. The average yield amounted to 69.5 t/ha that allowed to harvest close to 920,000 T.

For oil crops, we have to distinguish between olive oil production and that of oilseeds. Since 1995, the area

covered by the olive tree has grown by an average of 10,000 ha to 680,000 ha during the 2008-09 campaign. This extension is mainly due to the intervention of the Agricultural Development Fund (ADF) grant for olive plants of different varieties at a rate of 80% of the purchase price. Production is estimated at 850,000 t which allowed processing nearly 85,000 t of olive oil and 100,000 t of preserved olives.

On the other hand, the achievement of sunflower area record depends on the weather and especially the spring rainfall. During the past decade, it peaked at 118,000 ha in 1997 allowing the collection of 85,000 T. In 2008-09, the weather conditions for the installation of fall crops (cereals in particular) early in the season contributed greatly to the increase in area of spring crops including sunflower which registered 63,750 ha acreage. Average yields are generally low and rarely exceed 1.5 tons/ ha. In 2008-09, yields were 1.33 T/ha and lead to harvest nearly 60,400 tons.

The average area reserved to vegetable crops is nearly 250,000 ha in the last ten years. It reached 267,000 ha in 2008-09, representing an increase of 5% compared to 2007-08. The potato, onion and tomato are the main species with respectively about 60,000 ha, 30,000 ha and 17,000 ha. Total vegetable production, taking advantage of good rainfall year, reached nearly 7.3 million tons in 2009, an increase of 6% over the previous year. Nearly 76.5% of this production corresponds to the season crops while the rest is for early crops (20%) and for agro-industry crops(3.5%).

Season crops have covered almost 229,000 ha against 217,200 ha the year before. They concern a wide range of vegetable species dominated by potatoes with 25.7% of total production followed by melon and watermelon (23.5%), onions (15.5%), carrot and turnip (7.7%), tomato (6%) and green beans (5%).

Early crops are mainly represented by the tomato with 20% of the total area and 48% of the harvested production. Area and production of other export-oriented crops are increasing, namely the green beans, peppers and zucchini. Agro-industry crops are dominated by tomato and sweet pepper (*Niora*) with a production share of 88% and 11.7% respectively.

The tree crops area covers nearly 1.1 million hectares or just over 11% of the total UAA. It has increased in average by nearly 20,000 ha each year between 1995 and 2009. The olive tree is by far the most dominant species as it covers almost 65% of the area tree (680,000 ha). The area occupied by the almond tree is second with 146,000 ha followed by that of citrus with nearly 92,000 ha. The viticulture sector covers nearly 50,000 hectares while the area occupied by the Rosaceae crops (other than the almond) and seed amounts to 60,000 ha.

The level of fruit production varies from year to year depending on weather conditions and from one species to another depending on technical conduct and sensitivity to the phenomenon of alternation. Obviously irrigated crops such as citrus, pome Rosaceae, plum and apricot highlight some regularity in production. Instead the olive, almond and vine crops that are mainly conducted in rainfed areas show varying levels of production and are more difficult to control by the producer.

For citrus fruits, total production increased by 3% to around 1,3 million T instead during the 2008-09 campaign. This increase is mainly due to the production obtained in the region of Souss Massa with 12% more than the previous year, mostly from oranges.

During the 2008-09 crop year, production of Rosaceae fruit has reached 831,000 T with an estimated increase of almost 9% over the previous year. This increase is mainly due to the production of plums (17%), peaches and nectarines (14%), apricots (18%) and apples (21%). The production of the almond tree has remained stagnant around 25,000 t of kernels.

With regard to the vine, the harvested tonnage amounted to 288,000 t of which 73% of table grapes and 27% of wine grapes. While weather conditions have contributed to the increase in production recorded over the past years (2004-08), we note also the improvement of the production process adopted by

growers. Indeed, most of the growers have made great efforts in conducting this crop using drip irrigation and proper reasoning fertilization and phytosanitary treatments.

1.2.2 Livestock

Table 2 shows the evolution of major animal products between 1985 and 2009. In 2009, the red meat production totaled 425,000 T thus registering an increase of 6% over 2008. This increase is due to livestock restocking following good weather conditions that prevailed during 2008-09 campaign and that would have led many breeders to limit their sales. For the period 2005-09, beef takes an average of 44% against 30% and 5% respectively for sheep and goat meat. The rest is compound of offal and camel and equine meat.

Poultry meat production registered a steady increase since the early 1990s because of the rapid development of the poultry industry. In 2009, production increased to 490,000 T or 363% and 136% over 1985 and 2005 yield respectively. Poultry farming has also produced nearly 3.9 billion eggs. This quantity is relatively stagnant since 2007, probably because of saturation of the market demand.

Milk production is estimated at nearly 1.96 billion liters produced mainly in irrigated areas of the country. It recorded a relative increase compared to 2008 but very significant compared to 1985 (359%) and 1995 (236%). This performance is largely due to efforts that have been made to improve milk production within the Dairy Plan launched by the Ministry of Agriculture in 1975. It should however be noted that despite these efforts, the level of production initially projected 2 billion liters in 2000 was not met at this year. The poor performance of livestock, erratic weather conditions and problems of professional organization are the main problems identified in this regard (Ait El Mekki, 2007).

1.3 Agricultural sector structure

According to the results of the last general census of agriculture (*Recensement Général de l'Agriculture*) undertaken in 1996, Moroccan agriculture is practiced by 1,496,349 farms covering a total Utile Agricultural Area (UAA) of 8.7 million hectares (Table 3). Units of less than 5 ha represent 71% of the total number and occupy only about 24% of the total UAA. Those who occupy the largest part of the area (43.2%) have a size laying between 5 and 20 ha and account for 25% of the total. The large estates (> 100 ha) cumulate 8.7% of the UAA even if their number is limited to 3182 farms, an average of 238.65 ha UAA per unit. This imbalance in the structure of agricultural land Moroccan is a serious handicap to development of effective land tenure.

To overcome such constraints, successive governments have responded by implementing sector programs that aim to improve the performance of farms, particularly through the launch in 2000 of the Rural Development Strategy 2020. Since then, structural policies related to agriculture and food sectors continue their focus on investment incentives in primary production as well as in processing and marketing steps. Such a policy choice has been strengthened during the last three years in the public goal of modernizing production systems capable of competing with foreign markets. The measures taken in this regard are largely funded by the state budget. The actions are increasingly conducted within the framework of integrated projects that are developed on the basis of a partnership management. In addition to investment incentives, they concern the development of agricultural land and land tenure.

Besides, land tenure in Morocco shows that the property status is for 76% of the total UAA. The remaining area is allocated to the collective land (17.7%), *Guich* land ceded to the tribes who used to fight in the favor of Moroccan Sultans (2.8%), *Habous* which is the land of religious brotherhoods (0.6%) and land that belongs to the state (3.1%) (Ministry of Agriculture, 2007). Except the property status, the common factor in other statutes is that the beneficiaries are just profiting from the usufruct right. Therefore, those land statutes rise serious problems that limit the investment incentives to improve production systems within farms that are mostly of small acreage because of heritage considerations.

Since 2005, the authorities have continued to encourage the appropriation of usufruct land. Thus, for the collective land and Guich located in irrigated areas, land policy continues to encourage the ownership by the beneficiaries. For the state lands, the commitment of public authorities is even more explicit for the acquisition of farms that were under cooperative agrarian reform status. Indeed, with the publication of laws and decrees concerning the consolidation of ownership in the Official Gazette, the liberalization of land reform is being completed. For beneficiaries, it is now conditioned by the payment of the purchase price of the lots and the removal of the mortgage to the State.

On the other hand, the development of agricultural land is intended to improve efficiency of the agricultural land both in irrigated and rainfed areas. For irrigated areas, the Ministry of Agriculture has maintained and strengthened its efforts to extend and rehabilitate irrigation schemes. In 2009, these efforts have been realized, through the start or completion of works on over than 140,000 ha (Ministry of Agriculture, 2011).

Similarly, the rehabilitation has involved areas that are part of integrated development projects focused on small and medium irrigation (*Développement Rural Intégrés sur la petite et moyenne hydraulique, DRI-PMH*). In this regard, the rehabilitation of perimeters located in the provinces of Khénifra, Azilal and Haouz has exceeded 11,100 ha, set in with an integrated development approach targeting the local population.

1.4 The agro-food industry

The manufacturing sector has a great importance in the country's economic structure. In 2009, industry accounted for nearly 31.5% of GDP while business services and primary sectors accounted for 50% and 18.5 % respectively (Ministry of Finance, 2011). Small and medium industries (SMIs) represent 93% of the total workforce and achieve 36% of the total industrial output. They are involved in nearly 26% of exports and employ 45% of the overall industry.

During the year 2008-09, the agro-food industry (AFI) was ranked at the second range in terms of its contribution to industrial GDP, reinforcing the country's agricultural vocation. Indeed, the share of AFI in total industrial value added varies between 30% and 35% (Table 4). Together, the AFI and the chemistry and special chemicals sector annually account for two-thirds of this value.

The AFI sector focuses mainly on the domestic market with the flow of nearly 80% of total production, the rest is exported. The products that supply the domestic market are import substitution, such as flour, oil seeds, sugar and milk while fish products and canned vegetables and fruits are export oriented.

1.4.1 Structure and economic importance

In 2009, the AFI accounted nearly 2013 companies that have contributed 30.2% of total value added of industry and nearly 5% of GDP, with 95257 employment (Table 5). In the same year, investments in this sector are estimated at over than 3.7 billion dirhams, or about 15.4% of total industrial investment (Ministry of Industry and Trade, 2011).

The share of the AFI production reached 32.9% of the total industrial production. It meets the needs of the country in processed food products at annual rates ranging between 70% and 100%. The value of food exports reached 17.2% of the industrial exports. Thus, in spite of the informal sector, also of significant importance, the agro-food industry plays a leading role in promoting the activity of transformation and the valuation of agricultural products in Morocco.

The analysis of the overall structure of the AFI shows the large share of small and medium industries (SMIs) which account for up to 95% of total agri-food companies but for only 28% of the value added of the sector. Nevertheless, the analysis of the evolution patterns shows relatively better performance for the AFI structure relative to the manufacturing industry as a whole especially in terms of added value.

1.4.2 Performance of food processing industries

Table 5 and table 6 present the economic magnitudes of the various branches of the food industry. The companies are among the most numerous in the grain processing sector which constitute 54% of the total. Their contribution to the added value of the AFI remains low and does not exceed 4.5% in 2009. The tobacco industry, which is a monopoly, emerges as the largest contributor to the AFI value added with a share of 34.6%, or about 8.1 billion dirham. The beverage industry, dairy and fish industries have a contribution to the value of between 10% and 16.5%. The other branches such as fats, fruits and vegetables and the meat industry show smaller shares not exceeding 9% each.

As for exports, the tobacco industry, the fish industry and the canned fruits and vegetables industry generate the biggest earnings recorded in the trade balance with almost 90% of food exports. The fish industry is, however, the largest with nearly 67.5% of these exports in 2009. These performances are probably set to grow with the gradual opening of the Moroccan economy either through bilateral agreements (in particular with the EU and the U.S.) and multilateral agreements between Morocco and its trading partners within the World Trade Organization.

2. Current agricultural and food policies

Agriculture and rural development are strategic issue for Morocco given its importance for the economic development of the country. Currently, the government policy aims at strengthening human and physical resources that are needed to reach the goals of the 2020 strategy for rural development. The overall vision is quite remarkable, it deals with a couple of key instruments including the Agricultural Development Fund (ADF), the Green Morocco Plan (GMP), the National Strategy for Development of Water Sector, the Fisheries Plan, the environmental policy, the agro-food industry and distribution incentives and the consumption support policy.

2.1 Agricultural development incentives

In 2009, the investment budget of the Ministry of Agriculture amounted to 5653 million dirham, which is 120% greater than 2008 budget (Table 7). This increase is particularly due to the setting of the Morocco Green Plan activities from the second half of 2008. Incentives for investment in agriculture are mainly grants and aid granted by the government through the Agricultural Development Fund (ADF). The main components of intervention are the machinery equipment of farms, land and irrigation schemes improvement, intensification of animal production, development of agriculture and the fight against climate hazards, the drought in particular (Ministry of Agriculture, 2011).

In 2008, the amount of grants and premiums totaled nearly 1595 million dirham (Table 8). This amount increased by 75% compared to 2007 due to a revaluation of 76% for grants. Of a total of nearly 1393 million dirham subsidy, the share of hydro-agriculture (including drip irrigation which is granted 60% to 100% and land improvements amounted to 41.1% with an increase of almost 130% over 2007. It is followed by that of the equipment of farms (35.8% of the total grants), livestock intensification (9.3%), use of improved cereals seeds (7.1%) and the promotion of agricultural exports (4.4%).

As regards the premiums granted to producers, equipment for livestock is the main component of the ADF budget with 70.2 million dirham in 2008, nearly 48.5% of the awarded total. Crop trees development is second with 35.7 million dirham premium. Citrus, olive trees and date palms are the most targeted and producers can benefit from an installation orchards premium that varies between 1800 and 7800 dirham per hectare. The total premium paid on the purchase of tractors fell by slightly more than 88.5%, which is contrary to the expected objectives in terms of mechanization of farms. Such an observation has

contributed to upward revision of subsidies to producers for mechanical equipment and irrigation equipment from 2008.

Other ADF interventions are part of the government efforts against natural hazards. The main actions in this regard relate to support for agricultural insurance to secure grain production, the backup and protection of livestock during drought and locust control. In 2009, commitments granted by the FDA for these actions amounted to almost 380 million dirham.

In addition to the benefits granted under the FDA, the Moroccan agricultural sector continues to be exempt from income tax until 2013. Although the deadline approaches, the discussion around the subject of tax exemption does not appear in the agenda and nothing can prove or disprove its continuation beyond that date.

2.2 The Green Morocco Plan

The Green Morocco Plan (GMP) is the instrument for implementing a new agricultural development strategy which aims at enabling the agricultural sector to better appreciate its potential to meet new socio-economic challenges. For success implementation, the philosophy of GMP is based on the strategic foundations that govern its design and implementation, namely (Hajjaji, 2009)²¹:

- Its role as a tool for economic growth in the next 10 to 15 years;
- The use of aggregation as a tool that will encourage the philosophy of commodity value chain integrating production, commercial and industrial activities;
- The encouragement of private and public investments targeting an annual goal of 10 billion dirham for the targeted projects;
- The adoption of the contractual approach between various operators including the government;
- The protection of natural resources for sustainable agriculture through the preparation of special programs with The Global Environment Fund (GEF) and the Hassan II Fund for Economic and Social Development;
- The new management rules regarding land tenure policy, water policy, tax policy and the functioning of the domestic market.

For its implementation, the GMP has launched a device that causes radical changes which are realized through:

- The development of regional agriculture plans (RAPs) and the creation of regional agriculture directorates (RAD);
- The restructuring and strengthening the functions of chambers of agriculture;
- The restructuring of the Central Services at the Ministry of Agriculture via the promising comprehensive renovate of existing management partner and the creation of new directions for focused duties;
- The creation of the Food Safety Office (FSO);
- The creation of the Agricultural Development Agency (ADA) as a tool for the implementation of GMP;
- Wrapping up of program contracts with practitioners to ensure better co-pilot of the main agricultural sectors.

In fact, the GMP provides the implementation of 1500 projects for the entire investment estimated to 147 billion dirham in 10 years. All of these projects would benefit all farmers in the country through two pillars located at the center of its strategic vision. The first pillar represented via modern agriculture with high value added practiced by the farms in irrigated areas and areas with favorable rainfall (560,000 farms). The

²¹ Hajjaji A. (2009), The Green Morocco: Strategy and Implementation. Agricultural Development Agency.

second pillar is called “solidarity agriculture” which is located in mountains areas, oases and unfavorable rainfall areas (840,000 farms).

The socio-economic challenges of GMP are numerous and interrelated. Certainly, this plan creates enormous expectations regarding the creation of employment, the promotion of investment in agriculture and improving incomes of rural communities. Its relationship with food security is obvious through its objective to reduce the rate of poverty especially in rural areas, improving the purchasing power of consumers and increasing the availability and quality of food consumed at affordable prices. The last point is important for the recent crises in the international market which interpreted in the booming of essential commodities prices.

Thus, awareness has been expressed by both the government and the private sector in the interest of national production to fulfill the country needs. The fluctuation of international market prices and the unpredictable supply behavior are creating special conditions that lead to keep the concept of food self-sufficiency as fundamental. In this regard, the GMP is encouraging domestic production of major agricultural crops. To do so, the government signed with the professionals special program contracts (*contrats-programmes*) to reactivate and improve the socio-economic performance of the key agricultural sectors such as cereals, sugar, olive oil, red meat, poultry, milk, vegetables, citrus fruits, date and seeds²².

The production objectives of major sectors as they occur in the contracts in question are reported in Table 9. For the grain sector, the program contract is securing an output of 7 million tons in an area of 4.2 million hectares in 2020, which would directly yield an average of nearly 1.7 T/ ha instead of 1 to 1.5T/ha at the present. The expected economic results should be translated into an increase of the production value of 20 billion dirham and import reduction of 15 % to 20%.

For the red meat sector, the program contract addresses for increasing production by 16.6% from around 386,000 T to 450,000 T in 2014. Thus, consumption per person will pass from 11.7 kg to 13.4 kg respectively and can reach 15 kg in 2020. These quantities are still relatively low compared to developed countries (35 kg per person as an average).

Regarding dairy sector, the objective of the contract program aims at aligning its productive performance on the international standards. Thus, milk production should increase from 1.7 billion liters in 2008 to 3 billion liters in 2014 and completely cover the country's demand. Consumption per person would then reach 350 g to 400 g per day, which corresponds to the nutritional standards recommended internationally. In addition to improving productivity, expansion of artificial insemination and implementation of prophylactic measures, the farmers are committed to improving the quality of milk to meet the standards required along the dairy industry. The required amount of investment to achieve these objectives is about 12 billion dirham from which the main part (93%) will be funded by the inter-profession.

For the sugar sector, the objective is to increase production by 44.85% from 466,000 T presently to 675,000 T in 2013. The amount of planned investment is about 3.6 billion dirham and the expected impact on the coverage needs should pass it by 43% to 55% during the period in question.

Concerning poultry sector, the program contract with a budget of 4.5 billion dirham, will be implemented to enhance production of meat and eggs, 35.14% and 51.52% respectively in 2013. The level of consumption would then increase from 12.1 to 14.7 Kg/person/year for meat and 110 to 147 units for eggs, an increase of 21.5% and 33.64% respectively.

For olive oil, the objective is to increase agricultural production by 2.57 times to reach 2.5 million tons in 2020. The planned investment program for the olive oil rises to 29.5 billion dirham where nearly 74% will be financed by the private sector. Consumption of olive oil and table olives could reach an average of 2 to 4

²² Hajjaji A. (2009),

kg/person per year and 3 to 5 kg/person/year respectively. Achieving these objectives will require the production of 14 million seedlings per year for the implementation of the provided planting programs.

Along with actions in the GMP, it should be noted that the development of the olive tree is also part of the Millennium Challenge Corporation of the U.S. government, in addition to almond, date palm and fig trees. With a budget of more than \$ 300 million for agriculture sector, the main objective of the program was the intensification and the expansion of these trees species in rain fed areas, mountainous areas and oases.

Other investments were made under the second tranche of public-private partnership on land use of the Agricultural Development Company (SODEA) and the Agricultural Land Management Company (SOGETA). The area concerned has reached 37,171 hectares for a total of 131 projects, with an estimated investment of 7.7 billion dirham on different pathways, primarily in the trees, including olive and seeds.

On vegetable production, the contract program aims at increasing production by 106% from 1.7 to 3.5 million tons in 2020. The investment planned to reach 21 billion dirham of which 90.5% will be funded by the professionals.

In addition, the GMP has also paid special attention to the selected seeds including cereals, legumes, fodder, sugar beet, sugar cane, potatoes, corn, sunflower, rice, rapeseed and vegetable crops. The planned investment for this sector is about 725 million dirham from 25 projects to be completed in 2020.

All measures to accompany the program contracts will be managed by the Agricultural Development Agency.

2.3 The National Strategy for the Development of Water Sector

Morocco is ranked among the poorest countries in water resources worldwide, with a potential estimated at 22 billion m³ per year, the equivalent of 730 m³/ inhabitant/year, against 2560 m³ in 1960. More than half of these resources are concentrated in the north basin of the country, covering 7% of the country.

In the consequences of political independence, the country has made considerable efforts in water supply consolidation, particularly through the construction of dams and hydro-agricultural extension networks. Significant results have been recorded, which allowed the country to have an irrigated area of more than one million hectares. In contrast, potable water demand has begun to receive the prominence it deserves as the mid-1990s with the promulgation of the Water Act 1995 (Act 10-95). This law among others, created water basin agencies and introduced financial mechanisms to protect and maintain water resources for the consolidation of the integrated management, participative and decentralized water resources.

Consequently, many programs have been established with the target of expanding irrigated areas and improve access to safe drinking water particularly in rural areas. The implemented policy has enabled the country to dispose of nearly 1.5 million hectares of irrigated area. At the same time, the rate of access to potable water raised in a remarkable manner from 14% in 1994 to 90% at present.

According to Ait Kadi (2009)²³, the Mediterranean region, in which Morocco is one of its parts, could significantly be affected by the climate change. The effects of this change could result in a decrease of water availability from 10% to 30% and for agricultural output by 10% to 20%.

To cope with these threats of the scarcity of water resources, a new strategy for strengthening water policy was established in April 2009. It comes in partnership signed between the government and 16 regions with

²³ Communication to the 'African Statistics Day' organized by the High Planning Commission, January 5, 2009.

the objective of rationalizing water utilities based on the following three activities as follow (SECAE, 2011)²⁴:

- Achieving the ambitious goals related to water consumption and supporting the socio-economic development of the country;
- Radically changes in water use and management behavior;
- Implementing a truly sustainable water management."

The planned investment for the implementation of this strategy is estimated at 82 billion dirham over the period of 2009-2030.

Currently, three types of programs are encouraged by the government to improve the recovery of irrigation water over the next ten years. The first program is aimed at increasing the share of land irrigated by water saving systems (such as drip irrigation) to 50% of the total irrigated area. The second objective was the extension of 110,000 ha of land affected by large hydro-projects. The third concerns the privatization of water management irrigation in the major irrigated areas under the scheme of the Agricultural Development Offices (*Offices de Mise en Valeur Agricole, ORMVAs*) through public - private partnership (delegated management).

Regarding drinking water supply, the strategy aims at connecting people nationwide on an effective supply management scheme in quantitative and qualitative manner. Moreover, the National Office of Drinking Water has launched projects for the benefit of both rural and suburban areas to reach the said target by 92% in late 2010. Such activity is considered as a part of the program contract signed by the Government at the period of 2008-09 for an amount of 13 billion dirham. Taking into account the issue of sustainable development, it has to be accompanied with the progressive regional observatories of the environment related to the Environment National Observatory.

At the same time, the function of water distribution is allowed to the private sector, including multinationals, who are currently engaged in the supply of urban area with drinking water, sanitation, sewage and household waste collection based on delegated management. Progress aims at achieving the Millennium Development Goals into its components of food security and environmental protection.

2.4 The Fisheries Plan

Launched in September 29, 2009 under the Chairmanship of His Majesty King Mohamed VI, the fisheries plan (*Halieutis*) aims at injecting new momentum into the fishing sector with an integrated development strategy based on three main axes namely, durability, performance and competitiveness. The ultimate economic objective is to triple the GDP of the fisheries sector in 2020.

The fisheries plan integrated with the new international context in which sustainable management of fishery resources has become imperative. For Morocco, it could direct the efforts towards better utilization of available resources to improve fisheries sector contribution to food security through domestic consumption or gaining extra income from exports. Thus, projects will be launched within this framework with the objective of ensuring a sustainable yield of 95% of landed resources against 5% at present (Janati, 2009)²⁵. Other projects should focus on the development of aquaculture to increase fish domestic supply while ensuring the protection of resource exploitation in the marine areas.

The fisheries plan aims at increasing the domestic supply of fish by 1.6 million tons in 2020 against one million tons in the present time, an increase of 60 %. The average consumption will then rise to 12 to 16 kg per person per year. To achieve such objectives, the plan also provides actions against the practice of

²⁴ Secretary of State in Charge of Water and Environment (2011), National Strategy for Development of Water Sector.

²⁵ Janati A. (2009), Sea Fishing in Morocco: A New Strategy for a high potential sectors of development. Seminar on Food Security. IAV Hassan II, 13.10.2009.

informal and improving the traceability of products through the identification of responsibilities of all stakeholders in such sector.

2.5 Agro-food industry and distribution incentives

Regarding the agro-food industry and, in addition to the benefits granted by the FDA, the Investment Act allows investors to benefit also financial incentives for the installation and/or upgrading of production facilities.

More generally and in the case of programs involving food Industry, a plan called "*Plan Emergence*" has been launched by the Ministry of Industry, Trade and New Technology in 2005. The design of this plan follows a study by McKenzie Cabinet for the Ministry and which led to the proposed actions on eight industries considered as engines of the Moroccan economy growth, including offshoring, the automotive, aerospace, electronics, food processing, seafood, textiles and handicrafts industry (Ministry of Industry, 2011).

Regarding food processing (including fish), the program aims to create nearly 41,000 jobs, generate added value of 6 billion dirham and a trade surplus of 7 billion dirham by 2015. The main sectors concerned are those of fruits and vegetables, organic products, olive oil, orange juice and the pelagic and seafood, frozen or processed.

Immediately after making an outline for the strategy of the '*Plan Emergence*', the Ministry of Industry, has commissioned a study on the trade sector by the end of 2006 Cabinet Ernest & Young. This study led to the design of another specific program called '*Rawaj 2020*'. Its main goals aim to improve the conditions of supply to the consumer, improve the living standards of traders, increase the sector's share in GDP from 11% to 17% by 2020 and create jobs.

With a budget estimated at 12 billion dirham, *Rawaj* components relate to the local shops, the large and medium retail and wholesale markets of fruits and vegetables, abattoirs and fish markets. The program's approach tends to mobilize growth drivers for the three components through a series of structural, regulatory and financial measures.

2.6 Agriculture and environment

Since resource degradation is directly related to the population well-being, the government has developed and adopted a new policy based on an approach integrating environmental issues in the socio-economic development. In 1995, this policy has led to design the National Strategy for Sustainable Development (NSSD) which determines the main lines of national policy regarding the environment. Secondly, to better structure and operationalize the strategy in question, the National Action Plan for the Environment (PANE) has been developed in 2002 and its actions are within the following priority areas (Ministry of Planning, 2007):

- Protection and sustainable management of water resources and soil;
- The air protection and promotion of renewable energy;
- Protection and sustainable management of natural environment;
- Prevention of natural disasters and major technological risks, and
- Improving the urban environment and suburban areas.

In order to ensure the sustainability of natural resources of the various ecosystems of the country, the modalities of government intervention requires the cooperation of several government agencies especially the Ministry of Water and Environment, the Ministry of Interior, the Ministry of Agriculture, the Office for Water, the High Commissariat of Water, Forest and Desertification Control and the Ministry of Health.

However, the Secretariat of Environment (SE) is responsible for coordination, monitoring and control in protecting the environment.

Recent interventions in the form of integrated development projects have contributed to a better understanding of the challenges to natural resources and environment and ways to implement its resolution. This is the case of “the Integrated Development Project - Management of Natural Resources (DRI - GRN) established for the period 2000-2008 within the framework of the MEDA program of cooperation between Morocco and the European Union. Its general objectives are the improvement of rural livelihoods and sustainable management of natural resources in seven provinces of northern Morocco, including Al Hoceima, Nador, Oujda, Taounate, Taza and Tetouan (Ministry of Agriculture, 2007). Overall, the project covers a total area estimated at 1.35 million hectares with a population of around 1.2 million people. Budget financing reached 36.1 million € of which 67.3% are from the EU MEDA program.

Another project for Integrated Rural Development of Forest Areas and Périforestières (DRI Forests) was established in 2004 by the High Commissariat of Forest with funding from the World Bank (450 million dirham) over a period of 5 years. Its main objective is to improve living conditions of populations and the initiation of sustainable management of forests in partnership with various stakeholders (Water and Forests, 2004).

Note, however, that the action of the state management of natural resources and environment faces some constraints that have relatively low efficiency. Indeed, the institutional framework is characterized by a multitude of stakeholders for whom the degree of understanding of gravity is not the same. The result is also inconsistent when it comes to perception, for example when the issues of natural areas protection, livestock development and forestry development are taken in account all together. In addition, it is necessary to discuss the overall character rather repressive and non-incentive regulations governing the exploitation of natural resources, something that could be seen only in a negative way by farmers and forest neighboring residents (Ait El Mekki, 2008).

2.7 Consumer policies

Intervention programs in the field of food security in Morocco are classified into three types namely, social support programs, activities related to quality and food safety beside other programs related in particularly to the distribution channels.

2.7.1 Social Support Programs

These programs are geared toward the consumer through direct intervention, such as consumer subsidy, and indirect common activities conducted in a cross-cutting manner. In its political support to the purchasing power of consumers, particularly low income, the government continues to interfere in the markets of the “National flour of soft wheat, NFSW” (*Farine nationale de blé tendre*), sugar and butane. The consumer subsidy is the central instrument of this assistance administered by the National Office of Cereals and Pulses (*Office National Interprofessionnel des Céréales et des Légumineuses, ONICL*) for the NFSW and the Compensation Fund for the other products.

The subsidy of NFSW for a quota of 1 million ton is annually decided by the government on the basis of a bidding system. Such interference fixates the price of flour factory output to 182 DH/QL and the consumer pays around 200 DH/QL. The amount of subsidy varies from 40 % to 45% of the real price, resulting in a total annual subsidy that amounts to 2 billion dirham in average. The grain transportation to provinces

located far from ports, including Errachidia, Ouarzazate and Guelmim is also subsidized by the State budget.

The government intervention in the market of flour uses other instruments to protect food security, equally in years of favorable or unfavorable conditions for production. Thus, to cope with grain prices booms resulting from the global crisis of food in 2007-2008, the Government had signed an agreement with miller owners to fix the sale price of flour called free (including flour called luxury soft wheat flour) to bakeries. This price was fixed at 3500 DH/T so that the price of bread (200g) manufactured on the basis of this type of flour remains unchanged at 1.20 DH/Unit until now.

Meanwhile, a decree issued in April 2007 had suspended the implementation of applicable rights on wheat until May 31, 2008 in order to avoid the transfer of the rising prices to import grains for local consumption²⁶. This measure was then extended until May 31, 2009 and then resumed in October 2011. At the same time the overall budget allocated to the compensation (FNSW, sugar and butane) has been increased to nearly 24.8 billion dirham in 2010 by the Finance Act.

The subsidy of FNSW is always maintained to increase the efficiency of the existing system. In reality, despite a very good agricultural year, which helped to register a record grain production (102 million bushels) in 2009, the government has allocated an amount of 2.27 billion dirham in compensation for such flour.

Regarding sugar, the subsidy unit has remained constant since 1996 with 2,000 DH/T, or nearly 40% of stiff sugar price and 50% of granulated sugar price. Given the annual amount of sugar consumed in Morocco (950,000 to 1 million ton), the total amount of consumption subsidy is about 2.3 billion dirham.

Anyway, the subsidy of the essential commodities consumed has contributed to the stability of retail prices and to protect the consumers' purchasing power. It should be noted that the poorest people have benefited from 10% subsidy budget due to the lack of subsidy orientation. Moreover, the government intervention has not yet carried out the proposed reform of the Compensation Fund despite its declaration since 2007. Such delay is connected to the complexity of procedures and difficulties related to rules application.

2.7.2 Other Cross-Cutting Programs

Food security problem, as poverty, requires joint efforts of all stakeholders through cross-cutting programs which have related objectives of improving the standards of living. Two types of programs deserve to be mentioned taking into account their social significance within this framework.

The first program was launched by the Government in 2008 as a pilot operation to combat scholar drop in rural areas. The main objective of this operation is to assist families to continue schooling their children by giving them a premium ranging between 60 and 100 DH per enrolled child, linking education with food security. Moreover, a study conducted by the World Bank in 2009 recommended the strengthening of education in order to affect good governance of food security²⁷. This study sponsored by FAO and the International Fund for Agricultural Development (IFAD), promotes opportunities for improving food security through the strengthening of social safety networks, the implementation of family planning services and children education.

The second program is regarding the establishment of a strategic framework for poverty reduction which conducted by the Ministry of Social Development, Family and Solidarity in collaboration with the United Nations for Development Programs (UNDP) in 2009. This strategic framework is based on the possibilities of

²⁶ The suspension of customs duties has concerned butter and milk as well.

²⁷ World Bank (2009), Strengthening Social Security in Arab Countries.

encouraging initiative action towards poor people to bring these precarious conditions, improve their income and standard of living.

3. Trade

In 2009, Morocco's foreign trade in goods amounted to around 377 billion dirham against 476.4 billion dirham in 2008, a decrease of 20.9% (Table 10). Imports and exports reached nearly 264 and 113 billion dirham respectively, which means an overall coverage rate of almost 42.8%.

The EU is the main trading partner of Morocco with around 60% of the value of transactions in 2009. It is also the first export destination and the main origin of imports to Morocco 71% and 53.5% of the value of products. France and Spain are placed first with respective shares of total trade of 22.1% and 15.6%. The Asian countries also have considerable importance as their share amounts to 18.2%, followed by that of America (8%), followed by Africa (5.3%).

Food trade balance, recorded a total transaction valued at 43 billion dirham in 2009, or 12.8% of total trade for the same year against 12.1% the year before. The coverage rate of food imports reached almost 101% against 82.3% in 2008. The improvement rate is due to the food import decline which registered 23.9% down.

The good weather that prevailed during the 2008-09 campaign played an important role in the structure of food trade balance and particularly for key food products. Indeed, imports of cereals declined by nearly 21.8% by volume to be limited to around 4.3 million tons in 2009 against 5.6 million tons in 2008 (Table 11). The impact on the CIF value of imports of cereals resulted in a decline of 49.5%. It is the same for edible oil and oilseeds which had 22.6% and 11.7% decline, respectively. Conversely, the quantity of sugar imports increased by 29.9% due to the poor harvest following the fall in acreage due to bad weather at the beginning of the campaign. Their bill has meanwhile increased by almost 53.2% most of which is due to higher sugar prices on the world market. Imports of dairy products also increased 150% in volume and 113% in value.

On the other hand, the main export products are citrus and early vegetables. In 2009, exports generated over than 7 billion dirham currency equivalent or nearly 84.2% of the value of total food exports, excluding fish products. The evolution of the overall performance of these two categories of products has not been favorable since their total export declined 10% and 3.7% in volume and value respectively. However, best results were recorded for vegetables.

As regards the rate of self-sufficiency for the main food products, Table 12 shows a significant improvement in 2009 except for sugar. Indeed, taking into account the climatic conditions that prevailed in 2008-09, cereal production, oilseeds, red meat, fresh and dried fruits and vegetables enjoyed positive impact on the coverage of consumer needs and even export. On the contrary, although the concept of food security has taken over in the new economic context, self sufficiency efforts for sugar have to be supported. The rate of self-sufficiency for this product remains relatively low, not exceeding 40.6% on the average for the period 2005-09. The same advise is suitable for edible oil whose rate does not exceed 22% on the average, including the olive oil supply.

4. Future prospects

In the context of the intervention programs on food, agriculture and rural development, the priority areas that should draw more attention can be subdivided into two groups. The first group covers the issues related to the process of agricultural and rural development strategic plans. The second group addresses the need for continued strengthening of food security.

4.1 Activate the sectorial strategic plans of agriculture and rural development

Morocco has made considerable efforts in developing strategic visions for agriculture and rural development sectors. In addition to the physical constraints that must be reduced (land tenure, in particular), the rules application noted in the strategy required technical support for achieving the desired objectives.

Based on the consulting studies conducted by FAO with the senior officials of the Ministry of Agriculture and Maritime Fishing, it had shown that the main priority areas of Morocco include: Green Morocco Plan, Fisheries Plan, National Strategy of Water and the National Economic Program in addition to the efficiency of irrigated water.

4.1.1 The Green Morocco Plan

The GMP priorities are split into institutional or technical issues. The main institutional concerns are to reinforce the followings:

- Training activities and capacity building for rural education and extension through tailored training for technicians and engineers, the development of new agricultural consulting jobs, and support the resource Centre for Pillar II which is mainly providing training for farmers;
- The Agricultural Development Agency (ADA) for the implementation of GMP with emphasis on capacity building, following all the steps of project cycle (design, formulation, management, monitoring and evaluation) and exchange experiences in the field of aggregated data.

On the other hand, the main technical supports are to support and strengthen:

- Programs and projects for the development of fragile economy areas such as: mountain, pastoral areas, oases;
- Development of an economic sector model on the agricultural products (plant or animal) in addition to the study of local and foreign agricultural markets;
- Information system and agricultural statistics, preparation and implementation of the General Agriculture Census;
- Food safety: the protection of plants and animals, standards development, inspection and certification of food quality;
- Agricultural research in particularly with agricultural mechanization strategies, water and soil conservation, sustainable management of genetic resources and biotechnology;
- Establishment of plants and animals units, including studies of market regulation and promotion of home-grown products.

4.1.2 The National Strategy of Water

The National Strategy of Water and the National Economy Program for Valuation of Irrigated Water (PNEEI) have constituted the reference points regarding the cooperation between FAO and Morocco in the field of water and irrigation. The areas where the Government has requested the assistance of FAO are the following:

- Demand Management: economics and valuation of water, training and consulting in irrigation, public-private partnership for management of groundwater; geographic information systems for irrigation, strengthening the dissemination of FAO documents in irrigation;
- Supply management: reuse of wastewater in agriculture, desalination of seawater for irrigation, water audits, collection of rainwater;

- Resource protection: the fight against erosion and management of watersheds;
- Vulnerability reduction: Climate change impact on water resources and irrigation and adaptation of agriculture.

4.1.3 Fisheries Plan

For the Fisheries Plan, identified priorities were addressed to be supported by FAO technical assistance as follow:

- Management and resources conservation through special projects in stocks diagnosis, the impact of resource utilization, monitoring and evaluation of methods used by fisheries, assistance against illegal fishing especially in response to EU Directive 1005/2008 and the modernization as well as the adjustment of the fisheries ability.
- Aquaculture: support of aquaculture development and the National Agency for Aquaculture Development.
- The valuation of fish products by improving the quality of fishery products and aquaculture, capacity building for zoo-sanitary monitoring, the development of traceability and labeling of fish products, evaluation and analysis of national and international market for small pelagic.
- Cross-cutting support for reviewing the legal framework of Fisheries Plan adaptation, strengthening and adaptation of human skills to the international requirements, support program for improving socio-economic jobs related to fisheries and aquaculture, support gender approach.

In addition, other plans presently are at the preparation stage. They include, among others, the National Strategy for Agricultural Mechanization, the National Strategy for Agricultural Advising and Extension and the National Strategy for Agricultural Training and Research.

4.2 The Functional Reform of the Compensation Fund

According to the economists, resource allocation through the activities of the Compensation Fund is not efficient. The economic motivation is simply looking for the equality of subsidy distribution among all targeted citizens. The entire Moroccan population gets benefited from soft wheat flour, sugar and butane subsidies, including the richest people²⁸. Policymakers should therefore pursue their efforts of the Compensation Fund reform. Despite the complexity of its application, countries that have adopted the subsidy targeting system agree about the relevance of such policy instrument regarding social equity and economic efficiency.

Concluding Remarks

Within the new economic context, the approach to reaching food security as well as agricultural and rural development must be integrated. In addition, to face the challenges of food requirements in the future, the regional approach should be promoted as a strategic solution integrating both developed and non development countries.

For Morocco, the project established by the Union for the Mediterranean could fit into this framework. It could strengthen the position of the country which has already committed to the “Advanced Status” with the EU and to the Free Trade Area with Agadir partners agreement (Tunisia, Egypt, Jordan) and with Turkey. In addition to the areas related to water management, crop and animal production as well as the diversification of production systems, Morocco could make accessible to the South-North and South-South multilateral cooperation expertise in the areas of improved seeds, mechanization, biotechnology, food safety, artisanal fisheries, maritime safety and research and extension.

²⁸ It is also known that the subsidy also benefits to European consumers through the use of subsidized gas for the purpose of pumping water in several vegetables regions of Morocco.

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2011 Data from:

- Ministry of Agriculture and Fisheries
- Ministry of Industry, Trade and new Technology
- Exchange Office
- Ministry of General and Economic Affairs
- High Commissariat of Planning

**Table 1: Evolution of crop production
(1000 T)**

Crop	1994-95	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
	(1)	(2)	(3)	(4)			
Cereals	1749	8524	4641	9160	2445,18	5342,69	10200
Durum wheat	439	2025	940	2100	514	1240	2000
Soft wheat	652	3515	2100	4230	1069	2529	4500
Barley	608	2760	1100	2530	763	1353	3700
Maize	51	224	501	300	100	220	-
Pulse	245	241	148,7	332,2	140	295	310
Agro-Industrial crops	3750	4073	3993	3582	3435	3869	3796
Sugar beet	2719	3166	3189	2552	2468	2926	2876
Sugar cane	1031	872	786	997	934	913	920
Sunflower	19.6	35	18	33	33	30	60.4
Vegetables	3418	6959	6272	7251	6881	6853	7390
<i>Earliest</i>	737	1353	1297	1445	1580	1710	1749
Tomato	375	660	627	696	785	810	840
Potatoes	148	155	130	133	156	165	160
Other	214	538	540	616	639	735	750
<i>Seasonal</i>	2565	5345	4665	5560	5090	4983	5420
Tomato	295	305	318	332	265	300	253
Potatoes	690	1325	1348	1436	1281	1372	1470
Oinions	367	878	716	882	714	662	802
Melon-Water melon	612	1250	966	1269	1361	1267	1466
Other	601	1587	1317	1641	1469	1382	1429
<i>Agro-industrial</i>	116	261	310	246	211	160	221
Tomato	106	248	260	217	187	139	203
Other	10	13	50	29	24	21	18

Tree Crops	2443,2	3013,9	3200	3543	3419,7	3453,1	3589
Citrus	997	1137	1320	1265	1275	1270	1300
Olive	450	500	500	750	620	650	850
Grape	173,8	315	335	356	281	291	288
Rosaceous (except almonds)	503,4	665	614	735	792	762	770
Almonds*	9,4	10	17	17	13,2	17,3	25
Date	97,6	69	64	55	95	93	97,5
Figs	67	60	83	87	67	77	109
Grenade	45	52	58	56	53,5	58,8	64,6
Walnut*	1,7	1,5	7	3	4	4	5
Bananas	90,4	189	189	203	202	215	227
Avocado	7,8	15,4	13	16	17	15	15
Flowers (million)	5,4	79,6	83	83,5	79	83,5	82

(*): shelled fruit

Source: Ministry of Agriculture, 2011

Tableau 2: Livestock production

Product	1985	1995	2005	2006	2007	2008	2009
Red meat (1000T)	346	297	401	392	388	400	425
Bovine	148	109	178	174	169	177	187
Ovine	114	104	125	120	116	119	125
Sheep	23	20	23	22	20	19	24
Other	61	64	75	76	83	85	89
Poultry (1000T)	135	180	360	385	420	490	490
Milk (million L)	546	830	1410	1420	1660	1800	1960
Eggs (million unit)	1078	2565	3300	3000	3800	3700	3900

Source: Ministry of Agriculture, 2011

Table 3: Farm structure
(1996)

Size	Number	Acreage					
		Hectare	Units	% Total	% Sum	1000 ha	%Total
0 - 1	380039		25,4	25,4	170,4	2,0	2,0
1 - 5	684379		45,7	71,1	1915,8	21,9	23,9
5 - 20	372935		24,9	96,1	3775,2	43,2	67,1
20 - 50	47985		3,2	99,3	1526,3	17,5	84,6
50 - 100	7829		0,5	99,8	585,2	6,7	91,3
>100	3182		0,2	100,0	759,4	8,7	100,0
Total	1496349		100,0	-	8732,2	100,00	-

Source : Ministère de l'Agriculture (1997), Résultats du Recensement Général de l'Agriculture 1996.

Table 4: Agro-food Industry and industry data
(2009)

	Agro-food industry	Total Industry	Agro-food industry share %
Unit number	2013	7987	25,2
Exports (millions dh)	11310,5	65820	17,2
Production (millions dh)	87467,1	265661	32,9
Investment (millions dh)	3733,9	24184	15,4
Value added (millions dh)	23535,9	78033	30,2
Employment (persons)	95257	459652	20,7

Source: Ministère du Commerce, de l'industrie et des Nouvelles Technologies, 2011

Table 5: Agro-food industry sectoral data

Industry sector	Number (Unit)	Turn over (Million dh)	Export (Million dh)	Production (Million dh)	Employment (persons)	Investment (Million dh)	Added value (Million dh)
Cereal mills	1093	3581,2	200,0	3600,3	13639	155,8	1007,6
Beverages	26	9878,9	145,3	7851,7	8614	943,2	3868,4
Fats	225	10506,5	400,3	9795,9	6266	305,2	1777,5
Fruits and vegetables	123	2940,7	1864,4	2741,6	7547	139,0	589,7
Meat	56	2800,8	214,5	2647,3	3859	88,6	340,1
Fish	187	9465,6	7639,6	9183,0	32191	325,6	2361,6
Tobacco	1	12924,2	37,2	8280,6	1385	115,9	8132,9
Dairy	88	13357,0	359,7	12806,8	11580	1096,8	3423,4
Animal feed	214	22012,3	449,7	20763,3	10176	563,9	2034,7
Others	89	10311,3	863,6	8425,4	7977	812,5	3178,2
Total	2013	87467,1	11310,5	77670,6	95257,0	3733,9	23535,9

Source: Ministère de l'industrie, du Commerce et des Nouvelles Technologies (2011), Les Industries de Transformation. Edition 2009

Table 6: Share importance of agro-food industry sectors

Branche	Number	Turn over	Export	Production	Employment	Investment	Value added
Cereal mills	54,3	4,1	1,8	4,6	14,3	4,2	4,3
Beverages	1,3	11,3	1,3	10,1	9,0	25,3	16,4
Fats	11,2	12,0	3,5	12,6	6,6	8,2	7,6
Fruits and vegetables	6,1	3,4	16,5	3,5	7,9	3,7	2,5
Meat	2,8	3,2	1,9	3,4	4,1	2,4	1,4
Fish	9,3	10,8	67,5	11,8	33,8	8,7	10,0
Tobacco	0,0	14,8	0,3	10,7	1,5	3,1	34,6
Dairy	4,4	15,3	3,2	16,5	12,2	29,4	14,5
Animal feed	10,6	25,2	4,0	26,7	10,7	15,1	8,6

Others	4,4	11,8	7,6	10,8	8,4	21,8	13,5
Total	100,0	100,0	100,0	100,0	100,0	100,0	100,0

Source: Ministry of Industry, Trade and New Technology

Table 7: Investment Budget of the Ministry of Agriculture

(million dirham and %)

Programmes d'investissement	2005		2006		2007		2008		2009	
	Value	%	Value	%	Value	%	Value	%	Value	%
Irrigation	694,2	43,8	936,5	59,1	937,0	37,2	976,0	37,9	1595,0	28,2
- Large	535,6	33,8	674,8	42,6	675,0	26,8	646,0	25,1	1302,0	23,0
- Small & Medium	158,6	10,0	261,7	16,5	262,0	10,4	330,0	12,8	293,0	5,2
Development of rainfed area	195,9	12,4	153,0	9,7	153,0	6,1	205,0	8,0	248,0	4,4
Agricultural development support	392,2	24,8	212,1	13,4	212,0	8,4	129,0	5,0	1800,0	31,8
Training, research & extension	183,8	11,6	176,7	11,2	177,0	7,0	179,0	7,0	228,0	4,0
Information systems and agroeconomic surveys	13,8	0,9	16,8	1,1	17,0	0,7	17,0	0,7	17,0	0,3
Administration	104,0	6,6	88,7	5,6	89,0	3,5	93,0	3,6	170,0	3,0
						0,0		0,0		0,0
Total	1583,9	100,0	1583,9	100,0	2522,0	100,0	2575,0	100,0	5653,0	100,0

Source: Ministry of Agriculture, 2011

Table 8: Support measures of the Agricultural Development Fund (ADF)
(Million dirham and %)

Objet	2004		2005		2006		2007		2008	
	Value	%	Value	%	Value	%	Value	%	Value	%
Subsidies	229,2	100	341,7	100	438,2	100	792,5	100	1393	100
Land and hydro-agriculture improvements	86,31	37,7	111,9	32,7	139,3	31,8	247,6	31,2	572,2	41,1
Farm equipment	58,09	25,4	74	21,7	109,9	25,1	300,2	37,9	498,5	35,8
Improved cereal seds	26,19	11,4	56,7	16,6	69,9	16,0	81,1	10,2	99,3	7,1
Export promotion	30,77	13,4	39,2	11,5	51,5	11,8	70,4	8,9	61,6	4,4
Livestock intensification	20,3	8,9	38	11,1	40,7	9,3	45,6	5,8	129,7	9,3
Others	7,49	3,3	21,9	6,4	26,9	6,1	47,6	6,0	31,7	2,3
Premiums	82,63	100	84,5	100	89,8	100	84,6	100	144,6	100
Crop trees	38,16	46,2	30,3	35,9	38,8	43,2	30,4	35,9	35,7	24,7
Tractors	20,22	24,5	22,7	26,9	28,3	31,5	12,2	14,4	1,4	1,0
Drip irrigation equipment	11,65	14,1	10,7	12,7	9,0	10,0	12,5	14,8	19,2	13,3
Equipment for livestock	10,77	13,0	10,1	12,0	8,6	9,6	16,8	19,9	70,2	48,5
Processing and packaging units	1,83	2,2	10,7	12,7	3,5	3,9	9,4	11,1	16,7	11,5
Others	-	-	-	-	1,6	1,8	3,3	3,9	1,4	1,0
Total	-	-	-	-	528	100	877,1	100	1537,6	100

Source: Ministry of Agriculture, 2011

Table 9: Production projection under program contracts

	Total Production				
	2008/2009	Future	Evolution %	Horizon	Investment billion DH
Cereals (million T)	5	7	4	2020	29
Sugar (1000 T)	466	675	44,85	2013	3,6
Red meat (1000 T)	386	450	16,58	2014	6
Meat Poultry (1000 T)	370	500	35,14	2013	4,5*
Eggs (Billion units)	3,3	5	51,52	2013	-
Milk (Billion liters)	1,7	3	76,47	2014	12
Olive (million T)	0,7	2,5	257,14	2020	29,5
Horticulture (million T)	1,7	3,5	105,88	2020	21

(*)for the entire poultry sector

Source: Agricultural Development Agency (2011).

Tableau 10: Food trade balance
(Million dirham)

	2004	2005	2006	2007	2008	2009	Average (2004-09)
Total							
Imports	157912	184380	206997	261288	321931	263982	232748
Exports	87897	99265	111689	125517	154493	113020	115313
Trade balance	-70016	-85114	-95309	-135771	-167438	-150962	-117435
Covering rate %	55,7	53,8	54,0	48,0	48,0	42,8	50,4
Food							
Imports	12949	15672	15111	26651	31549	24022	20992,5
Exports	17404	19456	21109	24099	25955	24186	22034,8
Trade balance	4455	3784	5998	-2552	-5594	164	1042,4
Covering rate %	134,4	124,1	139,7	90,4	82,3	100,7	111,9
Food share%							
Food imports/Total imports	8,2	8,5	7,3	10,2	9,8	9,1	8,9
Food exports/Total exports	19,8	19,6	18,9	19,2	16,8	21,4	19,3

Source: Exchange Office and Ministry of Agriculture, 2011.

Table 11: Trade of main food products
(1000T and million dirham)

	2005		2006		2007		2008		2009	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
Imports										
Cereals	5081,6	7406,6	3467,3	5322,6	6203	14273	5580	17318	4365,9	8750,6
Sugar	614,5	1330,5	658,9	2297,1	785,8	1969	751,3	2225,6	975,8	3408,8
Edible oil	373,4	1800,2	438,2	2144	428,5	2929,4	419,5	4389,9	464	3397
Oil seeds	608,6	1622,9	537,4	1306,8	538	1723	375,8	1605,9	400,2	1417,7
Dairy products	58,9	1172,3	60,1	1175,2	62,6	1705,2	28,6	723,4	71,5	1539,8
Tea	50,1	750,5	50,6	782,1	55,1	794,3	51,9	781	54,4	868,2
Exports										

Citrus	567,4	3029,9	593,3	2927,4	594	3020	608,1	3226,9	453,3	2513,5
Early vegetables	441,3	2695,8	475,8	2995,1	725	4536	655,2	4223,5	681,8	4659,4
Preserved food	71,8	1076,2	65,7	1027	61,7	1102	81,4	1 473,2	74,8	1 345,3
Fresh fish	82,7	1654,5	128,4	1984,3	127,8	2017,6	141	2108,7	145,7	2029,9
Shellfish and mollusc	81,1	3944,7	92,1	4266	95	5165	97	5536,8	108,7	4438,8

Source: Exchange Office and Ministry of Agriculture; 2011.

**Table 12: Self sufficiency rate of key food products
(%)**

Produit	2005	2006	2007	2008	2009	Average 2005-09
Cereals	51,0	67,0	30,0	48,3	75,7	54,4
Edible oil	19,0	19,6	21,5	23,0	25,0	21,6
Sugar	50,0	37,0	38,0	42,0	36,0	40,6
Red meat	100,0	100,0	98,0	98,0	98,0	98,8
Poultry	100,0	100,0	100,0	100,0	100,0	100,0
Milk	88,0	88,0	89,0	89,0	89,0	88,6
Fruits	107,6	110,2	112,3	117,6	123,4	114,2
Vegetables	129,9	148,1	136,6	140,6	147,8	140,6

Source: Ministry of Agriculture, 2011

**Review on
Agricultural sector, Agro-Processing and Related Policies
in Syria and Lebanon**

Foreword

This study presents a comprehensive review on agricultural and agro-food sector in Syria and Lebanon individually. This includes importance, status, policies , as well as institutions and bodies involved in this sector. **The study is made of two parts ; the first one covers Syria** and consists of the five chapters. Chapter one describes the ago-food sector in Syria from the following perspectives: importance and role in the Syrian economy; main agricultural commodities; agricultural sector structure; and development of agro-food industry. Chapter two covers current agricultural and policies related to price and income support, input use, rural development, agro-environment, infrastructure, and consumer policies. Chapter three covers agro-food trade, including general presentation, trade agreement, and tariff and non-tariff barriers. Chapter four presents future prospects of agro-food sector including a SWAT analysis. The last chapter present recommendations to develop this sector. Many resources have been used to produce this part; mainly several issues of the report on State of Food and Agriculture in Syria (SOFAS), and the Syrian Agricultural Trade (SAT), in addition to other publications. The resources used are mentioned in the body of the report and separately at the end of the report.

The second parts covers Lebanon. It follows the same structure of the part on Syria; however, few resources have been available on the agro-food in Lebanon, in addition it was very difficult to visit the concerned bodies and stakeholders in Lebanon to obtain the necessary information and data. Therefore, we depended on secondary data and on several reports; mainly “agriculture in Lebanon” published by the Ministry of agriculture of Lebanon and available on line on its website, and whose data dates back to 2007. The other resources used are mentioned in the text and in the references. It is worth mentioning that because of lack of recourses some topics have not been covered thoroughly such as investments and infrastructure, etc.

I-Part one: Agricultural sector, Agro-Processing and Related Policies in Syria

Introduction

This study presents a review on agricultural and agro-food sector in Syria. The first chapter describes the agro-food sector from the following perspectives: importance and role in the national economy; main agricultural commodities; agricultural sector structure; and development of agro-food industry. The second chapter covers current agricultural and policies related to price and income support, input use, rural development, agro-environment, infrastructure, and consumer policies. The third chapter covers agro-food trades, including general presentation, trade agreement, and tariff and non-tariff barriers. The fourth chapter presents future prospects of agro-food sector including a SWAT analysis. The last chapter present recommendations to develop this sector.

1. Description of agro-food sector

The Syrian Arab Republic is located at the Eastern coast of the Mediterranean. The climate is characterized by relatively cool rainy winter and warm dry summer. The rainfall increases in the coastal and mountainous areas due to the existence of a series of mountains parallel to the coast, and it declines towards the East. Arable land in Syria represents 32% of the total area, non-arable land 20%, meadows and pastures 44.5%, and forests 3%. In 2009, the total actual cultivated land was about 4.34 million hectares, 70% of which is rain-fed and 30% irrigated. The percentages of urban and of rural population are 53% and 47%, respectively (SOFAS 2002, NPFS2010).

In general, Syria is considered as a dry and semi-arid country. The annual rainfall rate is less than 350 mm in more than 90% of the overall area, and is not evenly distributed throughout the season making rain-fed cultivation not assured but even risky.

Syria can be divided into four geographical zones (coastal, mountainous, inland, and rangeland, and it can also be divided into five Stabilization Zones (agro- climatic zones) according to annual precipitation and rainfall probability.

With annual average of all water resources capacity reaching 15.3 billion m³, Syria has been experiencing an increasing water deficit that has amounted recently to about 3.5 billion m³ (SOFAS 2010). This is due to the growing water demands, and the frequent droughts swept Syria and the region mainly in the last three years. Consequently, this situation led to reducing groundwater tables, declining the capacity of some rivers, drying springs, and hence negatively affecting the agricultural production.

The Syrian government devotes a special attention to exploiting land resources through horizontal expansion pursued by land reclamation and rehabilitating deteriorated land, and vertical expansion (i.e. increasing productivity by applying the findings of the scientific research, planting high productivity, following the right crop rotation. It is worth mentioning here that land resource is becoming more limited; therefore, much attention is being focused on vertical expansion. The government cooperates with regional and international organizations in its efforts to achieve enhancing agricultural production (SOFAS 2010).

Table 1: Land use development 1999 – 2008 (1000 hectare)

Land use	Average 1999-2001	Average 2003-2005	Average 2006-2008	AAGR% 1999-2001/2006-2008
Arable land	5963	5902	6004	0.14
Invested land	5435	5455	5645	0.76
irrigated	1221	1409	1385	2.54
Rained	3324	3346	3306	-0.11
Fallow	890	768	955	1.42
Cropped area	4545	4754	4691	0.63
Not-invested land	529	380	359	-7.47
Non-arable land	3699	3729	3683	-0.09
Steppe and pastures	8299	8293	8245	-0.13
Foresters	556	594	585	1.02

Source: annual agricultural abstract 2008,
AAGR: Average Annual Growth Rate

It is noticeable from table 1 that there is a light decrease in the irrigated and rain-fed area between the averages of **2003-2005** and **2006-2008**, while there is an increase in the fallow areas, which is attributed to the draught waves which struck the region especially in 2005 and 2006. However, generally we can say that cultivated area is stable in Syria.

Syria is characterized by various farming systems; each farming system is characterized by its natural conditions, market integration and historic influences leading to differentiation and specialization of production within it, which explains the large variation of agricultural products, plant and animals, in Syria. (Wattenbach, 2006)

Although Syrian economy has shifted from central planning to more market oriented approach, the agricultural sector - mainly certain crops - is still under considerable governmental interventions. The government gives high priority to certain crops considering it as “strategic”, such as, wheat, barley, cotton, sugar beat, and tobacco, while less sensitive crops are grouped under “main” crops; such as chickpeas, lentil, maize, potato. Other crops and vegetables are not subject to any kind of intervention concerning production, and distribution. The Ministry of Agriculture (MOA) annually issues the “agricultural productive plan” which determines the area to be planted of each strategic crop in all governorates. The MOA determines the quantities required of inputs of strategic crops²⁹, mainly of seeds and fertilizers, and instruct other relevant governmental parastatal to secure these inputs. Depending on “cropping license” submitted by farmers, the Agricultural Cooperative Bank (ACB) provide limited quantities of inputs. The output of strategic crops is delivered to governmental parastatals or factories. The governmental intervention in other crops and animal products is minimal as the private sector plays dominant role on production, marketing and distribution, while the government’ role is restricted to controlling the quality of inputs and outputs.

The strong government intervention in “strategic crops” is justified by the government for several reasons. The first is that some of these crops are vital for food security. The second reason is that some agricultural outputs represent the raw materials for the state-own factories which entails planning agricultural production to insure certain levels of production that correspond to the processing capacity of the state factories. The third reason is that the Syrian Government see that supporting agricultural sector by offering high prices for strategic crops is a tool among other tools that can be used to improve the livelihood of rural communities and achieve rural development.

It is worth mentioning that large share of the value of agricultural production is still due to the strategic crops, and this situation is the result of many years of strategic centralized planning by the Government of Syria (GoS).

²⁹ based on predefined rates of inputs for area unit

Challenges: The Syrian agro-food sector faces many challenges and problems, which cause many negative impacts on many elements: sustainability, performance, and efficiency of agro-food sector, the rural and overall development, and most importantly food security.

The problems can be summarized as follows:

- Water shortage due to recurrent droughts and extensive exploitation of underground water;
- Deteriorating water quality;
- Decreasing soil fertility and increasing salinity because of agricultural intensification and improper crop rotations.
- Traditional irrigation mostly prevails, while modern irrigation is slowly increasing;
- The small size of farms and the fragmentation of land pose serious problems for the efficient use of resources and the modernization of agriculture, making the sustainability of income generation especially hard for small farmers that largely rely on farming as main livelihoods source.
- Fragmentation of agricultural and irrigation related institutions, which lack coordinating mechanism;
- Weak financial resources and investor's fear of investing in the agricultural sector due to risk and long duration of the capital recovery;
- High population growth and employment opportunities of agricultural labor;
- Weak competitiveness of agricultural products in international markets
- Frequent price falls of agricultural products mainly vegetables, especially in production peaks.
- Constraints related to macro policies which affect directly or indirectly the agricultural sector such as fiscal and monetary policies, interest rate, pricing and support policies, trade policies, etc.

1.1 Importance and role of agro-food sector

Agro-food is a leading economic sector of the Syrian economy, its contribution to employment and income generation ranges between 20-25 percent depending on the rainfalls (SOFAS 2010). Agro-food sector plays crucial functions in raising food security, enhancing inflows of hard currency through export, stimulating economic activities in marketing, transport, and processing as it supply agro-food industry with raw materials. In addition, it plays an important role in protecting environment, reducing pollution, and enhancing the beauty of the nature.

The Syrian agro-food sector is characterized by high diversity of plant and animal products, which gives the sector and the national economy invincibility against agricultural or economic shocks.

1.1.1 Relative size to national economy

Generally, the contribution of agriculture sector ranges between 20% and 25% of the total GDP depending on rainfall rates in different years. Recently however, due the recurrent droughts, agriculture's contribution to the GDP, proportion of trade, and absorption of the workforce has declined. In 2008, the real GDP was SP1,341,515 million (2000 prices), of which the agriculture contributed about SP 234,872 million corresponding to a share of 17.5% of the real total GDP. The table 2 demonstrates the considerable fall in the contribution of agriculture in the GDP in current and fixed prices, taking the average of two periods 2002-04 and 2006-08. Nevertheless, there was an increase in the value of agricultural GDP in the current and fixed prices when comparing 2006-08 with 2002-04; however, the increase in current prices greatly exceeded the increase in fixed prices reflecting the price surge in food prices occurred in 2006-2008. (table2)

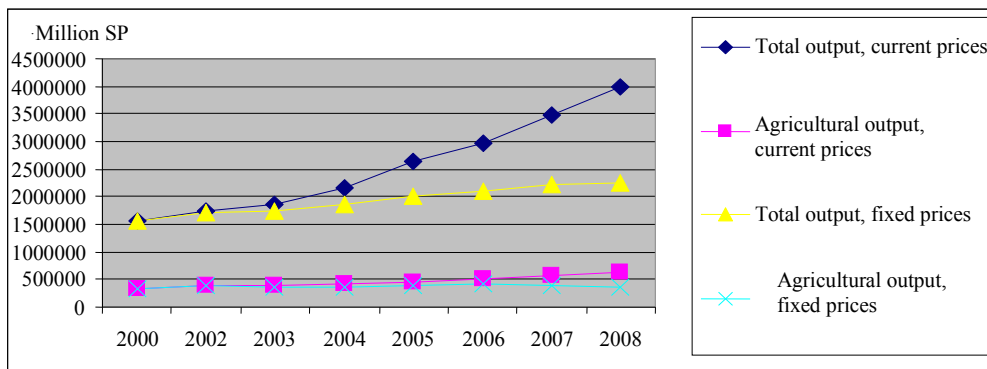
Table 2: Total GDP and agriculture GDP in current and fixed prices 2000, 2002-2008 ,million SP

Item	Current Prices			Fixed Prices (2000)		
	Average 2002-04	Average 2006-08	change %	Average 2002-04	Average 2006-08	change %
GDP	1122119	2055953	+83	1040154	1280211	23

Agricultural GDP	266733	396978	+49	253785	260062	2.3
Share of Agriculture %	23.8	19.3	-19	24.4	20.31	-17

Source: Annual Statistical abstract 2009

Figure 1 demonstrates the evolution of the total Gross output and the agricultural Gross output during 2000-2008 in current and fixed prices.

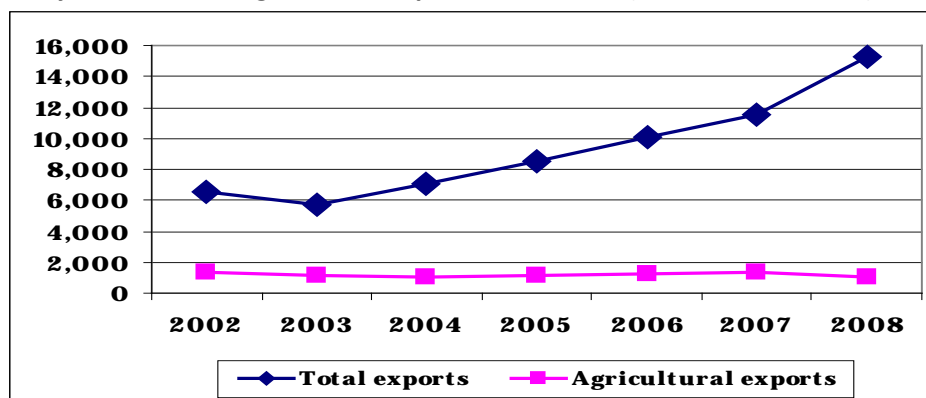


Source: Annual Statistical abstract 2009

Figure 1
Evolution of the total and agricultural gross output, 2000-2008

Contribution of Agriculture in trade: In line with the new orientation of more open economy, the government facilitated trade especially agricultural trade and removed all kinds of barriers hindering it. The contribution to the total agricultural exports fell from 20% in 2002, to 6.6% in 2008. This is explained by the rapid growth rate of the non-agricultural exports compared to the agricultural exports. (Figure 2)

Figure 2 - Syrian total and agricultural exports, 2002-2008 (Million US\$, and %)



Source: Syrian agricultural database, SADB

For more details, the table 3 demonstrates the total and agricultural trade during 1999-2008. It is noticeable that the total and agricultural trade grew in the medium and long term; however, the growth rate for total trade greatly surpassed the one of agricultural trade

Table 3 Total and Agricultural trade (million US\$,%)

Item	Average 1999-2001	Average 2002-2004	Average 2006-2008	Change % 02-04/06-08	Change % 2006-08/1999-2001
Total trade (1)	8687	12530	26408	110.8	204.0
Agricultural trade(2)	1666	2329	2945	26.4	76.8
(2)/(1) %	19.2	19	11	39.8-	40.6-
Total exports (3)	4486	6478	12304	89.9	174.3
Agricultural export (4)	801	1179	1203	2.1	50.2
(4)/(3) %	17.9	18	10	44.2-	42.8-
Total imports (5)	4201	6053	14104	133.0	235.7
Agricultural imports (6)	864	1150	1742	51.4	101.6
(6)/(5) %	20.6	19	12	35.8-	39.5-

Source: Syrian agricultural database, SADB

Contribution of agriculture in investment: Although the value of agricultural investments increased substantially between 2000 and 2008, the share of agricultural investments, including agro-food sector, in total investment has fell dramatically (as will more explained in the agro-food section) from 15.7 % in 2000, to as low as 7.8% in 2008. In fact, this could be explained by the high increase in other sector such as housing and other sectors. (table 4)

Table 4 Total and agricultural Investment 2002-2008, million SP

	Current prices			Fixed prices		
	Average 2002-2004	Average 2006-2008	Change %	Average 2002-2004	Average 2006-2008	Change %
Total investment	243532	397460	63.2	228346	286085	25.3
Agricultural investment	35181	37283	6.0	33223	27591	-17.0
Share of agriculture investment %	14.6	9.4	-35.1	15	10	-34.6

Source: annual statistical abstract 2009

1.1.2 Agro-food sector and the society

The agro-food sector is characterized by its influential impact on all groups of people including, producers, consumer, exporters, handcraft, transport, and many other group.

Syria has achieved self-sufficiency of many agro-food products such as wheat, legumes, vegetables, and fruits, in addition to significant proportion of red meat, fresh milk and eggs (self-sufficiency is more than

100%) and olive oil. For some other foodstuffs Syria depends on imports to satisfy its domestic needs as the case for maize (self sufficiency is only 10.6%), barley (20- 74%), sugar 18%, vegetable oil 60%.

The Syrian Government offers great support for agriculture and agro-food sector as this support represents an indispensable tool to achieve many paramount developmental objectives: improve livelihood of rural people by creating employment opportunities, achieve rural development, reduce the livelihood gap between rural and urban people, combat rural migration, create production surplus for export, and above all achieving national food security.

As mention earlier, the agro-food sector, plant and animal generally speaking offers employment for 20% of the workforce. However, the draught swept the region forced many farmers mainly in the northeast Syria to abandon farming to work in other governorates.

It is estimated that the total workforce in 2009 (more than 15 year-old) amounted about 5 million, of which agricultural sector employed 758286 worker representing 15% of the total work force (31% in 2000 and 26% in 2003), and ranking fifth in its contribution to employment. (*statistical abstract 2010*)

1.2 Main agricultural commodities

Syria is characterized by high diversity of agricultural production, including large variety of fruits, vegetables, and grains, in addition to livestock products such as dairy products, meat, fish, eggs, leather, honey, etc.

Since the beginning of nineties, the agricultural production, plant and livestock, has witnessed considerable development. This can be explained by the expansion in the cultivated area mainly under irrigation, improved seeds, fertilization, and applying modern agricultural techniques. The livestock sector has also achieved remarkable development due to the supportive governmental policies such as providing feed and other inputs at subsidized price, and veterinary medicines free of charge, and the adoption of high productivity species.

1.2.1 Crops

Crops grown in Syria can be divided to several groups: Cereals, legumes, Grazing Crops, industrial crops, vegetables, and fruit tree Crops. Main Cereals are wheat and barley, followed by maize and sorghum; main legumes are lentil and chickpeas; main grazing crop is barley, main industrial crop is cotton and sugar beet, tobacco; main vegetables tomato and potato, and main fruit tree Crops are olives, citrus, and apples. (SOFAS 2007)

Table 5 Area, Production, Consumption of main crops, 2008, tonne

crop	Area (ha)	Production	Available for Consumption
Wheat	1485991	2139313	2,060,000
Barley	1433215	261136	1,462,000
Maize	70858	281336	1,271,000
Lentil	135740	34116	34,000
Chickpeas	75,779	27,106	32,000
Cotton	176,449	697,841	640,000
Sugar Beet	29525	1104861	800,000*
Tomato	15695	1,163,000	1,193,000
Potato	36172	720492	762,000
Olive	617,060	827,033	820,000
Olive oil	-	152,000	137,285
Citrus	37,521	1,046,456	1,039,000
Apples	47,360	360,697	300,000

Source: MAAR, annual agricultural abstract 2009, * available for consumption as sugar

Table 6 Trade flows form main agricultural commodities in 2008, tone

crop	Export	Import
Wheat	381.000	302.000
Barlev	0	1.357.000
Maize	27	1.009.000
Lentil	26.000	1000
Chickpeas	5.400	300
Cotton	32000	100
Sugar Beet	0	0
Tomato	367.350	108.000
Potato	15.648	23.000
Olive oil	14.000	226
Citrus	53.000	50.000
Apples	37.000	2.500

Source: Syrian agricultural database

1.2.2 Livestock

Livestock and animal production make up a very important component of the agricultural output. It offers a vital nutritional source, employment opportunities, and contributes as well to improving farming efficiency when optimal integration between plant and animal production is achieved. Furthermore, livestock represents a form of saving for rural households. Sheep breeding plays a central role in the subsistence and social organization of the Bedouin population.

The Syrian main livestock is represented by sheep, goats, cattle and poultry. The numbers of Livestock grew positively between 1999 and 2008. The average annual growth rate for cattle, sheep, goat, and poultry were respectively 4%, 9.8%, 8.2%, and 4.7%. Table 7 provides an overview of herd development for most animals over the last decade.

Table 7. Population of main livestock (1000 head)

Livestock	Average 1999-2001	Average 2003-2005	Average 2006-2008	Change % 2003-2008	Change % 1999-2008	AAGR 1999-2008
Cattle	933	1015	1133	11.7	21.4	4.0
Sheep	13289	17503	21161	20.9	59.2	9.8
Goat	1025	1148	1520	32.4	48.3	8.2
Poultry	21253	25905	26728	3.2	25.8	4.7

Source: MAAR, agricultural abstract 2008, **AAGR: Average Annual Growth Rate**

Table 8 Production, consumption, export, import, of animal products, 2008, 1000 tones

Animal produce	Production	Consumption	Export	Import
Sheep meat	184.5	130	54.5	0
Beef	64.6	73	0.1	9.1
Goat meat	8.4	2.8	5.7	0
Fish	15.6	31.7	0.1	16.2
Poultry meat	180.4	154.6	25.7	0
Eggs (million)	3028	3028	0	0

Source: MAAR, agricultural abstract 2008

1.3 Agricultural sector structure

1.3.1 Farm structures

An important feature of the structural change in Syrian agriculture is the disappearance of traditional large-scale farms and the decreasing average farm size, which is mainly due to the agrarian reforms and the inheritance system. Nevertheless, agricultural income per capita has kept the pace of general economic growth, remaining at the same levels as in other sectors, which is due to the increasing intensification of agriculture. In addition, it is clear that land fragmentation had not negatively affected the agricultural GDP, though it surely affected the efficient utilization of land. (*Syrian Agriculture at the crossroad, 2003*)

It should be noted that the last census carried out in 2004 did not provide data on the average area of holding, but only on the number of holders, showing that there was a considerable increase (36%) in the total number of holders (farmers) in that period (485,691 in 1981 to 660,371 in 2004). However, given that the total invested land has not changed significantly in the period, it can be concluded that there has been considerable fragmentation and subdivision of farms.

Table 9 Number of agricultural holders and average area in Syria (area donoum)

Year	Number of Agricultural holders				Average area of Holding		
	1970	1981	1994	2004	1970	1981	1994
Total Syria	527899	485501	613657	660371	115.7	84.9	81.6

Source : annual statistical abstract, Agricultural Census in 1970-1981-1994-2004, donoum = 0.1 hec

Tenure in the cultivated areas is characterized by the important role played by holders whose main occupation is not farming. This group includes absentee owners as well as part-time farmers who have an off-farming occupation. Census data indicate that in 1981 only 63.8% of all farm owners were full-time farmers, while in 1994 that proportion increased to 71.4%. Due to a growth in the total number of farms, the actual number of holders who were full-time farmers increased from 261,000 to 409,000. The number of owners who had off farming jobs also increased from 148,000 in 1981 to 164,000 in 1994. Mostly absentee owners make up this group.

While the total number of farm holders with and without land is known, there are many categories within these broad groups. It is possible to group households partaking in farm operations, and agricultural production in general, into many overlapping functional categories. These are:

- (a) landed holders whose main occupation is not farming (mainly absentees);
- (b) landed holders with farming as a main occupation, i.e. owner-operators;
- (c) landless holders whose main occupation is not farming (mainly absentees);
- (d) landless holders with farming as a main occupation, i.e. owner-operators without land;
- (e) sharecroppers and tenants on private land having a written or oral agreement with the owner of the land;
- (f) land reform beneficiaries and state land distribution beneficiaries that do not yet fully own their land. These are owner-like possessors of holdings assigned to them, for which they pay a yearly fee up to concurrence of one-fourth of the value of the assigned land;
- (g) tenants on public land, renting on lands belonging to the old state land establishment or to the expropriated land reform areas not distributed to beneficiaries;
- (h) squatters on public land - a category of workers aiming at becoming legal tenants and for which regularization is on-going;
- (i) squatters on private land, who are mainly sharecroppers whose contract has expired and whose rights are awaiting arbitration;
- (j) Laborers on state farms, joint ventures or larger private farms with a permanent contract, which is a very small category as most contracts are for short-term casual labor;
- (k) landless and near landless labourers, mainly descending from small owner or sharecropping households with inadequate land base to redistribute to children;
- (l) agricultural entrepreneurs, these operators rent or own large areas of land, especially in the northeast part of the country. (*Syrian agriculture at the crossroad, 2003*).

Since population growth is still rapid, it is easily predictable that pressure on land will aggravate, pushing further downwards the average farm size, unless enough off-farm job opportunities become available to drain excess labor from agriculture. A further growth in income per unit of land is therefore called for to avoid a decrease in per capita farm incomes. It can be fostered by spreading technical progress favoring a further increase in yields, by rationalization of the use of water resources, and by increasing the value especially of those labor-intensive products grown in smaller farms, like fruits and vegetables.

This intensification is confirmed by more recent data; from 1987 to 2008, irrigated land increased from 12 percent to 22.5 percent, while fallow decreased from 28 percent to 17.5 percent. Regarding size classes, 56 percent of the holdings are less than 20 donoums (two hectares) and constitute 11 percent of the total land, but more than 18 percent of the irrigated land. On the other hand, less than 2 percent of the holdings are

larger than 500 donums, with 23 percent of the total land, but the percentage of irrigated land decreased to 15 percent. It is worth mentioning that integration of farms into cooperatives, which on average corresponds to 62 percent of farms, does not seem related to farm size, as most of cooperative farms are medium or small farms.

1.3.2 Agricultural labor

Employment in agriculture is important for many categories of workers, such as investor owners, permanent laborers, and occasional farm workers, but also for landless agricultural workers. Agricultural labor in Syria consists of permanent, seasonal, and family labor. The contribution of each kind of labor differs according to agricultural activity; plant, or animal; the crop; and the availability of hired labor. Female and unskilled labor are in important component of seasonal labor. (Wattenbach, 2003)

In fact, estimates of labor employed in agriculture are difficult in Syria due to lack of appropriate consistent data (*Syrian Agricultural at the crossroad, 2003*). However, according to the Central Bureau of Statistics (SBS), the number of permanent agricultural workers in 2009 was 758286 (83% male). The total work force was 4 999 229 which means that agricultural labor contributed to 15% of total workforce, declining from 31% in 2000 to 26% in 2003. Agricultural labor ranked fifth in its contribution to employment in 2009, while in 2002 it ranked the first. This can be attributed to the following reasons the consequent drought waves that swept the region that badly affected agricultural production and thus reduced the demand for agricultural labor, the low wages for agricultural activities compared to other activities, and the increasing job opportunities in other growing sectors. Syrian agricultural labor is characterized by the dominance of family labor and high contribution of female.

Table 10 Permanent agricultural labor, male, female, total labor force

year	Male	%	Female	%	Permanent agricultural labor	Total labor force	%
2002	946042	64.72	515813	35.28	1461855	4821757	30.32
2003	816598	69.87	352145	30.13	1168743	4468574	26.15
2004		15.3		25.5			17.1
2005	749831	79.33	159355	16.86	945186	4693494	20.14
2006	781927	82.17	169672	17.83	951599	4859948	19.58
2007	780954	82.50	165647	17.50	946601	4943977	19.15
2008	645688	79.31	168423	20.69	814111	4847898	16.79
2009	636095	83.89	122191	16.11	758286	4999229	15.17

Source: annual statistical abstract, several issues

As seen from the table above, the agricultural labor decreased in 2002-09 in its absolute values, as well in its contribution to total workforce. Furthermore, the contribution of female agricultural labor in total agricultural labor decreased from 35.28% in 2002, to 16.11% in 2009, which is due to the reasons mentioned above (drought waves,), and to the high dependence on family labor.

The amount of hired labor increases with the size of holdings. However, the amount of both family and hired labor per ha of cultivated land decreases as farm size increases. This suggests that larger farms are more capital intensive than smaller ones, and that labor productivity is much higher on larger size farms. (*Syrian Agricultural at the crossroad, 2003*)

Availability of employment opportunities either for full-time workers or in terms of occasional labor varies throughout the country and is affected by seasonality factors. In many parts of Syria, in the Hama countryside for example, a situation of labor shortage during harvests co-exists with relative labor abundance throughout the year. The number of landless laborers in that Governorate is said not to exceed 10%, but is constantly increasing because of population growth, insufficient development of non agricultural employment opportunities, and continuing fragmentation of holdings through inheritance. However, in view of the active labor demand during the peak agricultural seasons, open unemployment of agricultural labor exists mainly for only about two months in the slack season.

Landless laborer households are those households that do not operate land under any form and do not have non-agricultural employment. Only limited information is available on landless laborer. They were recorded in Forni's (2001) field survey as accounting for between 6% and 36% of total households in the eight villages surveyed. This category does not necessarily coincide with the poor households and, usually, has peculiar attitudes, as it participates in multiple activities within and outside agriculture

More generally, in Syria, agricultural labor organization and mobilization functions in accordance with local and non-local demand. Traditional labor contractors, the chawesh, perform these functions. They pool mainly female labor and make it available in different governorates according to market demand. Another phenomenon that is relevant for labor organization is the inter-household cooperation among farmers, producing different crops, and having different labor requirement peaks. For instance, cotton producing farmers may establish cooperation with onion-producing farmers and exchange their family labor.

It should be noted, however, that Syrian agricultural labor moves also abroad. Findings from a field survey conducted in the Idlib and Hama Muhafazat in early 2001 indicate that workers compare the local daily rates with the ones prevailing in Lebanon or in the Gulf. In the case of Lebanon, rates would be about five times higher for comparable work. Proximity allows laborers to move out easily. It is mainly women, more constrained by social custom, who are restricted to the national market. They constitute the bulk of the migrant labor force that the Chawesh mobilize to provide the needed number of laborers at the right place and time for all the major agricultural operations, particularly harvest

ii. 1.3.3 Inputs usage and machinery

Securing agricultural production inputs is a main objectives of the agricultural policies in Syria. The implementation tools of this policy has gradually moved from direct involvement - of public organizations in providing these inputs at subsidized prices - towards reducing or replacing some input subsidy by direct payment from the newly established "Agricultural Support Fund, while giving more role to the private sector in production, importation, and exportation, which applies on seeds, seedlings, agro-chemicals, feed, etc.

Seeds of strategic crops (wheat, barley, sugar beet, tobacco), is largely provided by the General Establishment of Seed Multiplication GESM, who supply also limited quantities of seeds of some basic crops such as lentil, chickpeas, bean, maize, potato. The contribution of the GESM in securing improved seeds ranges from 35-50% for wheat seed to 1% in barley seed, in addition to limited quantities seed of lentil, chick pea, bean, maize, and potato. The remaining seed requirement of strategic crops is supplied either by the private sector or by farmers themselves.

Seeds of other crops and vegetables are supplied by the private sector either by import, or by local production. Some seeds are completely imported, others are locally produced, while other seeds are obtained from both sources.

In fact, data about seed quantities used in Syria is not available; however, we can give the evolution of seed of some strategic crops provided by the GESM.

Table 11: The evolution of seed produced by the GESM , 2003 – 2008 (1000 tone)

	2003	2004	2005	2006	2007	2008	Average 2003- 2005	Average 2006- 2008	Average change % 03-05/06-08	AAGR %
Wheat	85.7	139.3	134.3	124.0	72.3	193.4	119.8	129.9	8.5	17.7

Cotton	18.7	20.7	19.4	18.0	17.9	17.9	19.6	17.9	8.5-	0.9-
Potato	26.4	25.5	20.5	18.8	15.3	20.8	24.1	18.3	24.2-	4.7-

Source: Ministry of agriculture and GESM

The seedling of fruitful trees is produced by the nurseries of the MARR and by the private sector. The following table provides data on quantities of seeds, for the season 2007-2008.

Table 12: Quantities of seeds planned for the season 2007-2008 for some crops, tone

Crop	Irrigated			Rain-fed			Requirement of seeds /tone	The plan of the GESM
	Area hectare	Seed rate kg/h	Quantity /tone	Area hectare	Seed rate kg/h	Quantity /tone		
Wheat	813146	250	203287	836106	180	150499	353786	160000
Barley	53160	100	5316	1361848	100	136185	141501	12000
Lentil	16322	100	1632	164503	90	14805	16437	525
Check peas	3641	60	2185	86642	40	3466	3684	1000
Cotton	220364	90	19833				19833	25000
Potato	36739	2500	91847	330	2500	825	92673	

Source: agricultural plan for the season 2007-2008

Fertilizers

As mentioned earlier the possibility of increasing agricultural production by increasing the cropped area has become very limited. Therefore, the government focused on vertical expansion vertical expansion, i.e. increasing the output per unit of land. In fact, chemical fertilizers played a major role in achieving this objective. In the last three decades, the government played a prominent role in supplying fertilizers through the Agricultural Cooperative Bank, ACB. However recently, agricultural policies focused on more on the rationalization of the usage of chemical fertilizers. Consequently, the ministry of agriculture reduced the distributed quantities of fertilizers supplied according to the agriculture license, and induced farmers to conduct soil test in order to determine soil nutrient content. In 2008, in line with its new policy to reallocate agricultural subsidy more efficiently, the government eliminated subsidy on chemical fertilizers. The decision also aimed at rationalizing fertilizers usage for the conservation of land and water resources. The following table demonstrate the average quantities of nutrient used

Table 13 Fertilizer Consumption 1999-2008, thousand tonne

Fertilizers	N	P	K	Total
Average (1999-2001)	210	104	8	321
Average (2003-2005)	245	112	9	365
Average (2006-2008)	270	117	10	397
Change % (1999-2001/2006-2008)	28.6	12.1	36.7	23.4

Source: MAAR, agricultural abstract 2008

The table demonstrates that in the short and long run there was a significant increase in the consumption of fertilizers. It shows also that consumption of N ranks first followed by P, and K.

Pesticides

The government' role in pesticide sector is restricted to supplying mandatory pesticides, while the agricultural pesticides is imported or manufactured by the private sector. The government is giving attention to rationalizing the usage of the pesticides. There is no available data on pesticides quantities used in Syria

Agricultural Machinery includes water-raising pumps, seeders, modern ploughs, threshers, and tractor, harvesters, etc. Agricultural machinery is mainly owned and operated by the private sector. Agricultural machineries increased between 1999 and 2008, which is due to the expansion of agricultural production. However, generally speaking small farms do not own machinery for efficiency reasons; they rather hire machinery from big farmers. In addition, many agricultural activities are still carried out by human such as weeding, hewing, picking, because of the prominent small farms and relatively cheap labor. The following table demonstrate the evolution of number of agricultural machinery.

Table 14 Evolution of number of Agricultural machinery in Syria 1999-2008

Number of machinery	tractors	Thresher harvester	Fixed Thresher	ploughs	seeders	water raising pumps	Sprayers by motors	Dusters	total
1999	95649	5038	5303	106007	16272	161521	95085	10154	495029
2000	97660	4734	5278	108459	15652	159447	95338	9814	496382
2001	101389	4500	4850	84824	15305	145246	96627	9641	462382
2002	103636	4786	4842	95555	15260	170729	97451	9256	501515
2003	103626	5249	4829	110900	17209	188696	98719	9500	538728
2004	104583	5335	4816	111943	17828	184998	99220	8669	537392
2005	106131	5651	4831	113624	18669	205481	101707	8911	565005
2006	107946	5724	4717	113779	19933	217731	104562	8962	583354
2007	108425	5845	4752	115328	20752	218436	108069	10523	592130
2008	109890	5669	5135	114336	19687	215309	110227	7686	587939
Average 1999- 2001	98233	4757	5144	99763	15743	155405	95683	9870	484598
Average 2006- 2008	108754	5746	4868	114481	20124	217159	107619	9057	587808
Average change%	10.7	20.8	-5.4	14.8	27.8	39.7	12.5	-8.2	21.3
AAGR%	2.1	3.8	-1.1	2.8	5.0	6.9	2.4	-1.7	3.9

Source: MAAR, The Annual Agricultural Statistical Abstract

1.4 Agro-food industry

Agro-food sector plays a vital role in generating many agro-food industries as it supplies these industries with the raw material. For example, wheat for flour, and bread, sugar beet for sugar industry, cotton for ginnery and textile industry.

In fact, Syria enjoys ample and diverse agricultural production, both plant and animal, which enhance its competitiveness position of the Syrian agro-food industry. Therefore, the agro-food sector has received much attention from the government. It offered private agro-food businesses with many advantages and removed obstacles confronting this sector.

During the 90s of the last century, the expansion of public sector processing capacity was accompanied by the promotion of private-sector participation, especially through investment Law no. 10/1991, so that the public sector had to face private competition in an increasing number of sub-sectors with positive effect on the overall efficiency of the food processing industry.

1.4.1 Description, importance

Over the last three decades, the agro-food industry has achieved remarkable development. It became a strong pillar of the national economy and a major contributor to the GDP. The agro-food industry in Syria plays an essential role in achieving socioeconomic development and poverty reduction as it plays a fundamental role in employment creation and income generation. In addition, it helps stabilize crops prices and prevent sharp prices falls especially in production peaks.

Food industry contributes in many ways to the development of a modern agro-food sector. It enhances incomes by adding value to raw agricultural products. It promotes modernization of the farming systems in

terms of technological innovation (crop produced and cropping technologies) as well as in terms of relations with the market (coordination and integration among the farmers and between farmers and other agents). Moreover, it responds to consumers' demands for variety in type and quality of food and contributes to smooth out seasonal variability of food supply, reducing its negative price effects on consumers and farmers. Furthermore, food-processing activities curb migration from rural areas if they are located close to agricultural production areas. Finally yet importantly, agro-food industry contributes in raising food security.

Consequently, the current strategy for government, drawn in the eleven-year plan, is to devote greater attention and make more effort to enhance development of this leading sector. (*SOFAS several issues*)

1.4.2 Main products

The Syrian agro-food processing sector is characterized by high diversity of its products which exceeds 24 processed foodstuffs. Both private and state-owned companies operate in agro-processing activities. The private sector processes very wide varieties of agro-food products such as, olive oil manufacturing, dairy processing, in addition to the traditional industries like bakery, sweets, and beverages. Recently the private sector entered new domains such as frozen products, fruit juices, snacks and pickles, and nuts and modern olive oil processing. Currently, the private sector processed food accounts for a major share of agro-food industries. The agro-food processing in public sector deals with processed fruit and vegetables, oil, dairy products, biscuits, pasta, dried onions, sugar and sweets, water, beer, and spirits.

1.4.3 Structure and typology of the food industry

Syrian agro-food industry is composed of three sub-sectors according to their different ownership: the State-controlled, the private sector, and the joint-venture companies. In the 70s, the Syrian government encouraged both the agricultural sector and the food industry to cover the increased demand for food. In that period, the main purpose of public sector companies was to complement the small private sector in transforming the surplus of agricultural production into processed products, and to establish the infrastructure required for the industry.

During the 90s, the expansion of public sector processing capacity was accompanied by the promotion of private-sector participation, especially through investment Law no. 10/1991, so that the public sector had to face private competition in an increasing number of sub-sectors with positive effect on the overall efficiency of the food processing industry.

The General Establishment for Food Industries (GEFI), part of the Ministry of Industry, affiliates 19 companies operating factories in several food chains. It deals with processed fruit and vegetables, oil, dairy products, biscuits, pasta, dried onions, sugar and sweets, water, beer, and spirits. All these companies were established or nationalized during the 60s and 70s, and most of them operated as state monopolies in the relevant market segments until 1991. The public food industry strictly applies the Syrian specification of food products. In the past, the main customer for public food industry was the public marketing outlets thus; there was no consideration to produce new products, promote, and reduce cost uncured by over-staffing. Recently however, the government gave more authorities and marketing flexibility for public sector companies. Consequently, public agro-food companies improved its production and services, and became an active player in the processed agro-food market. The following shows the average value of processed food in public and private sector in current prices. (*SOFAS 2007*)

Table 15: Average value of processed food, beverages and tobacco, current prices, million SP

	Average 2001-2003	Average 2007-2009	Average change %
Public sector	49496	56126	13.4%
Private sector	44173	74453	68.5%
Total	93669	130580	39.4

Source : Annual statistical abstract 2009

Comparing the average value of processed agro-food in private and public sector between 2007-2009 and 2001-2003, we notice a remarkable development achieved by private sector (68.5%), compared to modest development (13.4%) for the public sector. The overall value increase for all the agro-food processing sector was 39%.

1.4.4 Investments

As mentioned, both public and private sector have large investments in the agro-food industry. There are 19 public agro-food factories run by the General Establishment of Food industries, 32 mills run by the General Company for Mills, and 175 bakeries run by General Company for Baking. These factories are characterized by large production, over-staffing, and old machinery.

Table 16 Capital invested in agro-food industry, public and private sector, current prices, million SP

investment	Average 00-02	2003	2004	2005	2006	2007	2008	2009	Average 07-09	Change %
Public sector	32911	33203	32996	32974	32881	32637	32546	32161	32448	1.4-
Private sector	1276	1621	2567	2838	3423	2792	3125	7533	4483	251.4

Source: annual statistical abstract 2009

1.4.5 Agro-food trade flows

Between 1999 and 2008, the trade increase rate of agro-food products exceeded the trade increase rate of total agricultural products. As seen from table 15, share of export of agro-processed food in total agricultural export increased from 7.5% to 23%, between the mentioned years. However, share of exports were almost stable with small variations between years.

Table 17 Contribution of processed food trade in total agricultural trade, million US\$,

	Average 1999-2001	2002	2003	2004	2005	2006	2007	2008	Average 06-08
Value of exports of processed food	60.3	122	147	172	256	247	314	287	282
Value of total agricultural exports	798	1328	1132	1123	1115	1222	1386	1002	1203
%	7.5	9.2	13	15.3	23.8	20.2	22.6	28.6	23.8
Value of imports of processed food	426	524	498	650	634	630	935	794	787
Value of total agricultural imports	864	1034	1086	1391	1443	1284	1911	2030	1741
Share of %	49	51	46	47	44	49	49	39	46

Source: calculated from the Syrian agricultural Database

The main exported processed foods are cheese, olive oil.

2. Current agricultural and food policies

Agricultural policies in Syria are drawn and formulated in the framework of development planning. Syrian agricultural development planning is done in three stages: long term planning, med-term planning and annual planning. The long-term plan defines the orientation and strategy of agricultural development, which in turn serve as the framework for the preparation of the medium term plan (five-year plan). The latter is implemented through annual plans. All concerned parties participate in the planning process; village level parties as well as governorate and national level ones. The Ministry of Agriculture and Agrarian Reform, the Ministry of Irrigation, the State Planning Commission, the National Peasant Office, and the General Peasant Federation contribute to this activity and to the finalization of the corresponding planning documents, which are ultimately approved by the Office of the Prime Minister. (SOFAS 2002)

2.1. Short retrospective view of agricultural policies (historic overview)

Agricultural policies in Syria have changed gradually, but significantly since the 6th Five-Year Plan of 1986-1991. Central planning was replaced by an indicative planning for non-strategic agricultural products. A more liberal trading system has evolved, with a simplified tariff system, reduced tariffs to a number of countries, and elimination of a number of licensing requirements and regulations. Input subsidies for key inputs of fertilizers and chemicals have been reduced or removed. Guaranteed output prices, however, have been increased, above world market levels for several strategic crops. Many regulations on production, pricing, marketing, processing and trade remain. (Huff 2004)

The long-term objectives of Government intervention in agriculture over the last decades can be summarized as following:

- I. securing a high degree of food self-sufficiency for staples;
- II. utilizing fully and improving productivity of natural agricultural resources;
- III. achieving equitable levels of income distribution, of satisfactory targets of poverty alleviation in rural areas, and of containment of rural-urban migration;
- IV. securing adequate levels of employment to the agricultural labor force;
- V. guaranteeing adequate and affordable levels of food consumption to urban and rural populations;
- VI. providing adequate supply to domestic processing plants;
- VII. increasing agricultural exports;
- VIII. promoting investments as a major instrument for achieving development.

These objectives have been gradually evolving over the last decade and, particularly, over the last few years, modifying and integrating the original set of objective as follows:

- I. gradually shifting from the strict self-sufficiency to a broader objective of self reliance;
- II. recognizing a central role to the development of marketing and processing capacity adequate to compete at international level;
- III. giving increasing consideration to the environmental constraints specially in terms of necessity to preserve and promote the efficient use of scarce natural resources including land and, first of all, water. (Syrian agriculture at the cross road, 2003)

In fact, the apparent trend for adjusting subsidy has been pointed out in the main objectives of the *tenth five-year plan* for economic and social development. : “adopting price and marketing policy and directing executive programs to increase agricultural production quantitatively and qualitatively, boosting competitiveness of agriculture sector, and offering subsidy in forms that is consistent with other countries’ subsidy and with the WTO regulations. (Regional Strategic Framework for the Near East (RSF))

Yet, the agricultural policies still gives priority to maintaining certain production levels of strategic crops for food security considerations and to supply the state-own factories with raw materials, and create employment in rural areas, and improve agricultural income. The tools to achieve these policies are high producer price and other newly created support by the agricultural Subsidy Fund.

Agricultural Subsidy Fund: In 2008, the legislative decree No.29 was issued with the following objectives: enhancing the efficiency of the subsidy system by incorporating all subsidy forms in one fund, and encouraging the planting of certain crops, and compensate farmers for the cost increase incurred upon increasing the price of diesel and fertilizers.

2.2 Objectives of current agro-food policies and support to agriculture

The broad objectives of Syrian agro-food policies is increasing agro-food production, improving its quality, attaining food security & food sufficiency of main agro-food commodities and enhance exports. These policies focus on production & marketing of agricultural products, the improvement of infrastructure, the provision of basic agricultural services and research, extension services, agricultural support, crop protection, the protection of natural pastures and forests, animal health, veterinary services, water and agro-processing.

Current agricultural policies applied in Syria seek to achieve many objectives, the most important of which are the following:

- Attaining a significant contribution of the agricultural sector to GDP and economic stability through increasing production and providing real job opportunities;
- Improving self-sufficiency of the basic food staples, narrowing the food gap and ameliorating the agricultural trade balance by increasing exports and decreasing imports;
- Achieving adequate integration between the agricultural sector and other economic sectors of the economy considering inputs and outputs where the agricultural sector provides a significant share of the inputs and raw materials needed for the industrial sector (sugar beet plant, ginneries, tobacco plant).
- Promote investment in agricultural sector in order to create job opportunities in rural areas, and improve rural livelihood.
- Enhance agricultural research, and produce new crop varieties that is resistant to draught and agricultural plights
- Look for alternative crops that have comparative advantage with less water requirement;
- Achieve integration between animal and plant production;
- Rationalize usage of irrigation water by enhancing modern irrigation techniques, and banning wells digging.
- Rationalize the usage of agrochemicals in order to protect the environment, water and land resources, and agricultural produce from pollution and contamination. (SOFAS 2007)

2.3 Price and income support policies

The price policy aims at prompting producers to increase agricultural production and to improve its quality in order to achieve certain objectives set by the government. Farmers are given price premiums that ensure reasonable income for producers and comply with the product significance for food security, export, and import replacement. The price policies include central pricing of strategic crops and some main crops to motivate plan implementation, achievement of food security.

The agricultural products are classified according to the government intervention in the process of pricing and marketing into strategic and non-strategic crops:

Strategic crops:

There are seven crops considered as strategic crops, for which the Government sets the price namely: cotton, wheat, barley, sugar beet, tobacco, lentils, and chickpeas. They are further divided into two sub groups in light of the differences of Government involvement in their marketing. Cotton, sugar beet, and tobacco farmers have to sell all the quantities produced in the licensed area at the centrally determined price to public sector agencies that have the monopoly of marketing and processing, while the extra quantities are sold at the international price if it is less than the public price (cotton). Wheat, barley, lentils,

and chickpeas farmers have the choice of selling their production either to the public or to the private sector. For the latter group, the procurement price determines to large extent the share of public and private sector in the market. When the procurement price is above the market price, the public sector retains the main role in marketing (as in the case of wheat), while it acts only as a buyer of the last resort when the procurement price is below parity (this is typically the case of lentils and chickpeas).

In fact, procurement prices of strategic crop have never been reduced, even when international prices falls. This considered by the government as income support policy for farmers to improve there livelihood, and generally to narrow the gap between rural and urban income.

2.4 Input use policies

Since the late 1990s agricultural input policies have generally moved towards a gradual elimination of subsidies of some inputs such as fuel, irrigation cost for state projects, and electricity, while the price of other inputs has been liberalized such as chemical fertilizers, pesticides, machinery and some seed varieties. These policies amid at enhancing efficiency and evolving the private sector to take part in producing, importing, and trading most of these inputs especially pesticides, fertilizers, seed of vegetables, seedlings, machinery, and agricultural tools, in addition to livestock production inputs such as veterinary care and fodder, etc.

The public sector represented by producing, importing and marketing establishments sets prices for main inputs provided by the government such as seeds of strategic crops, fertilizers, and some kinds of feed. The prices are based on the cost of production plus a profit margin. In bad and low production seasons, governmental agencies increase feed quantities provided to enable shepherders to preserve their herds. Concerning inputs produced or imported and distributed by the private sector, the Ministry of Economy and Trade (MET) determines the wholesale and retail prices for agricultural inputs after verifying and checking the cost elements submitted by the producer or importer and adding a profit margin. Multiplicity of producing and marketing bodies ensures appropriate competitive environment allowing market forces to determine prices.

We will focus here on seeds, chemical fertilizers, and pesticides. Concerning seeds, the government intervention policy vary according to the importance of the crop. For strategic crops, the Agricultural cooperative bank (ACB) provides certain quantities of seeds that is determined according to the agricultural license and based on pre-defined requirement rate. Usually the quantities provided by the Bank do not satisfy farmers therefore they resort to the private sector to buy additional quantities.

In fact, the Governmental agricultural policies still give special attention to the provision of improved seeds for strategic crops (wheat, barley, cotton, sugar beet, tobacco) by the General Establishment for seed Multiplication (GESM) in addition to some quantities of lentils, chickpeas , beans, corn, and potato. The GESM, however, covers only 35-50% of wheat requirement, bearing a subsidy of SP 2/kg, and only 1% of barley seeds. The remaining quantities are covered from farmers' stock or by the private sector. On the other hand, production and marketing of seeds related to cotton & sugar beet are restricted to the GESM.

Seed Prices are determined by a management board of the GESM and approved by the Ministry of Agriculture and Agrarian Reform (MAAR). Prices of other seeds that GESM does not produce like vegetables are set by the Ministry of economy and Trade based on the cost of production plus a profit margin. It is worth mentioning that during 2000-2009 prices of some seeds did not change; wheat 16 SP/kg, barley 12 SP/kg, lentils 25 SP/kg, corn 23 SP/kg, local potato 17 SP/kg, raw cotton 10 SP/kg. However, the price of chickpeas seeds fluctuated between 27 and 36 SP/kg with a negative annual growth rate of 4.3 % in simple way calculation and the price of sugar beat seeds increased annually by 8.2 %. (SOFAS 2007)

2.5 Rural Development Policies

One of the main objectives of agricultural policies in Syria is to enhance rural development. To achieve this objective the government adopted many approaches and tools, one of which is high intervention in agricultural sector. The Government believes that offering income support for agricultural producers would improve farmers' livelihood and narrow the gap between rural an urban income. Therefore, the Government controls the production , marketing chains, and pricing of strategic crops, offering premium prices for these

crops. In fact, strategic crops create hundreds of thousand employment opportunities in agriculture and in other related sectors. In addition, starting 2008, the Agricultural Subsidy Fund (ASF) offered another kind of subsidy to farmers of certain crops, vegetables, and fruitful trees, which represents a compensation for eliminating subsidy on fertilizers, and fuel.

The government offered via the Agricultural Cooperative Bank agricultural credit at reduced interest rate; recently the government amended the mission of the ACB allowing it to provide personal loans on condition that it is invested in the rural areas

In addition, the Government - occasionally with support from international organizations - has established many rural development projects³⁰ that targeted rural communities. These projects offered many free or subsidized services: agricultural; land reclamation, machinery, irrigation facilities ,etc ; training in many fields, agriculture, animal breeding, food processing, crafts, nursery; cash or in-kind credit, and many other services.

Furthermore, efforts have been made to enhance infrastructure in rural areas in order to improve live quality for rural people and attract local and foreign investment. Currently rural areas in Syria enjoy many services and facilities: water and sewage system, roads, transportation, electricity telephone lines, etc. The Education system has witnessed considerable development, with schools spread in most villages, and the government gives preferential treatment for student in remote less-educative areas to join university. Furthermore, the health system has improved substantially as public clinics are spread in many rural cities and communities.

2.6 Agro-environmental policies

Syria is resource constrained in terms of availability of agricultural land and fresh water. In fact, the intensification of agricultural activities in Syria in the last two decades increased production substantially and enabled Syria to achieve self-sufficiency of many plant and animal products. However, in some cases this achievement was at the expense of over-exploiting land and water resources, and obstructing agricultural sustainability.

Consequently, Syria suffers from several environmental problems that are associated with agricultural activities that can be summarized as follows: infertility, degradation and salination of agricultural soil, rangeland deterioration, deforestation, and contamination of agricultural soil, water, and agro-food, depletion of water resources, and loss of biodiversity. These environmental problems pose short and long-term threat on the health of human and ecosystems, and hurt the sustainability of agricultural production.

Agricultural policies in Syria in the 80s and 90s were designed to maintain high agricultural production levels mainly of food crops in order to meet the highly increasing food demand. Market signals for environmental goods were weak or absent; therefore, farmers did not have incentive to reduce environmental harm sufficiently and little consideration was paid to the negative impacts of such policies on the sustainability of agricultural production as well as the environment. These policies included offering agricultural inputs such as seeds, fertilizers, pesticides, and diesel at subsidized price, or free as the case in irrigation water in some areas, and offering remunerative prices for strategic and main agricultural crops. In Al-Badia the rangeland deterioration occurred because of abolishing property rights for tribal groups making the rangeland open-access and led eventually to over-grazing. This situation provided no incentive for long term management and led to a classic 'tragedy of the commons'. In addition, there is little policy concerning, for example, over-using chemicals, treatment of agricultural waste, water over-pumping, etc.

These policies induced for more usage of agro-chemicals causing contamination of soil, under-ground water, and agro-food produce. Second, the over-exploitation of under-ground water resulted from the expansion of the well-irrigated areas and the extravagant use of water in traditional irrigation caused soil salination and reduced groundwater tables. Moreover, the absence of clear and strict environmental regulations or the weak enforcement of some environmental regulations tempted some people to cultivate rangeland causing soil degradation, or to cut trees in the wood.

³⁰ Some of these projects: Al-badia development project, the project of "development of southern region", Mountain Alhuss project", project of rural women empowerment.

The government realized these problems and the threats they pose on agriculture, human, and ecosystems, and took many measures and actions.

Concerning water conservation, which is the most urgent and pressing problem facing agriculture³¹, the government strictly banned well digging for agricultural purposes, reduced the planed area of some summer crops such as cotton, and gave a great attention and offered many advantage to farmers to convert from traditional irrigation to modern irrigation which saves up to 50% of water used. To this effect, the government set up a project and a directorate that is linked to the Ministry of Agriculture. The project offer facilities and expertise for farmers, and offer 50% grant of the cost of modern irrigation network, and the remainder by to be paid by instalment. It is worth mentioning that the increase in diesel price urged producers to reduce usage of irrigation water and pushed some of them to convert to modern irrigation techniques.

Regarding combating pesticides pollution, the government prohibited applying pesticides on certain fruitful trees such as citrus and olive trees, and encouraged the integrated pest control. In addition, the government encourages organic farming, aiming on the one hand to supply healthy and safe food for consumers, and minimize the usage of agro-chemical. Currently, some area is being cultivated with organic cotton. In fact, liberalization of agrochemicals had positive impact on environment as it induced farmers to minimize their usage of agro-chemicals mainly fertilizers.

There are number of environmental regulations in Syria for example;

The forestry law No. 25, 2007 that considers the forestry is national wealth were no body has the right to dispose, or occupy it. The law determined the forestry areas and defined penalties on forestry aggressors.

The legislative decree No 140, 1970 organized the exploiting rangeland by setting property right for its inhabitants , and the law No 31, 1973 which further protected rangeland and set penalties for violators; and the law No16, 1982 which prohibited cultivating rangeland with grains, while allowing planting forge shrubs.

2.7 Infrastructure policies

Infrastructure is considered one of the main components that provide communities by the appropriate environment for sustainable social and economic development. Infrastructure is not developmental goals by itself but excellent developmental mechanisms, which help to increase productivity, promote investment and growth, increase work opportunities, and improve social welfare. (*Development of Infrastructure in Syria 2007*)

The delivery of services like water, sanitation, transportation and energy directly benefit rural households and can dramatically improve their welfare. Furthermore, many of the benefits of infrastructure services go to farms and reduce the production cost, most importantly, market opportunities could be expanded (especially through telecommunications and transport). The resulting gains in competitiveness and production are what drive the gains in economic growth and ultimately welfare.

Improvements of rural infrastructure is receiving significant attention from the government with the aim of facilitating agricultural production and marketing as well as improving living conditions in rural areas.

Agricultural Roads: In addition to the growth in major roads and highways, The 1990s and first half of 2000s witnessed an expansion of the rural road network, which grew from 530 kilometers executed by the Ministry of Agriculture and Agrarian Reform (MAAR) in 1991 to 7,788 kilometers executed in 2005 (accumulation number). Moreover, MAAR is no more responsible of rural road networks. However, by 2004 the ministry of real estate became responsible of executing the agricultural roads. Currently almost all villages and rural communities can be accessed by paved roads.

During the same period, the electricity sector grew by average rate 9.8% yearly for production. Almost all villages and rural communities in Syria is supplies with electricity service, except for the remote small isolated rural communities.

³¹ Agricultural production consumes more than 80% of total water consumption

Regarding the development of communication sector during the past 25 years, the number of fixed lines increased annually by 10.1% growth rate in average. Furthermore, the number of mobile phones increased remarkably to be more than 8 Million lines in 2010. Due to the main role plaid by this sector in business world and achieving the information society, there should be a devoted attention to achieve the goals of the National Strategy for Information and Communication Technologies of diffusion rate 30 fixed and mobile lines and computers (internet services) by 2013, in addition to reduce cost for using these facilities according to the income per capita to help people achieve the information society.

The sector of drinking water and sanitation has improved during 1980-2005. Water production by the General Institution for Drinking Water has achieved an annual growth rate of 6.3% and the consumption grew by 7% yearly in average during the same period. In general, Syria is suffering from the scarcity of its water resources, so it is important to rationalize water consumption and treat sanitation water and polluted wells, and support the role of private sector in this field.

In conclusion, the government of Syria is committed to bring about more improvement in the rural infrastructure, albeit major achievements have been achieved until now. Roads have been constructed, electricity has been supplied to almost all rural residential communities, and telecommunication and internet (dial-up) is available most rural houses. Drinking water and sanitation sector is improving gradually; some villages still lack drinking water and sanitation. Education and health sector is witnessing improvement with most villages have elementary and preparatory schools, and clinic centres .

2.8 Consumer policies

Although Syria has adopted the social market economy, this has not breach the government commitment to protect consumers and intervene in the market when necessary, without harming producers. In fact, the Syrian consumer still enjoys considerable amount of price subsidy for basic foodstuffs, such as bread, sugar, and for diesel which is sold for 60% of world price. In addition, the government adopts a policy of “positive intervention”, which means providing foodstuff at reduced prices through the outlets of the governmental marketing establishments. Very recently, the government reduced the tax on many imported foodstuffs as swift respond to the increasing prices resulted from the increasing world prices. Furthermore, patrols that belong to the ministry of economy make continuous rounds on market to check prices and take samples of foodstuffs for inspection. In addition, the “society for consumer protection” is playing an important role in monitoring the market and investigating for monopoly cases, and receiving complaints from consumer concerning price manipulation and other violations.

The government have has been working to create legal framework of consumer protection. Following, the laws and decrees that have been issued up to date to protect consumer in terms of food safety, and against cheating and price manipulation:

- I) The law No2, 2008 have been issued. It ensures the people’ right in practicing economic activities, while banning them from conducting any agreement or practicing any activity would violate the basic rights of consumers.
- II) The law of food safety in 2008,
- III) the decree No 59, 2008 that determine the commodities and services included by consumer protection law.
- IV) The decree No. 1638, of 2008 bans exporting, importing, selling, exposing and providing any product or service that affect consumer safety
- V) Decree No. 1639 and No: 2537 of 2008: This decree require wholesalers and retailers to provide formal detailed bill to purchasers including (quantity, quality, price, etc.) to avoid cheating and price manipulation;
- VI) Decision No. 1637, 2008 : banning of producing any toxic, rotten damaged unsafe, harmful or expired product;
- VII) Decision No.1636, 2008 : Banning of putting specification or quality mark on goods without getting the authority approval;

3. Trade policies

3.1 General Policies Affecting Agriculture³²

Syria, since middle eighties in the last century, is shifting from former centralized oriented economic to more liberalized and open market structure. In 1986, Syria started to implement a comprehensive economic reform program targeted to enabling opening the Syrian economy to the world economy, increase economic growth rate, accelerate economical growth by offering suitable institutional and economical environment. and thus, a new policy for the economy was adopted for all sectors including agriculture.

3.1.1 *Monetary and financial policies*

Monetary and financial policy in Syria is intended to restore fiscal sustainability and spur alternative sources to grow, allow for efficiency improvement of banks under the umbrella of developed financial policy, rationalize and control public expenditures, liberalize the exchange rate and redress financial and tax systems to be an instrument for investment attraction, and use financial resources in the best way to satisfy financial needs for financing investment and development projects.

The Ministry of Finance has undertaken a comprehensive strategy of reform leading to updating financial system and reviewing legislations that regulates financial operations. A program to rehabilitate the financial sector was followed with the intention of improving its execution mechanisms.

Important developments were happened in the monetary and financial policies including modifying the old financial law (by law No 54 for 2006), achieving financial stability to settle the exchange rate of Syrian pound against main foreign currencies. Currently, Ministry of Finance with cooperation with EU is implementing project to reform finance and tax systems and improve institutional and sectoral work.³³

Many legislations were issued last ten years, resulted in strengthening and liberalizing the banking system. Law No. 28 of 2001, opened the way for establishing private banks. The private banks were given flexibility in financing the investment projects and ability to response to market requirements, so that importers and exporters can now deal with private banks. restrictions on transferring profits out of the country were relaxed. The foreign banks and financial associations were permitted to open branches and representing bureaus in Syria and banks were allowed to finance imports for both public and private sectors in foreign currency (decree 348 for 2008).

The former multiple fixed exchange rate system was replaced by a new free exchange system. A Commission was appointed to update financial and banking legislation and this Commission has passed many decrees in order to facilitate the business of private banks and modernize the operation of public banks. The government has signed several agreements for cooperation in finance with many countries to avoid double taxation with partner countries. A substantial update and reform of the tax system was performed to simplify tax collection procedures, minimize the complications that hindered tax collection, enlarge the base of taxpayers, and reduce tax evasion. Some taxes were reduced including the income tax. Now the tax on value added is under elaboration to enhance tax collection and ensure fairness in tax obligations.

Currently, the government is working to modify the currency law to get along with the requirements of openness on international financial markets.

3.1.2 *Stock market*

Damascus stock market was officially opened in march 2009. It is considered an important step towards building a modern financial system and a factor of economic evolution. The foundation of stock market aimed to create lawful tool to attract capitals and use them in financing investment projects that contribute to economic development as well as creating new jobs. A Commission for the Stock Market has finalized all

³² Syrian Agricultural Sector in the Context of Preparation to Join WTO, 2006 & Syrian Agricultural Trade Report,

³³ Policies and Legislation Applied in Syria, Analytical and Critical Review

arrangements to start working, and legislations were issued for certifying companies of financial services, financial intermediation, and important information related to companies was declared, measures of professional behaviors, compensation of stock market, duality in stock market and the arbitration for stock market disputes have been done. On the other hand, Damascus stock market has joined the international organization for symbolizing stocks ANNA in Belgium .

3.1.3 Insurance policy

Syrian government, in the framework of financial and economical reforms, gives great attention to the insurance sector due to the important role of this sector in assisting to achieve economic and social progress. Therefore, efforts have been made to rebuild the sector to obtain international standards of performance. For the first time in Syria, legislative Decree No. 43 passed in 2005, opened the way for establishing Syrian private and cooperative insurance corporations to foster investment in the country by easing the hazards of investment. Since then, the insurance market saw the entry of many companies in the Syrian market.

In 2007, the number of private insurance associations working in Syria reached 14 companies included two joint liability Islamic companies with 44 branches in the governorates along with the Syrian General Establishment for Insurance (SGEI) which was granted legal, monetary and administrative autonomy (according to Law 46 of 2007). Recently, all imports were obliged to have compulsory insurance. This compulsory insurance also covered factories, educational institutions, bakeries, hospitals, laboratories, pharmacies, rays centers, nurseries, kindergartens, schools, institutes and universities and service installations against fire, thunderbolts, explosions, earthquakes and civil responsibility. (decree by cabinet 49/m for 2009).

3.1.4 custom policy

custom reforms aimed for restoration and modification of its work mechanism.

To improve the performance and facilitate the movement of commodities across border windows, a new custom law was issued (law 38 for 2006) compromised many simplifications through which it allowed importers to review the classification procedures of their imports if they request that.

Many procedures have been done intended to simplify custom clearance works, make procedures clear and easy to apply, automate custom operations, reduce fees and duties on imports, particularly on raw materials in a way that contribute to reduction in the cost of national products and unify the fees on border widows.

3.1.5 Investment Policy

Investment in Syria has witnessed remarkable progress over the last few years. Investments have covered a wide range of economic sectors. In the last few years, the Syrian government has worked on improving the investment environment and encouraging FDI. Law 10 of 1991, has provided incentives for direct foreign investments, offered several privileges for investment including exemptions from income tax, and reduction of taxes and custom duties on investment projects.

Many industrial zones were established to attract investments and create new jobs, agricultural investments are taking on greater interest due to concerns of food security, rural employment, and the potential inflow of hard currency from the export of agricultural products, so many exemptions and incentives for agricultural investment such as possibility to own the land for the project and permission to dig wells.

However private investment in agriculture still relatively limited and the size of agricultural investment still less than the ambition due to the long time to recover the capital and high risks, which generally accompanies such investment.

In the sphere of attracting private investment, a new law (Law 8 of 2007) replaced the earlier Investment Law 10 of 1991. The new legislation has introduced more incentives and granted additional guarantees beyond those included in the former law. As examples of new provisions, the new legislation provides security for investors in the following areas:

- Not to nationalize, confiscate or dispossess investors of their lands and real estate;
- Not to restrain, confiscate or freeze a project's money;
- To secure capital transfers in case of non-implementation or project dissolution;

- To ensure profit transfers and financial costs in the same currency in which they were brought to the country;
- Permission to import project necessities without regulatory restrictions that would suspend, prevent, or limit imports;
- Permission to obtain employment approval and residency for investors and their families and non-Syrian workers in the project.

Investors who are investing under investment encouragement laws are allowed to get loans in foreign currency from outside the country to implement their projects and repay these loans and their interests through Syrian banks (decree 381 for 2008) (decision 4 for 2008 by the Cabinet). Investment maps were designed that identify places suitable for investment. A department was set up to look after certification and implementation of investment projects, handle their problems and tackle with the obstacles which hinder their progress. In addition, foreign companies are treated equally with national firms in all respects and can bring foreign employees to run their businesses. Another good feature of the law was setting up a “one-stop window” system for investors to facilitate and simplify procedures to get approval for starting a new project.

Another legislative law (Law 9 of 2007) established an investment commission that will assist investors and improve the investment by gathering information on promising investments, disseminating information on potential investments and benefits for investors, and advertising Syrian investments, both internally and externally, among Syrians and foreign investors through electronic ways or targeted meetings.

Syrian free trade zones are equipped with facilities such as electronic trade, information and communication technologies, trade bureaus, freighting, services and health activities, simplified storage methods, customs clearing, and direct communications with the Customs Department.

Syria has joined international institutions concerned with investment, such as: the Arab Association for Investment Insurance, the Arabic Association for Investment Guarantee, The Agreement for Moving Capitals among Arabic Countries, the International Agency for Investment Insurance, and the International Center for Settlement of Investment Disputes (ICSID), and Washington Agreement about Investment Conflicts.

Currently, the government is planning to release a legislation to allow for an investment participation system between private and public sectors according to the BOT style to foster the infrastructure, in which the government grants privilege to the private sector for implementing an infrastructure project and investing it for certain years, then the ownership of the project is transferred to the government.

3.1.6 Agro - food policy

Agriculture is a sensitive sector for trade liberalization, therefore, agricultural trade policies were reformulated to enhance trade exchange and promote the participation of the private sector in foreign trade. This was accompanied by domestic actions devoted to strengthen the social, environmental and competitive conditions in rural areas. So, in the last ten years, the government has applied a comprehensive agricultural development strategy aimed at reducing the cost of agricultural production, increasing productivity levels, assuring production of good quality, supplying processing plants by raw food products.

Economic reform for Syrian agricultural sector was targeted to modernize the sector. The measures that have been taken included; liberalizing prices, allowing private sector to market most crops, eliminating subsidies on most agricultural inputs, liberalizing input markets, easing interest rate subsidies on agricultural loans and shifting from mandatory crop rotation to farmers’ decision-based rotation.

To achieve these objectives, MAAR is worked to strengthen its research institutions and activate the agricultural extension system, encourage and facilitate the establishment of marketing companies targeted to preparing, classifying, packing and marketing agriculture products. Recently, the government worked to starting a project for organic production, and adopting an integrated protection system and biological control for plants to improve production quality and produce safe products for export.

3.1.7 Trade Policy

Trade plays an important role in the Syrian economy. The Syrian government emphasis on trade liberalization and expansion of non-oil exports. Syria has worked over the last ten years to introduce comprehensive changes in its trade policy to be integrated with world markets. In this direction, the

government has made modifications covered laws, legislatives and institutional aspects and eliminated most obstacles that hinder trade.

The modification included improving administrative and legislative climatic, simplifying custom clearness actions on imports, reducing custom fees. One advanced step in this direction is that, mechanisms for electronic signature were sat (law 4 for 2009).

3.1.7.1 Import policy

Former import policies in Syria were shaped as to minimize imports of commodities whose substitutes can be affordable locally. Then, within the new policy, Syria has opened its markets for imports of most goods from all countries, and thus, hundreds of decrees were issued intended to liberalize import commodities. In the meantime, it has removed non trade barriers.

Financing imports in foreign currencies was allowed from licensed banks (Credit and Monetary Council, Decision No. 117 for 2005), import licenses of primary products, production inputs, and machinery for industries were abolished (Cabinet Decree 3658/1 for 2005).

Several actions were initiated to facilitate trade, such as: provisions of distinctive marks and geographical indications for trade were regulated (Law 8 of 2007) and a national committee for food safety was creation (Decree K 3877 of 2005).

In addition, the entrance of imported commodities has to be checked to ensure that their rules of origin certificates are correct and they comply with Syrian specifications as well as with European standards.

Furthermore, the Syrian tariff system was simplified, tariff levels were reduced and tariffs were set between 1 and 50% (Decree No. 229 for 2006), tariffs on agricultural products were adjusted (Decree No. 494 for 2005) and tariffs on industrial products were also adjusted (Decree No. 76 for 2006).

To protect national production from the impacts of harmful practices in trade, which causes harm or threatens to cause harm to national products, an anti dumping law was issued (Law 42 of 2006).

To enhance import, Syria has Participated in many international organizations, such as the International Centre for Registration of Trade Marks in Madrid and the Lahaiy Agreement concerning the international registration of samples of industrial products.

3.1.7.2 Export policy

Syria has introduced various export measures to develop exports and followed an open, liberal and export-oriented policies. In the context of promoting foreign trade, most goods which were prohibited or restricted and limited to the public sector are now allowed to be exported by the private sector. Moreover, the requirement for certificates or questionnaire sheets for export was abolished, and the pre-approve permissions for exports were canceled for most exported goods. Moreover, a wide range of actions has been done by the government to enhance Syrian export, including the development of trade infrastructure, the easing of customs, opening new markets, encouraging export diversification, enhancing human capacities, developing export services, and adapting domestic legislation to international standards.

In the mean time, producers and exporters of Syrian industrial products were obliged to attach a product specifications/information card to all products for every piece and package depending on the nature of the commodity with the statement "made in Syria" and the name of the exporter for products exported to Arab countries (Decision No. 1380 of 2005).

Furthermore, a Supreme Council for Exports was appointed in order to formulate short-and mid-range strategies for export promotion, a bureau was founded for fast intervention that working to tackling local problems for exporters, a fund was set up to guarantee and secure exports against trade risks, a union for exporters to organize the export activities was initiated and a commission for encouraging and developing exports was nominated, the commission has to monitor export, control quality measures, provide information about markets, advertise Syrian products, study foreign markets, facilitate export financing, perform market researches and study local and foreign markets (law 6 for 2009).

A Fund for Export Evolution was sat up aimed to strengthen the ability of producers and exporters to enlarge export by financing pre-export activities through means of loans with low interest rates, facilitate credit and

guarantees, in addition to facilitating getting international quality certificates and certificates of origin as well as providing post export direct finance support covering percentage of marketing, transport cost for the export, fees and tests for strategic goods that are to be exported widely and appoint agents for exports in foreign markets. (law 19 for 2009)

On the other side, measures were taken to regulate export sustainability, such as: enhancing competition. International collaboration is also being promoted through the opening of offices in main destination markets. For example, the Syrian Commercial Chamber signed an agreement with the Commercial Chamber in Milano to open a bureau for Syrian commodities there. In doing this, the government hopes that, these procedures can help to increase export, expand export markets, cut down export cost and enhance export competitiveness in foreign markets.

3.1.8 Agro - food Trade policy

Syrian economy has witnessed non precedent openness on world economy, since the beginning of economical reform program. Accordingly, great important economic conversions are shown and aimed to heighten the outgrowth of the economy. Syrian agricultural trade has been liberalized from most quantitative and non quantitative barriers, removed customs protection and eliminated most agricultural trade obstacles. However, Supervision and control of food safety to guarantee quality and sanitary of imported, exported or locally produced food were enforced (law 19 for 2008).³⁴

Another feature of the development is reconsideration of the agricultural subsidy and the allocation of support system. The government has liberalized the price of fuel, pesticides, and fertilizers. In return, to absorb the negative social and economical effects on producers and consumers, the government compensated the farmers and allocated subsidy for some crops. Then the government brought together all types of support in one unit to be distributed through a Fund for Agricultural Support which was set up and started working in 1/1/2009. Therefore, subsidy has been dedicated for some crops such as maize, tomatoes and potatoes and others. In addition subsidy was continuous for cotton, wheat and sugar beet by the marketing establishments.

Part of the support was allocated to fodder, veterinary medicines, artificial insemination and vaccinations used for developing animals and manipulating diseases and epidemic maladies that threaten animal wealth. In the meanwhile, subsidy for modern irrigation is continued through a fund was set up by law 91 for 2005 to rational use of irrigation water and the preservation of water resources, the Resolution No. 122 of 2008 issued by the Prime Minister contained a mandatory shift to modern irrigation for the licensed wells and government irrigation systems. The fund offered to pay to farmers 40% of modern irrigation network cost if they paid in cash the rest 60%.

Law No. 20 of 2010 aimed to regulate the implementation of the scheduled plan to shift to modern irrigation in the irrigated land in Syria. The law stated the formation of a higher committee to shift to modern irrigation that would be responsible for the adoption of the annual plan for the national program to shift to modern irrigation, follow up the implementation and take the necessary decisions to address the difficulties facing the implementation. The law also stipulated the formation of a technical committee to study the plan, identify and follow up implementation programs, and the formation of sub-committees in the governorates to draft the annual plan for the transition to modern irrigation. The government provided some facilities for those who shift to modern irrigation including providing long-term loans free of interest, to be repaid in equal installments over ten years for farmers who want to establish new irrigation networks, providing in-kind loans of modern irrigation networks and providing subsidies at rate up to 20% of the cost for the networks installed on the licensed wells and 10% for the networks of government sources of irrigation.

3.1.8.1 Agro-Food import policy

Agro –food import policy is recognized by gradually liberalizing Syrian markets, allowing import of all agricultural products except some sensitive commodities, which their import might badly affect local production. Wide group of production such as: fruits, vegetables, meats and flowers are now freely tradable from all countries, but they are only subject to technical and sanitary conditions that identified by MAAR.

³⁴ The agricultural sector in Syria in the framework of preparations for accession to the WTO

All major developments in trade policies described above in paragraph 3.1.7.1 are also affect agricultural trade, and thus favoring agricultural trade liberalization.

In general, import of new agro- food products is being gradually permitted. For instance, lately the government allowed import of all kinds of fertilizers. Also the government allowed import of manufactured sweets by all importers. However, there were some cases in which import of certain commodity was temporarily stopped either to protect similar local commodity, or to face certain difficulty. For example, the import of citrus was prevented in 2008 from all countries except from GAFTA countries and from Turkey according to the agreements of free trade with those countries. This decree was issued because great quantity of the commodity from local supply and imported quantity from these countries have negatively affected local production that year.

As for sanitary and phyto-sanitary measures, the government amended the legislation on plant protection, quarantine and disease prevention in order to adapt Syrian rules of control to international standards.

3.1.8.2 Agro-Food export policy

Agro - food export policy was aimed to accelerate the steps toward augmenting the agricultural exports and expand the role of private sector in this field.

Efforts are done by the state to enhance opening new markets for the agricultural exports through bilateral agreements concluded with many commercial partners. Several actions have been taken over the last years to improve the performance of agro- food export by prompting producers and exporters adhere to producing high quality products for both domestic consumption and export.

In this direction, a committee was formed to monitor and control products devoted to export, which orient exporters to using modern agricultural marketing technical means and keeping international standards for goods to increase their revenue from exporting agricultural products.

Agro-food production and export are encouraged by exempting agricultural inputs from customs charges and taxes on agricultural exports were abolished (Legislative Decree No. 15 of 2001) in order to enhance the potential of agricultural products to compete in local and foreign markets.

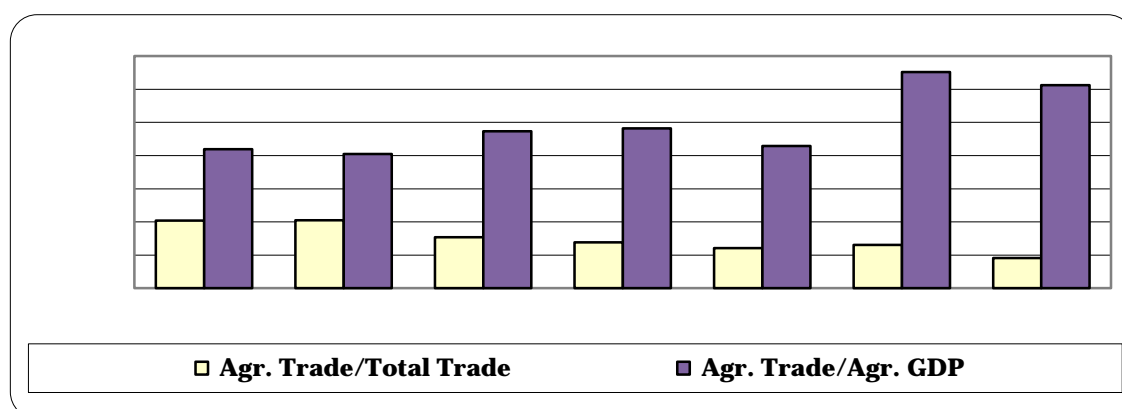
The new policies encouraged export promotion, supported the establishment of companies specialized in agricultural marketing and participation in national and international fairs, and enhanced the improvement of export services including storage, cooling, cold transportation, sorting, enveloping and packing, and limitation of the use of chemical fertilizers and pesticides, which reduce the potential for exports to compete. Research to develop producing new exportable varieties of crops was pushed up.

3.2 Trends in agro - food trade 35

Agriculture plays an essential role in the Syrian economy. The agricultural trade was recognized by an active distinguished performance in the last decade. The importance of agricultural trade is particularly increasing after the economy has opened on international markets.

The agricultural trade registered a percentage of 56.4% of agricultural GDP as an average during the period 2006-2008. This percentage increased between the year 2006 and 2008 by 42.8%, reflecting an increase in Syria agricultural market opening on foreign trade. The share of agricultural trade in total trade averaged to 11.4% during 2006-2008.

³⁵ Syrian Agricultural Trade Report,2008- 2009

Figure 3 agricultural trade in comparisons with total trade and agri. GDP, general trends, 2002-2008 (%)

Source: CBS, Statistical Abstract, 2009.

The agricultural trade balance changed and became negative since 2004 and registered negative value of US\$ 537.9 million for the average of 2006-2008, due to more increase in the import over export (table 18)

Table 18 Agricultural Trade Balance during 1999/2001-2008, US\$ million

Item	av 99-2001	2002	2003	2004	2005	2006	2007
Total Agricultural Imports	864	1035	1086	1330	1443	1284	1911
Total Agricultural Exports	801	1333	1137	1066	1116	1222	1386
Agricultural Trade Balance	-63	299	51	-264	-328	-62	-524

source NAPC Data, 2009

3.2.1 Agro-food Trade

The agro- food trade consists most of the total agricultural trade. In the period from 1999/2001 to 2008, agro- food trade has been growing at an average annual rate of 11% (Table 19), contributing, on average, to some 86% of total agricultural trade in 2008 (Table 19).

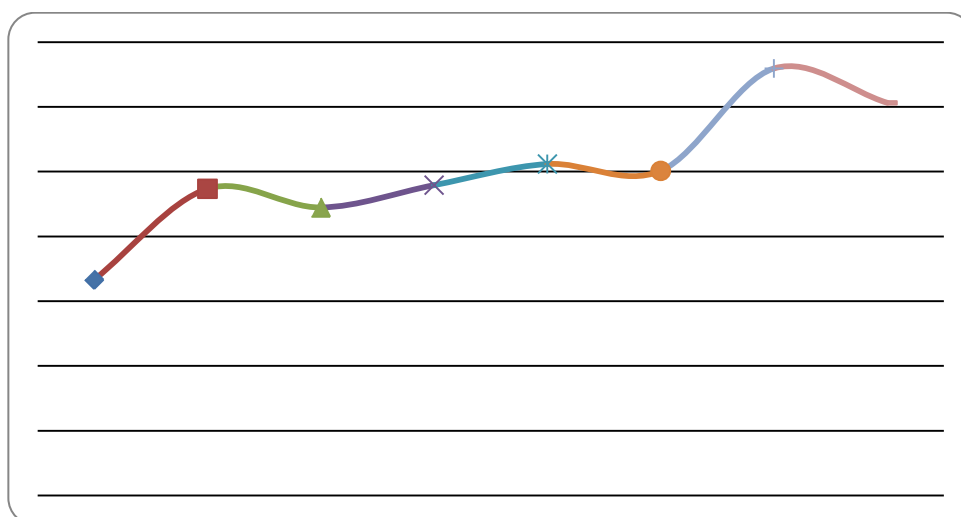
Table 19 Syrian Agricultural trade by food and non-food classification, over 1999/2001- 2008 (Million US\$ and %)

Item	av 99-2001	2002	2003	2004	2005	2006	2007	2008
Food and Animals Items	1,230	1,792	1,668	1,763	1,961	2,011	2,637	2,597
Nonfood Items	435	576	555	633	598	495	659	434
Total Agricultural Trade	1,666	2,368	2,223	2,396	2,559	2,506	3,297	3,031
Share								
Food and Animals Items	74	76	75	74	77	80	80	86
Nonfood Items	26	24	25	26	23	20	20	14
Total Agricultural Trade	100	100	100	100	100	100	100	100

source NAPC Data, 2009

In 2006, the food and animal products accounted for two thirds of the agricultural trade and their value increased from US\$ 1961 million in 2005 to US\$ 2011 million .

Figure 4 Development of Agricultural trade, general trend,1999/ 2001-2008 (US\$ million)



source NAPC Data, 2009

iii. 3.2.2 Trends in Syrian agro- food export

Export is very fundamental for Syrian economy, thus the government is looking for means to push agricultural export forward through quality improving, circulating the products and supporting strategic and important crops. The agricultural export witnessed a distinguished growth in the last decade. The growth between the two periods 1999-2001 and 2006-2008 was about 50% and in 2007, the agricultural export increased to US\$ 1386 million up from US\$ 1222 million in 2006 and grew by 13.4%. However, in 2008, a decline in the agricultural exports was witnessed.

Although Syrian agricultural export has increased, its contribution in total export has dropped lately. Agricultural export share in total export has been constant at 12% during 2006 and 2007, but in 2008 a great fall was registered which was the least share during last decade caused by a drop in the agro- food export.

The main reason for such drop is that, agro- food export was restricted in 2008 due to financial world crisis, which caused an increase in food prices in international market and obliged many countries including Syria to reduce their food export

Agro- food export compromises an average share equal to 75% of total agricultural export for the years 2006-2008. Therefore, any slowdown in the agro- food export causes significant reduction of agricultural exports which are highly concentrated and limited to few products (table 20)

Table 20 Syrian Agricultural Export by Food- Nonfood Classification, Av1999/2001-2008 (Million US\$ and %)

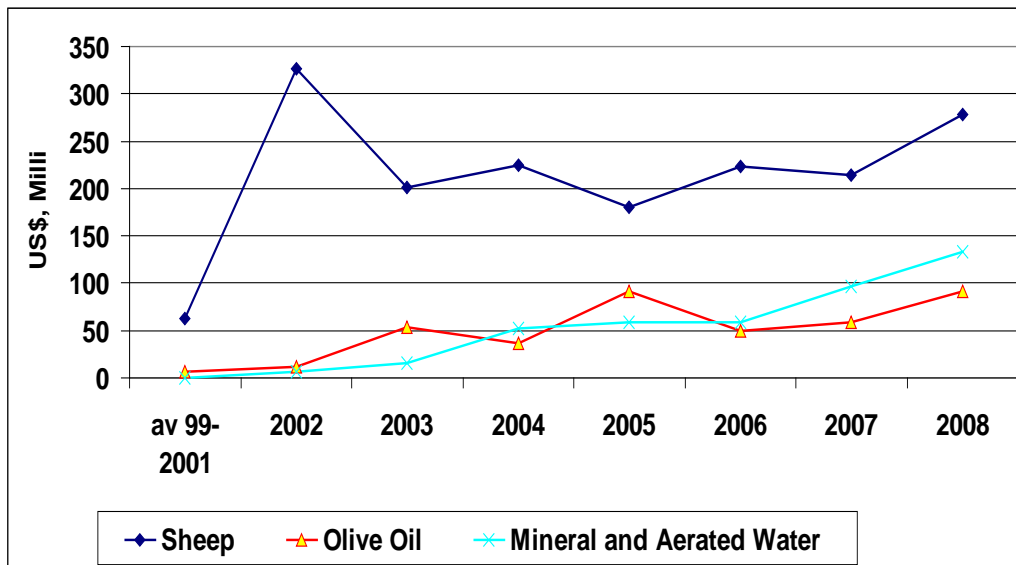
Item	Year							
	Av 1999-2001	2002	2003	2004	2005	2006	2007	2008
Food and Animals Items	496	973	799	748	791	886	1037	785
Nonfood Items	305	360	338	318	324	336	350	217
Total Agricultural Trade	801	1333	1137	1066	1115	1222	1386	1002
share %								
Food and Animals Items	62	73	70	70	71	73	75	78
Nonfood Items	38	27	30	30	29	27	25	22
Total Agricultural Trade	100	100	100	100	100	100	100	100

Agro- food exports rose rapidly during the last decade due to the economic reforms. Agro- food exports steadily accelerated throughout the period 1999/2001-2007 and heightened especially in 2007 to reach US\$

1037 million and the agro- food export share of total agricultural export heightened from around than 71% in 2005 up to 78% in 2008.

The following figure (...) shows the export trend of three agro- food commodities (sheep, olive oil and mineral and aerated water)

Figure 5: Evolution of exports of selected agro- food commodities 1999/2002 through 2008, million US\$



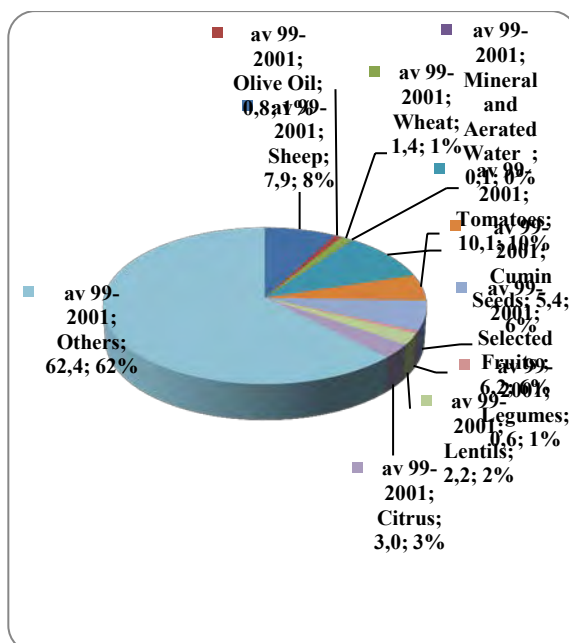
Source: CBS, Statistical Abstract, several years and NAPC database

Syrian agro- food exports are mainly raw materials. In fact, most agro- food exports, such as vegetables and fruits are raw products. Nevertheless, The average share of raw exports in total agro- food exports has significantly declined during 1999/2001 -2008. The government is making great efforts to push up the exportable agro- food processing to benefit from value added.

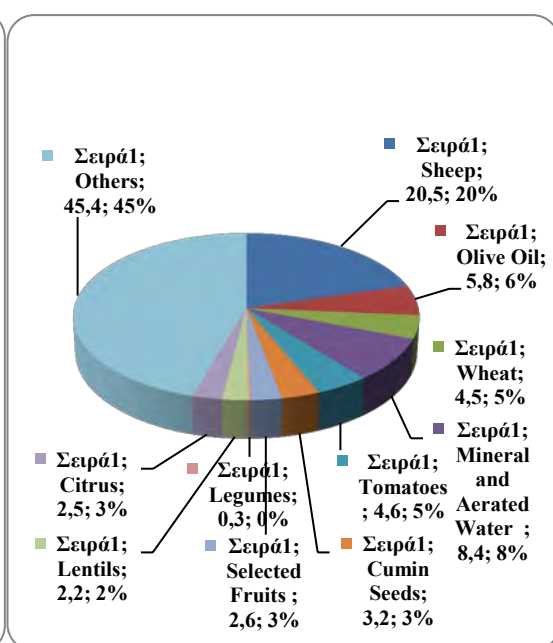
Figure 5 shows the share of main Syrian agricultural exports for the average of the period 1999-2001 and the average of the period 2006-2008 in which an improvement appears in all sheep, mineral and aerated water, olive oil and wheat exports, while a shrink in fruits, tomatoes and cumin seeds was happened.

Figure 6 The share of main agro-food exports in total agricultural exports during 1999/2001 and 2006-2008 (%)

A- Average 1999-2001**



B- Average 2006-2008**



* *“Selected Fruit” here includes apples, cherries, apricots, pears, plums, and peaches*

Sheep is considered a peculiar commodity very demanded by the Golf Countries. Its export rose remarkably in the last five years and now represents good exported commodity gains more than US\$ 230 million annually. Export of olive oil in 2008 significantly grew by around 56.7% in comparison with last year despite a big difference in its export during last ten years. The reason behind this difference is the phenomena of less production in every other year in the olive trees, and thus, the available production for export is not constant along the years. Other promising exportable agro- food products are; mineral and aerated water, apricot pastes, potatoes, citrus, cumin seeds, lentil and grape.

3.2.3 Main Agro- food export Partners

The Arab countries are the main agro- food export destinations representing about 73.4% of total agricultural export value for the average of the years 2006-2008, the second partner is the EU with 13.3% for the same period, Asia countries (10%) and other countries (3.3%).

3.2.4 Trends in Syrian agricultural imports

Syria started in the eighties its economical reform, since then, Syria cared to liberalize trade and open the market for foreign commodities. As a result, import started to significantly increase. Import accelerated during the years 1999/2001-2008 and grew fast advancing by 48.8% in 2007 in comparison with previous year, and by 6% more in 2008.

The agricultural import growth was faster than the agricultural exports. In fact, since 2004, agricultural import accelerated more than the agricultural export leading to trade balance deficit registered its highest rate in 2008 reaching US\$ 1028 million and representing 34% of total agricultural trade.

The country witnessed an increase in the agricultural imports. Agricultural imports increased by about US\$ 1166 million (15%) annually from 1999/2001 to 2008. Agricultural import value in 2007 reached US\$ 1911 million by an increase of US\$ 627 million in comparison with previous year. In the meantime, the average value for agro- food imports was multiplied from US\$ 734 million for the average of the years 1999-2001 to US\$ 1513 million during 2006-2008. This was helped by trade policy reform and allowing private trader to import various agro- food products.

Significant changes in agro- food trade policies resulted in driving strong growth in agricultural imports. Factors that contributed to the agro- food imports growth include relaxation of the import ban list and more openness on Arab markets after the Great Arab Free Trade Area (GAFTA) agreement 's implementation as well as the bilateral trade agreements which are likely to substantially expand imports. The policy change facilitated agro- food imports.

The percentage of agricultural imports to total import in 2008 was 11%, while it was higher in 2007 at 14% reflecting faster growth in the import of other sectors in 2008.

Most agricultural imports consisted of food products (85%-87%).

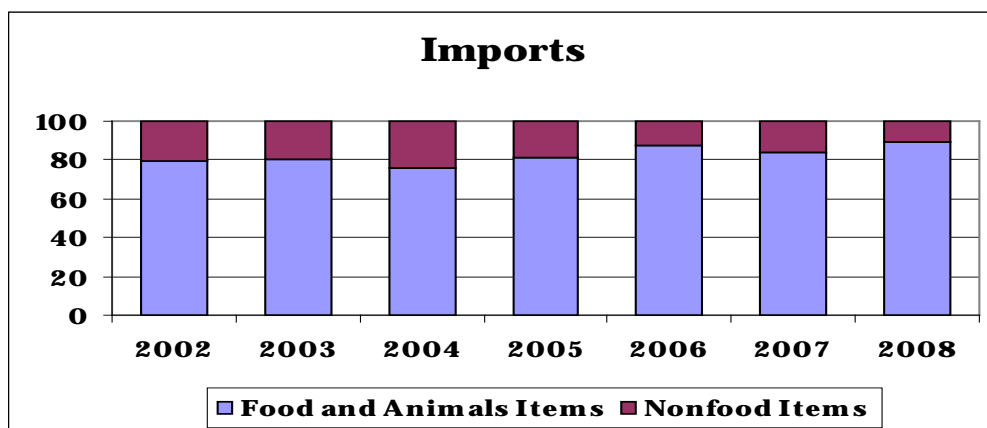
Table 21: Syrian Agricultural imports by Food-Nonfood Classification, Av1999/2001-2008 (Million US\$ and %)

Item	av 99-2001	2002	2003	2004	2005	2006	2007	2008
Food and Animals Items	734	819	869	1,015	1,170	1,125	1,601	1,812
Nonfood Items	131	216	217	315	273	159	310	217
Total Agricultural Trade	864	1,034	1,086	1,330	1,443	1,284	1,911	2,030
Share %								
Food and Animals Items	85	79.1	80.0	76.3	81.1	87.6	83.8	89.3
Nonfood Items	15	20.9	20.0	23.7	18.9	12.4	16.2	10.7
Total Agricultural Trade	100	100	100	100	100	100.0	100.0	100.0

Source: NAPC database

The following figure shows changes in the percentage of agro-food in total agricultural imports.

Figure 7: Syrian Agricultural import distribution to Food and Nonfood, Av1999/2001-2008 (%)



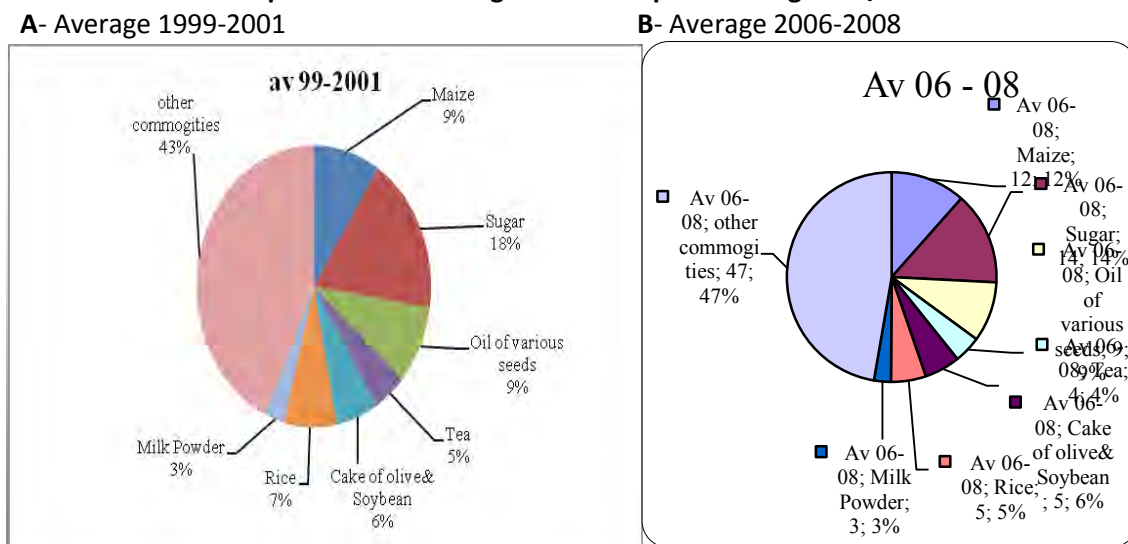
Source: NAPC database

Agro- food imports, like the agro - food exports, are highly concentrated, since the ratio of the first five commodities to total agricultural imports in 2008 was 31.6%. While the percentage of the first ten commodities was 57.8%.

The major agro- food imports during 2006 - 2008 were; sugar which was the first imported product consisted 14% of total agricultural imports, maize followed at 12%, then came oil seeds (9%), cake of olive and soybean (6%), rice (5%), tea (4%) and milk powder (3%). They all together represented 53% of total agricultural imports.

The following figure presents the share of main products in total agricultural imports for the average 2006-2008.

Figure 8: The share of main products in total agricultural imports during 1999/2001 and 2006-2008 (%)

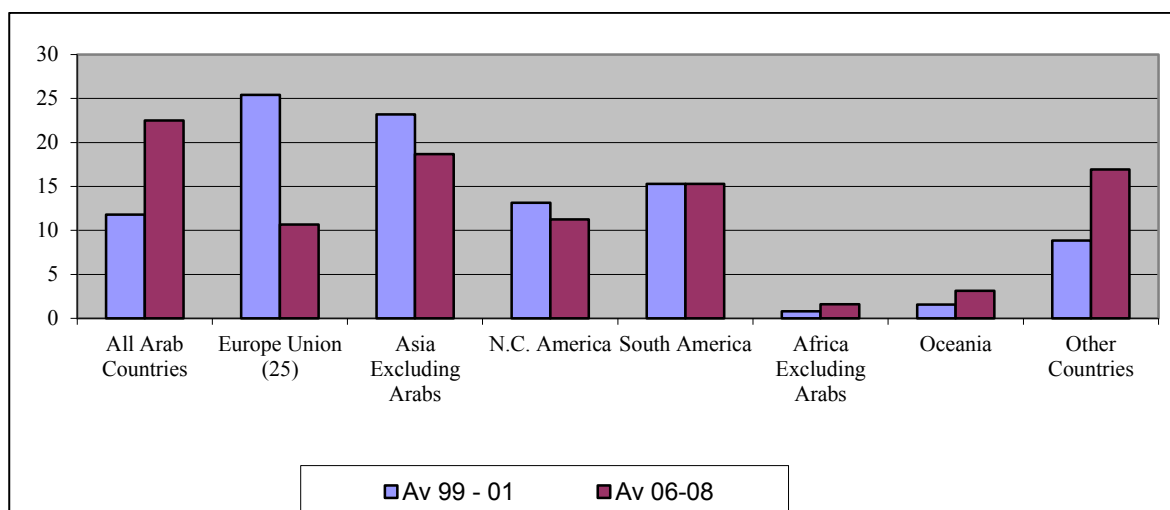


Source: CBS, Statistical Abstract, several years and NAPC database

3.2.5 Main Agro-food import Partners

Syria depends on several sources for supplying agricultural and food imports. The following figure indicates the distribution of agricultural import sources for Syria during 1999-2001 and 2006-2008

Figure 9 Syrian agricultural import partners in 1999-2001 and 2006-2008 (% of Total agricultural imports)



Source: NAPC Syrian Agriculture Database

3.3 Trade agreements

Syria has taken steps towards increasing its participation in the international community. This involves the recognition of the benefits related to trade cooperation through which reciprocal trade concessions with other countries in the context of trade agreements.

Syria has signed bilateral economical cooperation agreements with many international bodies including China, India, Russian Federation, Ukraine, Venezuela, Malaysia, Tajikistan, South Korea, the Democratic Republic of Korea, South Africa, Kuwait, Bahrain and Armenia. These agreements have covered number of cooperation fields.

Examples of these agreements are; ³⁶

³⁶ Syrian Agricultural Trade Report, 2006, 2007, 2008-2009

- Syria and Yemen signed an agreement about sea transportation between Syria and Yemen in 2005. The two countries signed several agreements and executive programs in 2007. One of the signed executive programs was dedicated to cooperation in environmental protection, and another was for cooperation in terms of fisheries. There was also another signed executive program for agricultural cooperation.
- Syria and Oman in 2005 signed several agreements, including an agreement for prohibiting tax duplication. Other agreements about promoting investments and cooperating in terms of shipping and land-transportation were also signed.
- Number of accords, protocols and proposals related to several areas were signed in 2006 between Syria and United Arab Emirates including trade facilitation between the two countries.
- A cooperation agreement signed in 2006 between the Syrian Specifications and Standards Committee and the Qatari government. The agreement allows Qatar to benefit for Syrian experience related to specifications and standards.
- Twenty agreements were signed between Syria and Sudan in 2006. The agreements covered areas of livestock, agriculture, scientific research, standards, and specifications. The Sudanese government committed to offer Syrian investors in Sudan all available advantages, especially in agriculture and some industrial sectors, such as textiles.
- Syria and Tajikistan signed in 2007 eight agreements and memorandums related to economic, scientific and technical cooperation, beside encouraging mutual investments.
- Syria and Russia signed in 2005 an agreement to encourage mutual investments. The agreement aimed at establishing the proper loyal conditions, and securing the needed guarantees for mutual economic activities.
- The Syrian and Chinese governments signed in 2007 several agreements and accords. The agreements include activating the economy, cooperation in terms of investment and commercial, higher education, transport and communications. On the other hand, the two sides signed also a memorandum for cooperation in international meetings, in terms of economy and trade, and particularly in terms of supporting Syria's accession to the WTO.
- Syria and Malaysia signed in 2007 a memorandum related to sea and air shipment, and an accord with the Malaysian Industry Promotion Board that controls investments there for promoting and protecting mutual investments. The two parties also study the possibility of initiating free trade area between the two countries. In addition, the two countries signed in 2009 two agreements for encouraging and protecting mutual investments and also a memorandum included a program for cooperation in terms of supporting setting up small and middle-size enterprises.
- Syria and South Africa signed an agreement for avoiding custom duplicity in 2007. The two countries also reached several agreements about encouraging mutual investments, economic, commercial and technical cooperation.
- the Syrian and Kuwaiti governments signed three memorandums and cooperation agreements, including a program for promoting investments and an agreement for cooperation in commercial sea shipments in 2006. Furthermore, in 2008, a memorandum was signed aimed to facilitate mutual cooperation and harmonize efforts to increase activities of supporting investment's environment in Syria.
- An agricultural accord was signed by Syria and Bahrain first in 2002, and then in 2007 a letter of agreement on agricultural cooperation program was signed. The program comprises agricultural research about salinity and drought durable crops, plant production and grassland, protectorates, protecting plants, agricultural quarantine, exchanging information on pests, cooperation on animal production, encouraging and facilitating the exchange of animal drugs and vaccines, cooperation in extensions, and exchanging information on agricultural production and agricultural trade.
- The Syrian - Armenian Committee for Economic, Trade, Scientific and Technical Cooperation agreed to establish two technical committees to study various issues. The committees are: the committee of trade, investment, finance and banks; the committee of economic, scientific and technical cooperation. The two countries signed in early 2007 three agreements for economic and commercial cooperation.

- The Syrian and Iranian governments signed ten agreements and memorandums in 2008, including an executive program for 2008-2009 for cooperation in terms of environment's conservation, vaccines and animal drugs, specifications and standards. The preferential trade agreement between Syria and Iran was activated formally in 2009.
- Syria and Ukraine signed 8 agreements and cooperation memorandums in 2008. The bilateral agreements include economic, trade, scientific and technical cooperation. There was a focus also on facilitating Syrian products' accession to Ukraine in light of trade imbalance that is in favor of Ukraine. Thus a committee was established to study launching a free trade area between Syria and Ukraine in future.
- An agreement with Venezuela in 2009 to set up a mutual fund with a capital amounted to US\$100 million financed equally by the two countries to finance investment projects of public sectors in the two countries
- An agreement with India in 2009 to establish information and technology training centre in Syria

iv. 3.3.1 Intra MPC trade

Syria gives priority to preferential trade agreements as a way to improving trade flows, so great efforts have been made to sign regional trade agreements such as GAFTA, the FTA with Turkey and the suggested Association Agreement with EU, in addition to many other bilateral agreements that aimed to accelerate trade liberalization, and benefit from the reciprocal preferential trade concessions that help in evolving exports and boosting trade. Several internal procedures that contribute in harmonizing domestic laws with international trading rules were taken, including particularly ending the negative list, allowing the importation of most agricultural commodities, and allowing exportation of new groups of products. The progressive integration of Syria into regional agreements and into the WTO will provide guidelines to build up a body of regulations which are transparent and internationally accepted.

Syria intended from those agreements to lower trade barriers within the agreements and thud, to improve and foster economic growth by increasing trade through gaining access to new markets for exporters, increasing Syrian export competition, attracting more foreign direct investment, improving Syrian consumption pattern and heathen the standard of living. In contract, Syria has reduced domestic trade barriers in the context of such agreements in order to comply with the requirements and to keep up with other countries.

Syria has economic bilateral agreements with several MPC countries to strengthen trade exchange including: Italy, France, Germany, Czech, Romania, Cyprus, Lebanon, Jordan, Egypt, Libya, Tunisia, Morocco and Algeria.

Examples of the agreements signed with MPC countries

- A free trade agreement between Algeria and Syria was signed in 2005. Syria and Algeria also signed 11 agreements, protocols and executive programs in 2008. The agreements cover agriculture, trade, exports and scientific research sectors. a committee to follow up the implementation of what has been agreed on in cooperation various fields was established.
- A free trade agreement between Syria and Jordan in 2005 aimed to expand economic cooperation and increase the volume of mutual trade. Then, in 2006, Syria and Jordan signed an agreement for cooperation in terms of scientific research and technical promotion. In addition, An executive program for environmental cooperation was signed. Also, A memorandum with Jordan to cooperate in the field of industrial property rights and a program intended to develop small and medium firms and to organize the work of shared free zones in 2009.
- Syria signed a package of agreements with Lebanon in January 2005 covered the economic, agricultural, health, environmental, and tourism sectors. In 2008, the two governments signed a minute of meeting emphasized bilateral trading of agricultural commodities and promoting that trade through abolishing any barrier to trade.
- Ten agreements for promoting economic and investment cooperation between Syria and Cyprus were signed in 2005. One of the agreements is an executive program for an agricultural cooperation.

- Twelve agreements were signed with Tunisia in 2005. The agreements cover trade, industrial property, higher education, scientific research, environment, and family issues. The two governments also agreed to exchange experience and information, and to identify more areas for cooperation and mutual investment projects. Moreover, 13 agreements and memorandums and an executive program on environment conservation were signed between the two countries in 2008. Among the signed agreements, one was about harmonizing import licensing rules, another was about importing animal drugs and vaccines.
- Syria and Germany reached an agreement in 2007 aiming at contributing in economic and social development in Syria included paying € 10 million to the Syrian part to enhance its economic and social reform. The agreement also included supporting institutional projects for water sector. Furthermore, Two agreements with Germany in 2009 to provide a grant by 3 million Euro to the Syrian association for small finance, which supports financing small, medium and too small family projects.
- Syria and Libya signed twenty one agreements, accords and executive programs in 2007. Among the signed agreements, one for avoiding custom duplicity, and encouraging investment. In 2008, the two countries agreed to establish “Syrian-Libyan businessmen council”.
- An agreement to encourage and protect mutual investments and avoid custom duplicity between Syria and Czech was signed in 2008.
- Syria and Romania signed three agreements in 2008 for cooperation in protecting investments and avoiding custom duplicity. Another agreement with Romania signed in 2009 to encourage and protect investment.

An agreement with Italy in 2008 for cooperation in financial and technical fields through which a loan for Syria of 60 million Euro and a grant of 20 million Euro will be given for services and infrastructure projects

An agreement with France in 2009 to initiate a branch for the France development agency to encourage France investment in Syria and activate the Syrian –French Business Council in Paris.

v. 3.3.2 Free Trade Agreements

1. 3.3.2.1 Free Trade agreement with Turkey

Syria and Turkey signed free trade agreement in December 2004. The agreement aimed to gradually remove all trade barriers between the two countries.

The FTA was entered into force on 1 January 2007 after ratification by the parliaments of the two countries (it was signed in 2004 and approved by the Syrian authority in 4 May 2005, by law No. 37 dated 4/5/2007). The agreement made provision for the promotion of two -way trade between the two countries and the establishment of a joint inter-governmental committee to review trade relations and facilitate the effective implementation of the agreement.

General objectives of the agreement

1. Increasing and enhancing economic co-operation and raising the living standards of people in both countries;
2. Eliminating difficulties and restrictions gradually on trading goods, including agricultural products;
3. Promoting the harmonious development of economic relations between the two countries through the expansion of mutual trade between them;
4. Providing fair conditions for trade competition between the two countries;
5. Contributing to removing barriers to trade;
6. Creating conditions for further encouragement of investments particularly for the development of joint investments in both countries;
7. Promoting trade and co-operation between the parties in third country markets.

According to the Agreement, Syrian industrial exports will flow free of any custom duties, although certain quotas will be remain for some products. In the mean while, tariffs and quotas on Turkish exports will be gradually decreased until they will be completely lifted in 12 years.

As for Agricultural Concessions, tariff-quotas will remain for a certain number of agricultural goods and food items. However, the raw and processed agricultural products and fisheries (Chapters 01-24 of the Harmonized System with the exception of the products listed in Annex I of the agreement), from the origin in the territory of each country can be move freely between the two countries .

The agreement stated that, it foresees a progressive and gradual liberalization approach for agricultural products. Therefore, the Association Committee shall examine the possibilities of granting further concessions to each other for trade of agricultural products.

As for sanitary and phyto - sanitary (SPS) measures, the agreement states the co-operation of the two parties in the area of SPS measures with the objective of facilitating trade. The parties will be bound by the principles set out in the WTO agreement in the application of SPS measures. In the meanwhile, The two countries shall enter into consultations immediately to find an appropriate solution for any problem.

The agreement emphasized the importance of cooperation between the two countries in the following fields:

1. Exchange of scientific and technical information and expertise relating to agriculture, forestry, water resources and rural development;
2. Reciprocal exchange of experts;
3. Organization of training, seminars, conferences and meetings; and
4. Establishment of direct joint activities between respective institutions.

Syrian steps to facilitate the implementation of the agreement

1. Products from Turkish origin included in chapters 25 up to 97 of the Harmonized System were allowed to be imported without import licenses with exception to the products that prevented from import for religious, hygienic, environmental, or security reasons (Decision No. 3082 of 28/12/2006)
2. Turkish certificates of origin and trading bills for products which exported to Syria under the provisions of the agreement were exempted from consular stamps and related fees (Decree No. 59 for 2006)
3. Ministry of Economy and Trade has issued a decree allowed the import of all goods of Turkey's origin including products from Syrian Free Zoon that classified from chapter 1 up to chapter 97 of custom harmonized system, exempted from all regulations of import prevention, restriction or limitation.
4. An agreement was signed with Turkey to open a shared Syrian-Turkey bank by capital equal to 100 million US\$ to enhance trade exchange between the two countries.
5. in January 2008, six bilateral agreements about transportation and sea transportation, and storages were signed by Syria and Turkey.

2. 3.3.2.2 The Great Arab Free Trade Area (GAFTA)

Syria has joined GAFTA to get benefit of dismantling trade barriers, restrictions and tariffs under this free trade agreement with most Arab states, so Syria can promote greater trade and Syrian exports can substantially expanded. In addition, importing raw materials free from tariffs in the context of the agreement will lower the cost of production for Syrian producers and allow them to remain competitive in foreign markets.

The agreement was reached in 1997 and was fully implemented in 1 January 2005 after 7 years of rehearsal period started in 1 January 1998. GAFTA member countries, when they signed the agreement, committed themselves to the creation of a free trade in which substantially all trade in all sectors will be covered.

The agreement stipulated a gradual phasing out of custom duties and measures of equivalent effect on intra-Arab trade. And thus, gradual reduction in the tariff was applied at a rate of 10% annually, but at 20% in the last two years, when finally, goods are expected to be traded free of duties and quotas between member countries. It is hoped that, the FTA will encourage increasing intra-regional trade and boosting foreign investment to the region.

Initially members of GAFTA were 14 countries namely; Syria, United Arab Emirates, Jordan, Lebanon, Tunisia, Iraq, Bahrain, Saudi Arabia, Qatar, Oman, Kuwait, Egypt, Morocco, and Libya. Then later, three other countries in addition to Palestinian Authority became members in the Agreement, those are; Mauritania, Yemen and Sudan. However, The Palestinian Authority was exempted from tariff reductions due to its particular situation.

Member countries have committed to keep the following objectives:

- Increasing intra-Arab trade;
- Relying on comparative advantages in allocating production among Member countries;
- Promoting domestic investment in export activities and in developing infrastructures;
- Improving quality standards;
- Promoting monetary and banking policies to support trade activities.³⁷

3. 3.3.2.3 Trade agreements with the EU(27 countries)

Syria and EU enjoy a deep trade relationship. The EU is the second main trade partner for Syria after GAFTA countries. Syrian trade with EU in 2008 equaled to US\$ 10,369 million with a share of 31.2% of total Syrian trade. The EU is considered the second destination for Syrian exports when Syrian exports to EU in 2008 equaled to US\$ 5,121 million. In the meanwhile, the share of EU in total Syrian exports as an average for years 2006-2008 was 37.4%. Also, the EU has the biggest share of Syrian imports with 29% of total imports.

Co-operation between the EU and Syria dates back to 1977, with the signature of the Co-operation Agreement. Then after Barcelona Conference in 1995 Syria and EU began negotiations to sign an Association Agreement (AA) in accordance to the Euro-Mediterranean Partnership (EMP) when Syria signed a Framework Agreement in 2000. The negotiation has longed until 9 December 2003, when first draft of AA was finalized, then the AA was initially signed by Syria and the European Commission in 19 October 2004 with an agreement to be finally signed during the first three months in 2005. However, the AA has been delayed until 2008 when initially resigned again in 14 December 2008. In October 2009, the EU inform the Syrian authorities that they agree to sign the agreement, but Syria requested to have time to review the terms of the AA on the light of changes in the Syrian economy in the last few years.

The AA aimed for liberalization of trade and cooperation in different areas including: social, cultural and political fields.

The AA differentiated the agricultural products into three categories; namely, raw agricultural products, processed agricultural products and fisheries products. For each category there were different mutual concessions as follows:

4. In the context of the AA, EU will grant Syria facilities for Syrian raw agricultural product exports to the EU to have preferential tariffs lower than the Most Favored Nations (MFN). Also exported raw

³⁷ The National Agriculture Policy Centre NAPC studied the impact of GAFTA implementation on Syrian trade in 2007, but it was too early for available data at that time to show clearly a significant change in trade related to GAFTA. The study, however, found that Syrian imports have responded positively to the removal of import bans. With reference to the export, it was remarked that, some products which never exported before GAFTA had recorded a substantial export. This might well be an effect of GAFTA. Generally, the implementation of (GAFTA) has, for sure, substantially facilitated market access and trade amongst member countries, and subsequently led to a significant increase in trade within the Arab region. And thus, the influence of GAFTA agreement in this development cannot be undervalued

Recently, NAPC has studied the impact of GAFTA implementation on Syrian agro - food sector. The results of this study are already published on our website under the title "The Impacts of GAFTA on Syrian Trade after Its full Implementation".

agricultural products will maintain all tariff exemptions granted to Syria under previous agreements, full tariff exemption for a list of Syrian products, a tariff-quota with full custom exemption within quota quantities for key Syrian agricultural products (olive oil, citrus, apples, grapes, potatoes, and tomatoes). On the other hand, Syria will give preferences to imports from the EU in according to three groups of imports as follows: the first group will benefit from immediate custom duty elimination; a second group tariff will be gradually reduced to be eliminated in 2015; the third group will enjoy a duty-free quota as long as prices of imports do not fall below the corresponding domestic prices.

5. For processed agricultural products, the AA will allow Syrian processed agricultural products to have preferential treatment relative with tariffs below to the MFN rates. Beside, many processed agricultural products will be exempted from tariffs as in the earlier cooperation protocol and processed agricultural products will be exempted from import tariff, while other fees such as fees on quantity, flour fee, and sugar fee will be maintained. Then after that, EU will reduce tariffs on imports from Syria over a 12 year-transitional period and duty free quota will be granted on some Syrian processed agricultural products such as mineral water, alcoholic beverages, sweets, biscuits, and pasta. Apart from those commodities, EU's tariffs will be reduced over a 12 year period. In the same time, Syria will reduce tariffs on imports from the EU over a 12 year, including immediate elimination for some products and Syria will grant to the EU tariffs- quota at rates reduced by 40% for within quota import of some European products such as mineral water, alcoholic beverages and tobacco.
6. As for fisheries, the AA will allow a preferential treatment relative to MFN treatment for Syrian fisheries. In addition, all tariffs on Syrian exports to the EU will be eliminated within 2 years from the entry into force of the agreement and Syrian fish products took quota with free duty immediately. On other side, Syrian tariffs on EU imports will be immediately dismantled for some products and others gradually dismantled during the transition period.

For facilitating the implementation of the agreement, the EU was committed to provide Syria with financial support through the European Investment Bank and the Euro-Mediterranean Cooperation Programs (MEDA) targeted to make some reform-oriented projects focusing on economic and administrative reform in both the private and public sector.³⁸

4. 3.3.2.4 International trade agreements and globalization

Syria and WTO

Syria is seeking to join the WTO, which will lead to specific rights and obligations that will make it easier for Syria to enter into the international trading system. Most of the reforms undertaken in the recent years are in the direction of building trade policies that are more transparent and compatible with the international trade rules.

Syria first applied to join the WTO in October, 2001, and then "reaffirmed" its application in February, 2004. In 4 May 2010, the General Council formally accepted Syrian application for accession and Syria is now an observer country in the WTO waiting for the establishment of the Working Party for the country.

Actions Taken by Syria for Joining WTO

Principal lead and coordination responsibility for Syria's WTO accession goes to the Ministry of the Economy and Trade which is monitoring and overseeing the overall process.

Preparations for joining the WTO started far before the acceptance of the application. Through which, the texts of the agreements included in the WTO was studied by technical persons and all other activities and negotiations concerning agricultural issues were followed.

In this context, Syria has taken the following actions:

- Four technical committees were established (decree No 2175 for 2002 by the cabinet). later in 2007 and in 2010 the cabinet issued two decrees to renew the membership of those four committees in order to add new members to them (decree 1006 for 2007 and decree 1854 for 2010);

The four technical committees are;

³⁸ Draft of Provisions of the partnership agreement between Syria and the European Union

The General Preparation Committee:

Several Ministries are represented in this committee (Ministry of Economy and Trade, Ministry of Finance, MAAR and Ministry of Industry in addition to State Planning Commission, Ministry of Foreign Affairs, Syrian Central Bank and Chambers of agriculture, trade and industry)This Committee is chaired by the Ministry of Economy and Trade;

The Trade Liberalization Committee:

Several Ministries are represented in this committee (Ministry of Economy and Trade, MAAR and Ministry of Industry in addition to State Planning Commission, Custom Department, and Chambers of agriculture, trade and industry);

The Competition and TRIPs Committee:

Several Ministries are represented in this committee;

The Services Committee

Several Ministries are also represented in this committee.

A directorate for WTO has been established in the Ministry of Economy and Trade to follow up and monitor the process of preparations;

Two sub - technical committees for the SPS and TBT issues were established and are periodically meeting. MAAR is represented in both committees. (In this regard, both Animal and plant quarantine laws and regulations have been adjusted according to OIE standards for animal health and international standards for plant protection, taking into consideration the WTO requirements included in SPS and TBT measures) (law 26 for 2007 concerning plant protection, and law 26 for 2006 concerning animal protection). A group of legislative persons has been nominated to study the WTO documents and suggest plan for action;

A draft for the Memorandum on the Foreign Trade Regime has been prepared to be introduced to the WTO General Council in the near future;

Training assistance relating to WTO accession has been received from several international organizations including ESCWA, FAO, UNDP and the World Bank with the objective of enhancing the capacity of the Syrian cadre.

3.4 Tariff and non-tariff barriers on Syrian trade

Syria used to have high NTBs for the purpose of providing commercial protection for domestic producers and achieve self sufficient of local production. However, within the economical reform, the state started gradually abolishing those barriers as a step in the direction of adopting with international trade bodies. Syria has also adapted the Harmonize System on imports and exports (law 265 for 2001).

Currently, most quantitative restrictions for import or export have been removed and tariff rates on import and other fees have been reduced (maximum tariffs on imported products have been reduced from as high as 150% down to 50% and tariffs on most imported raw materials were reduced to 1%).³⁹

Moreover, the ban on most agro- food imported products was lifted, most other non-tariff barriers to imports or exports were removed, procedures for export and import are being simplified, import licensing was eliminated except for some sensitive products, tariffs on imports have been simplified (Law No 336 for 2002) and agricultural tariffs were justified (Law No 494 for 2005). In addition, imported commodities, that has to temporary entered the country to be manufactured and re-exported, are excepted from the provisions of prevention and restriction on the import and also exempted from the currency regulations.

Furthermore, the previous confines, restrictions, and commissions on imports for some products, which were in favor of some public associations, were left out by law No 61 for 2009 which specified the associations and the products. The agricultural goods that included in this law are; (veterinary antiseptics, agricultural fertilizers, Soya beans, sunflower seeds and fish).

However, there are some agricultural products still banned or restricted from import such as onion, citrus and sugar beet which are banned; cotton, and wheat which are restricted to public associations . Those products are included in the official list of banned products that was issued in 2008. This list has been eased

³⁹ Syrian Agricultural Trade Report,

since that time. In the meantime, some types of bans and inspection requirements on imports are applied for religious, national security, health, or environmental grounds.

In addition, some agricultural products are subject to consumption expenditure tax such as alcohol drinks at a rate equal to 35% and there are quantitative restriction on export of some other products as a tool of a policy managed to satisfy local need from domestic resources.

At present, some of the bans are no longer applied to imports from GAFTA countries, or from Turkey, and also such bans will not be practiced on imports from the EU under tariff quotas and other market access facilities that included in the AA.

Generally, Some products are restricted from import for one of the following reasons:

- Protection of local production such as vegetables, fruits and animal products;
- Religious, and health or environmental reasons, such as: animal fat to the food industry;
- Social reasons related to the existence of a large number of workers in the sector (producers, industrialists, workers) who are vulnerable to low income, or even loss of employment in the event of exposure to foreign competition;
- Support for some starting or nascent agro-food industries which need such protection in order to develop and become competitive;
- Food security reasons, the wheat is an example for these products.

Agricultural imports are subject to SPS condition in which imports have to be inspected to get certificate proves its according to SPS terms (law 26 for 2007). As for animal products, in addition to the previous condition the imports should be only from the country of origin (law 29 for 2006).

Actually, some exporters and importers claim that, they face some constraints include: fees and delay for customs and various inspections during export and import.

4. Agro-food sector outlook

Syria is looking forward to enhancing food security in the country, by ensuring self-sufficiency for principals agro - food commodities. This means to ensure the availability of the necessary commodities in future, considering the grow of population, which is increasing at a rate of around 400 thousand person annually and is expected to double in 2025, and then, the demand for food will grow. Therefore, the domestic production should increase at the same level. In the mean time, Syria is looking forward to increase the production of high-value exportable agro - food products.⁴⁰

The future plan for trade policies intend to promote trade through a wide range of measures such as encouraging the plantation of exportable commodities (cut flowers, mushrooms and organic products ..etc), building up a database on production and exports, modernizing domestic markets, signing mutual agreements for enhancing trade flow and speeding up the implementation of electronic trade.

In general, the strategy for Syrian agro – food aimed at achieving a set of objectives concerning the development of food and agricultural sector, so as to achieve comprehensive and sustainable agro – food development according to the following:

- Ensuring the active participation of the agricultural sector to the GDP, promoting the agricultural sector to secure national food security and improving the situation of producers and consumers by means of production increase and generation of more productive employments.
- Improving the living conditions in rural areas, achieving rural development and poverty alleviation and providing the needed staples at reasonable prices that match with the levels of income and reduce the rural-urban gap.

⁴⁰ The current reality of the agricultural sector and the priorities of agricultural and rural development for the next phase in Syria

- Increasing the self sufficiency in terms of main staples, filling the nutritional gap and improving the food commodity balance by means of enhancing trade
- Achieving a sort of complementarity between the agricultural sector and other economic sectors in terms of input and production integration
- Adopting a social market economy aiming at further trade liberalization with a consideration of the social dimension.

The 11th five year plan (2011-2015) included a number of objectives to promote agro – food sector including :

- Achieving food security and provide the need of basic food national consumption commodities.
- The sustainability of natural resources (land, water, forests, pastures) through their rational economic investment, and preserve them from degradation and depletion and pollution.
- Marketing of agricultural products.
- Expanding the role of the banking system, insurance and agricultural insurance.
- Reducing poverty by making a comprehensive rural development contributes in improving incomes of producers and allowing integration of development policies with other sectors.

Moreover, several sub objectives have been set to be achieved in the next five years including:

- reduce the fallow land
- developed agricultural production and providing its inputs to enhance its competitiveness.
- reduce production costs.
- Use alternative and renewable energy.
- improve the conditions of marginal producers.
- Establishment of appropriate crop combinations to get the highest return.
- Application of the results of scientific research and new technologies.
- choosing crops with economic, social and environmental feasibility.
- the integration of plant and animal production.
- achieve the sustainability of agricultural land.
- rationalization of water use and increase of its efficiency.
- Forest's Integrated management, investment and development.
- rangelands Integrated management, investment and development.
- maintain the biodiversity and ecological balance.
- achieve sustainable development depends on accurate balance of. land use
- the involvement of all society in preserving natural resources.
- creation of organized markets working according to sophisticated mechanism of action.
- the adoption of appropriate mechanisms and procedures for granting certificates of quality.
- the adoption of mechanisms and procedures for providing certificates geographical origin.
- production of organic products.
- develop advanced agricultural processing.
- Adoption of appropriate financial policies to enhance the agricultural investment.
- Increasing the ability of farmers to invest.
- Establish an insurance system for agricultural products. Continue to marketing of strategic crops by the state.
- Improve the marketing the agricultural products.
- improve and sustainable the living conditions of farmers.
- empowerment of rural women.
- achieve comprehensive national development.

Policies and programs have been set in order to put into implementation the above objectives during the next five years

The outlook of Syrian EU agreement

In the framework of the economical reform, Syria is accelerating the steps to liberalize its trade through the initiation of legislations and perform free trade areas with trade partners. mutual trade between Syria and the EU has been steadily deepening with time .

The EU is main partner for Syria which dominates the Syrian imports and exports. Syria for almost two decades had been negotiating with the EU in order to complete the AA. During this period, Syrian trade regime was passing through modification process to be compatible with EU standards before finalizing the signature of the AA. The hardest section in the agreement was the agro-food, which is very sensitive to both Syria the EU countries. Therefore, Syria is looking forward to have means to capture the benefits of the agreement as well as to look deeply for ways to avoid what might be negative impact on the food security on the light of changes in the international and national economical circumstances.

Syria expects to have many advantages through the preferential treatment of Syrian products which will be exempted from custom duties, or to have them reduced, and through the EU's commitment to gradually reducing the fees imposed on agricultural industries until finally phased out in full after 12 years of the agreement executive.

the outlook of Syrian trade liberalization with the world

Through last two decades, Syria has exerted great efforts to integrate more in the global economy, such efforts reflected in the liberalization of trade regime, restructure the economy and engagement in number of trade agreements.

The most significant progress was made in trade liberalization is the application to join WTO. Now after the application was accepted, Syria in the next few years is preparing to strengthen its position in the negotiation through the following:

- converting non-customs restrictions imposed on some agricultural products into tariffs (import quotas - the import ban - and licensing) ;
- Studying the forms of support currently provided in the agriculture sector and looking to reallocate them to be in compatible with the WTO rules to protect the national agro-food sector;
- Studying the agreements governing the organization and mechanisms of Syrian procedure for them;
- Reviewing the sanitary and phytosanitary, TBT and property rights relating to trade with regard to review all applicable laws to determine the extent consistent with applicable in the organization;
- Determining changes to be made to the Syrian agro- food policies, and consider their impact on the sector;Furthermore, Syria has already taken steps in this direction including encouraging private companies to contribute to the development of trade with the world. The effort to support private business will continue in the future.

the SWOT chart⁴¹

<p>The strength in the Syrian agro-food sector</p> <p>The existence of suitable agricultural infrastructure, fertile soil, multiple sources of water (springs and rivers) and variable climatic conditions. Availability of relatively cheap labor.</p> <p>The presence of industrial cities and free zones strengthen food processing and export Diversity of agro- food products, which includes more than 30 kinds of main agriculture distributed to crops, vegetables and fruits in addition to the various livestock products</p> <p>Syrian geographical location at the crossroads between Asia and Europe helps the development of the Syrian trade and increases the goods flow Reform of trade policy provides an appropriate framework for agricultural trade improvement as well as the existence of policies to encourage agricultural investment</p> <p>There is strong public research and extension services disseminate information to the breeders Input supply arrangements prove to be satisfactory Natural resources and wealth, human capital Syrian exports to GAFTA and Turkey are now exempted from custom fees</p>	<p>The weakness in the Syrian agro-food sector</p> <p>Low investment in the agricultural sector due to the length of the period of capital recovery and the risk factors related to agricultural investments</p> <p>Fragmentation of agricultural land holdings, which prevent implementation of large investment projects</p> <p>Erosion and degradation of the soil by the wind in the rangeland area</p> <p>The weakness of agro- food competitiveness due to lack of marketing information system and weak marketing services (sorting - packaging - grading - storage - refrigeration - transport and manufacturing).</p> <p>Weak of agricultural finance Limited incentive for quality improvement on the market with quality control function that not carried out in an efficient way</p>
<p>The opportunities for the Syrian agro-food sector</p> <p>The possibility of increasing exports through applying preferential trade agreements The application of modern irrigation systems helps the expansion of irrigated crops</p> <p>The possibility to enhance the competitiveness of the agricultural sector to increase agricultural exports and modify the negative agricultural trade balance Increasing investment in the sector</p>	<p>The challenges for the Syrian agro-food sector</p> <p>Limited natural resources, especially land and water where traditional irrigation constitutes 85% of the total irrigated area.</p>

⁴¹ The current reality of the agricultural sector and the priorities of agricultural and rural development for the next phase in Syria

4.1 Agro-food policies' evolution outlook

Agro-food sector plays a substantial role in the Syrian economy, represents an important component of the state strategic social and economic choice for Syrian development. Food security and sustainable development are two key components of the Syrian strategy for agricultural development.

Therefore, the government seeks to guarantee the sustainability of producing the main agro-food substances. To do so, the government has adopted a strategy to implementing policy promoting agro- food production, involving all agro- food stakeholders in the producing process, accelerating legislative adjustment, encouraging agro- food investment, strengthening its agro- food trade by adopting the greatest possible flexibility in the trade policy, improving the quality of agro- food products to enhance their accessibility to foreign markets, increasing integration of the Syrian trade in the global trade and strengthening the competitiveness of agro-food to prepare the sector for competition conditions which are expected when joining WTO.

Furthermore, Syria is making all possible efforts to widen and vary its agro-food export in the international markets, augment tradable agro-food products to enlarge their export, and produce new agro-food varieties for export that obtain higher returns in order to provide hard currency for agro-food import.⁴²

⁴² Agricultural policies and proposals of the agricultural sector

5. Concluding remarks

Syrian agriculture sector is growing fast and is one of the most important sectors in terms of employment generation and protein supply to the Syrian population. The sector has significantly developed after several new economical reforms that covered the sector. On the other hand, several constraints have to be addressed to strengthen the competitiveness of the sector. In particular policy should address the problem of supplying food for the annually high population growth, which is about 2.45% under the condition of hasten and rapid changes in the global economy which caused rising food demand and increased costs of agricultural products in world markets.

the challenge become greater with the limitation of its natural resources. Therefore, The government devotes a special attention to exploiting those resources in rational way and shifting to have vertical expansion through increasing the productivity of unit area for agriculture as well for animal products.

Even though, Syria has achieved Self-sufficiency in many agricultural and animal products, the market orientation of the Syrian economy which entails the opening of its markets created new challenges regarding its agro –food ability to compete in such a free market, since the agricultural sector is still under considerable intervention from the Syrian Government and several types of support are offered for agricultural sector by the government as tool to spur producers for increasing and improving the production. Furthermore, The agricultural policies still give priority in the support to what is called “strategic crops”, either for the purpose of food security (as the case of Wheat), or for social concern related to the employment in public factories (as the case for sugar beet plantation), and for economical considerations (for the cotton).

The agricultural policy, so far, has achieved great performance. And thus, the cultivated area is expanded, fertilization and seed production are improved, , and modern agricultural techniques is applied. Also, subsidized feed, free of charge veterinary vaccination are provided, and high productivity animal species are introduced. On the other side, the policy encouraged the agro-food industry in order to stabilize the agro-food prices by absorbing the production surplus, and to enhance food security.

Currently the government modified the method of subsidy which was covered the whole sector to become more convenience with development requirements. Also production policy is oriented to rationalizing the usage of chemical fertilizers and Pesticides and adopting organic products to improve the quality and produce healthy food.

The new agro – food policy targeted to increasing agricultural production to maintain food security; but in the mean time, improving its quality to enhance exports. These policies focus on the sustainability in using natural resources including pastures and forests. The government also uses the price policy as a tool helping to increase the production and improve the quality.

These policies were emphasized in the objective of the tenth Five-Year Plan which defined the objectives of the agro-food sector in Syria as; to ensure food security, increase productivity, improve production quality, increase exports of commodities that have competitive advantages, develop agricultural resources, and rationalize their use to achieve sustainable development in addition to fulfill other general objectives related to water reservation and rational use of water and fight desertification, usage of vital technology to improve quality, sustainable use of national resources, limitation use of chemical products in agriculture, encouragement of organic agriculture and development of rural communities and improvement of life standard there taking into account environmental aspects.

One of the most significant issues is agricultural support. The agriculture support was used in Syria as one of policy tools to accelerate production growth rates, improve income of people in rural areas and secure food in convenience prices for consumers. Kinds of subsidies were; subsidy for agricultural inputs, subsidy for purchasing some crops and providing agricultural services such as extension activities, agricultural research, veterinary services and subsidized agricultural credits.

Regarding the agricultural subsidy, the government is aware of the sensibility of this issue for joining WTO. Therefore, it started early to cut down all types of subsidies which are not allowed in WTO. And thus, subsidy for input has gradually reduced starting by liberalizing the some agricultural inputs including chemical fertilizers, pesticides, machinery and some seed varieties; and also limited the subsidies for fuel and electricity as well as for irrigation cost for state projects in order to unify the different forms of subsidies

to be granted through a fund for agricultural support which targeted the subsidy to strategic crops and to certain important products with limited budget. These policies resulted in enhancing the sector's efficiency and reducing the distortion for trade. The government also activated the participation of private sector to take an active part in producing, importing, and trading most of these inputs.

On the hand, the government had encouraged private sector to locally produce such inputs by facilitating agro-industrial investment projects. This was resulted in setting up several plants manufacturing inputs for plants and animals production.

Syria's accession to GAFTA, negotiations with the European Union to sign the AA and seeking to enter the WTO were turning points for agricultural trade liberalization led to speed up the reform of the economy and the modification of Syrian legislation to ease restrictions on agro-food exports and imports and the foundation of several institutions to promote exports and reducing tariffs on imports to meet the requirements of trade liberalization and development local markets.

The government has taken and are taking many measures to strengthen the agro-food sector by devoting special attention to improving the investment climate and promoting trade through a wide range of measures including dismantling of trade barriers and improving product quality.

Annex

Below are some selected commodities to illustrate the tariff-quota system under the AA:

- a) Customs duties shall be eliminated or reduced as indicated in first column.
- b) For certain products, customs duties are eliminated within the limit of the tariff quotas listed in second column.

For the first year of application, the volumes of the tariff quotas shall be calculated as appropriate from the basic volumes, taking into account the part of the period elapsed before the date of entry into force of the agreement.

Table 7.6- EU Imports of agricultural products originating from Syria

Description (2)	Reduction of the MFN customs duty %	Tariff Quota (tons net weight)(**)	Specific provisions
Citrus	100 (*)	45,000	Annual increase by 3%
Potato	100	35,000	Annual increase of 1000 tons during 2 year
Tomato	100	15,000	Article 2 (3)
Apple	100 (*)	20,000	Annual increase by 3%
molasses	100	20,000	Annual increase by 3%
Olive oil	100	10,000	Annual increase of 1000 tons during 2 year
Table Grapes	100	3,000	

Source: Syrian-EU Association Agreement Protocols

* The rate of reduction applies only to the *ad valorem* customs duty.

** When the quantities are not mentioned, the tariff concession applies for unlimited quantities inter price will apply on some quota

(1) CN codes corresponding to Regulation (EC) No 1789/2003 (OJ No L 281, 30.10.2003, p. 1).

Also there are thousands products that their share range from 100-5000 this will give Syria more opportunities to extend its exports. when the quota is exceeded a tariff reduction by 40 - 60% is applied

Table 7.7- EU agricultural products imported into Syria and benefiting from a zero-duty tariff quota

HS or Syrian Code	Description	Reduction of the MFN duty %	Tariff quota (tons net weight)
0805 10 10	Fresh sanguines and semi-sanguines	100	1500
0805 10 30	Fresh navels, navelines, navelates, salustianas, vernas, valencia lates, maltese, shamoutis, ovalis, trovita and hamlins		
0805 10 50	Fresh sweet oranges (excl. sanguines and semi-sanguines, navels, navelines, navelates, salustianas, vernas, valencia lates, maltese, shamoutis, ovalis, trovita and hamlins)		
0805 20 10	Fresh or dried clementines		
0805 20 30	Fresh or dried monreales and satsumas	100	750
0805 20 50	Fresh or dried mandarins and wilkings		
0805 20 70	Fresh or dried tangerines		
0805 20 90	Fresh or dried tangelos, ortaniques, malaquinas and similar citrus hybrids (excl. clementines, monreales, satsumas, mandarins, wilkings and tangerines)		
0808 10	Fresh apples	100	2500

Source: Syrian-EU Association Agreement Protocoles

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II. Part two - Agricultural sector, Agro-Processing and Related Policies in Lebanon

Introduction:

This study presents a review on agricultural and agro-food sector in Lebanon. The first chapter describes the agro-food sector from the following perspectives: importance and role in the Lebanese economy; main agricultural commodities; agricultural sector structure; and development of agro-food industry. The second chapter covers current agricultural and policies related to price and income support, input use, rural development, agro-environment, infrastructure, and consumer policies. The third chapter covers agro-food trades, including general presentation, trade agreement, and tariff and non-tariff barriers. The fourth chapter presents future prospects of agro-food sector including a SWAT analysis. The last chapter present recommendations to develop this sector.

1. Description of agro-food sector

Lebanon has the ideal climatic, soil, and water resources – the highest proportion of cultivable land and the most reliable rainfall and river assets in the Arab world – to be one of the most productive agricultural countries in the Middle East region. Nevertheless, the agricultural sector and mainly the agro-food sector has been confronting many obstacles and barriers: civil war which corrupted many farms, lack of Government support ⁴³ such as poor agricultural research and extension, and unclear agricultural policies.

⁽⁴³⁾ only 1 per cent of the budget is allocated to agricultural sector

Agriculture is in many ways at a crossroads in Lebanon, seemingly able to gradually extinguish itself or instead, revive and take shape as a vibrant sector of the economy, providing economic opportunities and contributing to food security.

Agriculture in Lebanon is characterized by the prevalence of traditional cropping. Urbanization is rapidly encroaching on rural areas including fertile land, even though substantial areas are unused or abandoned. Although the role of agriculture in the country's economy is declining, it still occupies an important place, generating 6.7% of Lebanon's Gross Domestic Product in 2004 and employing roughly 9% of the labour force in 2003 (MOA 2004; CDR 2002, personal communication H. Nasrallah MOA, April 2006). (*agricultural and food trade policy*).

Lebanon has a good potential to boost the agro-food sector. water is relatively abundant and more than half of useable agricultural land is irrigated (MOA 2004), while the country produces just 20% of its food requirements, importing the balance mainly from neighboring countries and making it one of the least agriculturally self-sufficient countries in the world (MOA 2005, Gambill 2003).

1.1 Importance and role of agro-food sector

1.1.1. Relative size to national economy

Agriculture plays a significant role in Lebanon's national economy, since agricultural products provide a good deal of the raw materials for the industrial sector. Agricultural land covers nearly a quarter of the total surface area of Lebanon. Agriculture contributes about 12 per cent of the GDP and employs 9 per cent of the total workforce. Hence, developing the agricultural sector will not only benefit the rural population, it will also promote Lebanon's overall economic status.⁴⁴

In 2002, agriculture contribution to the country's GDP was 11.7%. In 2003 this increased to 12.2%, and in 2004 it surpassed the 13% mark. Growth rates of the agricultural sector are equally impressive (1.7% in the period of 1993-2001), plummeting to 1.0% in 2002 and then shooting upwards to 2.5% in 2003. In 2004, the annual growth rate became 3.0% thus tripling in only two years. Activity in the sector (rationalization of activities such as specific cultivations, breaking into new export markets with a better quality and better priced product vis a vis regional competitors) signifies this not as a blink but as mainstay of the Lebanese economy. The main agricultural products are citrus, grapes, tomatoes, apples, vegetables, potatoes, olives, tobacco, sheep and goats.⁴⁵

Despite the importance of the agricultural sector, Lebanon has a widening agricultural deficit and growing food dependence. Increased exports should bring in foreign currency and may also trigger more efficient production methods, thus narrowing the agricultural deficit or even eliminating it.

Livestock production is an important activity, particularly in the mountains and in the Baalbeck-Hermel area on the eastern mountain chain where soil fertility is relatively low. Bovines and dairy production is becoming increasingly popular. In the past five years, 3 medium-to large-scale dairy farms have been established in the North and in the Bekaa. Farmers have also been encouraged to expand dairy production through several grants and loan agreements due to MOA and private initiatives under international and national NGO's.

Animal production doesn't satisfy local consumption except the poultry sector. About 26,630 farmers produce almost 10 million broilers and 4.5 million layers annually (MOA/FAO, 2000). The vast majority are small, backyard farming systems for local consumption only (village and households). (CIHEAM annual report - Lebanon)

Table 1 Total value of agricultural production in Lebanon 2005 – 07, billion L L

Item	2005	2006	2007

⁽⁴⁴⁾ Effects of Trade Liberalization on Agriculture in Lebanon (UNEP)

⁽⁴⁵⁾ . national agricultural policy report

	Value	%	Value	%	Value	%
Plant	1441	72	1943	76	2155	73
animal	551	28	608	24	789	27
Total	1992	100	2551	100	2944	100

Source: Agricultural in Lebanon report, Ministry of Agriculture

As we see, the total value of agricultural production ,plant and animal , increased 15% in 2006 compared with the previous year which witnessed the July war . The increase of animal products was even higher as the value of animal production jumped 30% between the two mentioned years.

1.1.2 Agro-food sector and the society

In addition to its economic importance, agriculture plays a considerable role in the food security of any country. According to the agro-biodiversity study carried out by the Lebanese Ministry of Agriculture (MOA), Lebanon is self-sufficient in poultry production, but only produces about 15 per cent of its wheat consumption, 45 per cent of its legumes and 10 per cent of its sugar needs. Moreover, Lebanon imports 78 per cent of its dairy and meat products. Alternatively, it exports fruits and vegetables including apples, potatoes, citrus fruits, tomatoes and other fruits and vegetables.

“Per capita cereal production” statistics can provide a rough indication of whether a country is able to feed its population. Lebanon has a low rate of average per capita cereal production with only 24 metric tons per 1,000 people (1986-1988) and 30 (1996-1998), compared to 310 and 349 metric tons per 1,000 people in Syria (1986-1988 and 1996-1998 respectively). In addition, the net cereal imports and food aid represent 90 per cent of the total cereal consumption in Lebanon (1995-1997). These figures indicate that the country is far from being self-sufficient in grain production and has to depend on imports.

As in most developing countries, rural areas in Lebanon depend to a large extent on agriculture. In Lebanon, the Bekaa region has the largest area allocated for agriculture in terms of hectares. In reference to the national Human Development Report of Lebanon, human development differs substantially between Beirut and Mount Lebanon on the one hand and North Lebanon, Nabatieh, the Bekaa and South Lebanon on the other. The Bekaa, the North and the South are the region’s most involved in agriculture production.

In terms of sustainable development, by helping attenuate the problems faced by the agricultural sector, the Government would be directly and indirectly contributing to improving the living conditions of rural citizens and reducing the imbalances that exist between cities and rural areas. This support should include improving marketing and distribution schemes, intensifying promotion, finding new markets, enhancing research, imposing pest and disease control, improving training and extension services, providing inspection services and boosting infrastructure services related mainly to electricity and water supply.

In turn, promoting and strengthening the agricultural sector in Lebanon will contribute to alleviating a major socio-economic and environmental problem, namely rural migration that results in heavy concentrations in Beirut and its suburbs, which is unsustainable in terms of development and the environment.

1.2 Main agricultural commodities

Lebanon’s Mediterranean climate allows for a great diversity of production despite the small area of the country. Agro climatic conditions range from sub-tropical to temperate zones with cold winters (MAO 2004). The main crops are cereals, fruits and vegetables, primarily tomatoes, potatoes, olives, wheat, cucumbers, oranges, apples and grapes (FAO 2004). Reductions in cereal production in the 1970s and 1980s were compensated for by increases in perennial crops particularly olive production, though at present orchards are aging and in need of renewal (FAOSTAT data, personal communication H. Nasrallah MOA, April 2006).

Main crops include wheat, potatoes, onion bulbs, onion seeds, apples, citrus, grapes, bananas, olives, tomatoes, lettuce, muskmelons, watermelons, cucumbers, carnations, roses, peach plums, apricots, lentils, hashish, and opium. Livestock and livestock-derived products include cattle, sheep, goats, pigs, poultry, fish, eggs, and milk. This diversity in crop production is partially attributable to the diversified topography and climactic conditions in the different agricultural regions in the country. (agricultural performance and policy in Lebanon CIHEAM)

1.2.1 Crops

The total cultivated area in Lebanon in 2006 was about 279 thousand hectare. The following table demonstrates the development of the area planted with various crops during the period 2005-2007

Table 2 the development of the area planted with various crops, 1000 hectare

Item	2005	2006	2007
Cereals	65.2	70	69.6
Legumes	7.1	7.2	7
Vegetables	42.1	42.3	41.7
Industrial crops	10.8	9.9	9.6
Fruitful and other trees*	82.5	83.9	84.3
Olive	58.8	59.1	58.6
Other plantations	6.5	6.6	6.3
Total area	273	279	277

Source: agriculture in Lebanon report , * this group includes peanuts , pine, pistachio, chestnut

Many crops are grown in Lebanon . They can be classified to the following categories: Cereals, Legumes, vegetables, industrial crops, fruitful trees, and other trees. The following table summarizes the area, production and trade flows of cereals.

Table 3: area, production , export, and imports of main categories of crops in Lebanon, 2006 -2007

Item	Cereals		Legumes		Vegetables		Fruitful trees		Olive trees	
	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007
Area cultivated (thousand hectare)	70.1	69.6	7.2	7	42.3	41.7	76.8	77	59.1	58.6
Production (thousand tone)	429.6	391.5	30.1	37.5	1160.6	1300.6	936.5	979.8	177.3	76.2
Value of production billion L.L	116.5	104	27.4	38.3	592	770.7	705.7	857.6	283.7	144.7
Quantity of imports (thousand tone)	678.9	824	46.3	45.8	198.6	207.3	10.5	10.8	2137	3592
Value of imports (billion L.L)	191.8	336.8	42.6	50.7	89.2	130	22	23.7	1.7	3.3
Quantity of exports (thousand tone)	5.3	6.1	5.2	6.1	145.3	167.2	249.5	314.3	22	34
Value of exports (billion L.L)	0.6	5.8	4.8	5.7	29.6	34.3	65.5	76.4	54	82

Source: Agriculture in Lebanon Report, Ministry of agriculture

Lebanon is seeking to diversify and produce more unusual fruit varieties, such as kiwi fruit, pomegranate, custard apple and even truffles. But it largely produces standard crops like apples, pears, potatoes, onions, grapes and citrus fruit. The olive oil industry is ancient and produces extremely high quality oil, some of which is sold by specialist distributors in the UK. Another major growth sector is the wine industry which is now well represented in Europe and wins many awards. The banana industry is also expanding fast, with a 100% increase in exports in 2006 compared to 2003. All of these exports have the potential to do better in the EU as tariffs disappear over the next few years. Tastes in dairy products are also changing, with consumption of fresh milk and cheese increasing at a rapid pace as more dairy farming is introduced. Standards though will remain a problem for the foreseeable future.

1.2.2 Livestock

In 2007, the value of animal production in Lebanon represented 27% of the total agricultural production; plant and animal. In 2007, animal production witnessed remarkable increase amounting LL789 billion, increasing from LL608 billion in 2006.

The livestock sector in Lebanon is facing production and marketing difficulties. Although, 2006 war affected animal production very badly, the value animal production jumped 40% between 2005 – 2007.

Animal production consists of red meat of different kinds , poultry , fish, milk and dairy products, eggs, and honey. Local production of animal products satisfy only a fraction of domestic consumption, which is covered by imports. Furthermore, domestic animal production faces fierce competition from imported products.

In 2007, the value of animal raw and semi raw imports (live animals , frozen and fresh meat, milk and dairy products, honey, fish, etc) was LL750 billion. Lebanon imports 84% , 38% of its consumption of red meat and milk respectively.

Table 4 The value of animal products in L.L

Animal products	2005		2006		2007	
	Value	%	Value	%	Value	%
Milk	138.6	25	151.1	25	192.7	24
Red meat	87.6	16	84	14	116.8	15
Poultry	185.5	34	230.7	38	271.8	34
Eggs	56.9	10	77.1	13	125.7	16
Honey	25	5	18	3	22	3
Fish	57.2	10	47.3	7	60	8
Total	550.8	100	608.2	100	789	100

Source: Agriculture in Lebanon Report, Ministry of agriculture

As we see from the table the value of animal products increased in 2007 reaching LL789 billion, making an increase of 30% compared with 2006, which was due to the high increase in most animal products. The following table shows the value of exports and imports of animal products, billion LL

Table 5 Value of imports and export of main animal products, billion LL

Animal product	Value of imports			Value of exports		
	2005	2006	2007	2005	2006	2007
Milk and dairy products	268.6	261.5	319.5	4.8	5.2	5.7
Red and white meat	314.1	345.5	359.6	2	4.9	1.3
Eggs	0.1	0.9	0.9	2.0	2.2	7.1
Honey	0.8	0.8	1.4	0.01	0.05	0.25
Fish, fresh, frozen, or chilled	57.2	57.6	68.7	1.07	1.7	2.1
Canned fish	25.3	35.8	40.4	0.4	0.7	2.0
Total	666.4	702.1	790.5	10.28	14.75	18.45

Source: Agriculture in Lebanon Report, Ministry of agriculture

Table 6 Foreign trade of agricultural products 2005-2007 , billion LL

Item	Value of imports			Value of exports		
	2005	2006	2007	2005	2006	2007
Plant products	595	571	874	159	158	209
Animal products	641	666	750	10	14	16
Total value of raw and semi-raw agricultural products	1236	1237	1624	169	172	225
Agricultural processed products	908	928	1290	266	264	335
Total agricultural products, raw and processed	2144	2165	2914	435	436	560

Source: Agriculture in Lebanon Report, Ministry of agriculture

In 2006, the total value of agricultural imports (raw and semi raw) was about LL1237 billion, increasing sharply to 1624 billion in 2007. On the other hand, agricultural exports increased in 2007 to reach LL 225 billion.

Food consumption :

Food consumption data are still lacking in Lebanon. Lebanon is a net importer of food products. The gap between domestic food production and consumption requirements is covered mainly by imports.

Food deficit is mostly manifested in cereals. The share of milk production and meat in total requirements remains low. Red meats cover only 15% of the domestic consumption, whereas milk and dairy products provide 62% of the total domestic consumption, against 56% in year 2000.

Fruits, vegetables and poultry production exceed the local market consumption and could contribute substantially to increasing exports.

1.3 Agricultural sector structure

1.3.1 Farm structures

According to the Ministry of Agriculture, agricultural land in Lebanon comprises around 25% of Lebanon's total area. Most of the farmland holdings in Lebanon are small-sized. It is currently estimated that about 35% of land owners have less than one-half hectare of farmland and that their total holdings amount to only 4% of the total agricultural land. About 45% of farmland owners own less than a hectare each; this accounts for about 9% of the total agricultural area. The FAO estimates that renting, share cropping and mixed forms of land management currently cover about one-half of total agricultural land holdings in Lebanon and that these contracts are predominantly on a seasonal or annual basis. These figures indicate a major change from the pattern that existed in the past.

1.3.2 Agricultural labor

The figures demonstrate that the percentage of the total workforce involved in agriculture has continually decreased since 1960. It is currently estimated that the percentage share has stabilized between 8 and 10 Percent. Due to the high cost of domestic labor, labor from neighboring countries is rented.

1.3.3 Inputs usage and machinery

The level of mechanization achieved in each farming sector was illustrated by reference to typical cropping situations which, in turn, were, and still are, linked to the agricultural zones as discussed below:

- ✓ Rain-fed agriculture is largely confined to the Bekaa Valley where wheat, barley, lentils, and beans are grown as winter crops. Preparation of the land takes place by means of share ploughs and spring time cultivators, used to a limited extent in secondary cultivation. Seed is spread with spinner broadcasters or by hand.
- ✓ Sugar beets and potatoes are grown mainly in the Bekaa Valley where the traditional system of basin irrigation and the generally small size of the plots have provided serious constraints on mechanization to date.
- ✓ Orchards and vineyards are cultivated on level or gently sloping areas of the Bekaa Valley. Extensive mechanization includes soil tillage, weed control, complete spray programs and crop transport.
- ✓ Deciduous fruit trees are mainly cultivated on narrow terraces in the mountains. Only light garden tractors and portable spray machines have been utilized.
- ✓ Citrus and banana cultivation utilizes limited mechanization, largely confined to spraying operations.
- ✓ Cultivation of olives includes some use of tractors; spraying is largely mechanized.
- ✓ Cultivation of mixed crops (tomatoes, potatoes, winter cereals, tobacco, and groundnuts) employs tractors for soil preparation; use of ploughs and/or rotary cultivators is common. Tractors with trailer transport are often used for crop collection and transport to market.

The level of mechanization in Lebanon is far below the optimal level. The constraints on achieving the required levels of mechanization in Lebanese agriculture include the following:

- Shortage of medium- and long-term credit.
- Generally, private institutions supplying tractors and implements do not know what type of tractor is best suited for each agricultural region; consequently, technical advice to farmers has been erroneous.
- Under-utilization of tractors, due to the predominance of small land holdings, has created a situation in which the savings in plowing costs are insufficient to induce farmers to undertake such a large investment.
- Limited number of agricultural cooperatives.

- Land tenure systems which preclude any investment by share croppers or tenants in land improvement.
- Poor access to farms.
- Poor terrace design and orchard layout which limit the use of tractors.
- Outmoded field irrigation.
- Poor land leveling and field drainage.
- Shallow, stony soils in some areas which are liable to damage machinery.
- Limited government assistance in farm mechanization to farmers. (Agricultural performance and Policy in Lebanon, CIHEAM)

1.4 Agro-food industry

The Agro-food industry is the most important sector of the Lebanese industry accounting for 20% of industrial enterprises and contributing with 26% to GDP (Tmasin and Trifiro, 2002). The Lebanese Food industry sub-sector includes the traditional products such as alcoholic products (wine and Arak), confectionery, canned fruit and vegetables, bakery products and olive oil (table 9 in Annex 2). New plants have been recorded in recent years in potato chips and snacks, dairy products, frozen food, vegetables, feed mill and poultry breeding centers. (CIHEAM annual report - *Lebanon*)

1.4.1 Description, importance

According to the General Directorate of Industry, 824 new factories were established in 2002 (against 599 in 2001), employing 6 721 persons (4 425 in 2001) and necessitating the investment of LBP 179 billion (LBP 105.1 billion in 2001). The distribution of new registered factories by categories of products shows a preponderance of food and beverages with 24,7% of the total

This is more importantly to benefit of the EU market opportunities opened to Lebanon through the EU association agreement. However, to many industrialist of this sector, the industry face policy related problems and lack of financing, low technologies and high taxes on raw materials, where around 80% of raw materials used by food industry are imported.

1.4.2 Main products

Food and beverages products are considered as an important sector in the economy. The industry represents 4,2% of the total exports (US \$ 64,7 million). However, there is a continued need to focus on standards and technical specifications. This can only be through investing on technological innovation, automation and quality control of processing plant.

Fruits and beverages processing and preservation sub sector comprise around 4% of the total food and beverage sector (160 establishments), while bakeries represent 48% of the total and sweets industries 22.5%. Some 150 companies have a production capacity that enables them to export.

The most important areas of production are for processed foods, such as pickles, jam and packed foods, with 132 companies operating in that sector. Another 35 companies, mostly in the Bekaa valley, are in dairy products.

Fruits and vegetable sector for example, the success this sector giggly connected with the agricultural sector that is most important source of raw materials, increased mechanization in agricultural production is needed, consequently financing and contract growing needs to be organized. On the other hand the need to achieve and maintain levels of quality that satisfy international standards can be important catalyst for the ago-food business. For example, wine production contributes little to exports (5% of the total export value). Nevertheless, high quality Lebanese wine still maintains a strong reputation. (CIHEAM annual report - *Lebanon*)

Table 7 Crop processed in Lebanon, tone, 2002-2009

Item	2002	2003	2004	2005	2006	2007	2008	2009
Beer of Barley	16364	15353	23071	21263	24645	26811	29125	29125

Groundnut oil	3430	3829	3714	3494	3916	5229	4440	4921
Olive oil virgin	5300	6500	7500	6800	5700	7500	15100	19700
Sesame oil	3751	3045	4490	4393	3600	3500	3400	3500
Soybean oil	8605	17856	10132	7208	19	64	3	3
Sunflower oil	5200	3700	6522	205	258	358	361	361
Wine	15000	14585	17853	16661	17846	11138	14954	12603

Source: FAOSTAT

1.4.3. Investments

Table 8 Distribution of Registered Agro-food Industries at the Ministry of Industry by Number of Enterprises, Employees and Capital, 2002

	2002		
	Number of enterprises units	Number of employees	Total Capital (billion L.L)
Food products and beverages	204	1901	66.8
Other	620	4820	112
Total	824	6721	178.8

Source: Ministry of industry, 2003

1.4.4 Agro-food trade flows

According to the statistics of the Higher Customs Council, total agro-food exports amounted to US \$ 235 million against US \$ 175 million in 2004. The share of food and agricultural products to total exports was 15,48% in year 2003, against 16,7% in 2002. The largest export component of this category was the prepared foodstuffs, beverages and tobacco (63,8%), followed by plant products (27,66%).

Main destiny for the Lebanese Agro-food export is the Gulf countries (60%), followed by Syria (21%), Jordan (10%), EU (2%) and Egypt (2%). The geographic distribution of agro-food exports shows that Lebanon main clients are Saudi Arabia, United Arab Emirates, and Kuwait. In fact, most of the vegetables and fruits industry products are exported to Saudi Arabia (16%), United States of America and United Kingdom.

Agro-food imports, on the other hand, reached US \$1331,6 million for 2003 compared with US\$ 1237 million in 2002 (table 5, Annex 2). Main exporting countries are Brazil, Egypt, Iran, Netherlands, and the United States of America. Cereals are imported from the United States of America (41% of the total cereals), and Australia (11%) and Germany (8%).

Most of the live animals and animal products are imported from France, Germany and Turkey. Lebanon is sufficient in poultry products. Exports of eggs amounted to US \$ 43 million. Market of these products is mainly Kuwait (65%), Bahrain (18%), and Qatar (6%). The wine industry has achieved notable success and accounted for US \$ 8 million worth of export to Europe, America and Australia.

2. Current agricultural and food policies

2.1.Short retrospective view of agricultural policies

In Lebanon, agricultural policy is carried out in a highly fragmented, disconnected manner and as a low priority. A wheat and sugar beets subsidy is managed by the Directorate General of Cereals and Sugar Beets at the Ministry of Economy and Trade and a tobacco subsidy program is run by the Régie des Tabacs at the Ministry of Finance. The Ministry of Agriculture is responsible for other crops, agricultural services and cooperatives. It also supervises the Lebanese Agricultural Research Institute and the Green Plan, which helps rehabilitate lands and rural roads neglected or destroyed during the war (MOA,2004; MOA, 2003). An export-promotion program is managed by the paragonovernmental body Investment Development Authority of Lebanon spell out and the Council for Development and Reconstruction manages infrastructure projects, including irrigation and mobilizes foreign funding.

In 2002, a total of 98.3 billion LBP (65.5 million US\$) was spent on agriculture, of which 59.5 billion LBP (39.7 million US \$) was spent by the Directorate General of Cereals and Sugar Beets (DGCSB) (MOA 2003). In 2003,

only 0.4% of Lebanon's total government budget was allocated to the Ministry of Agriculture : 34 billion LBP (22.7 million US\$). Even when all programs benefiting the agriculture sector are combined, the total represents less than one percent of government budgets, very low compared with spending of neighboring countries. Meanwhile, financing of rural development projects by various international donors (such as the European Union, Japan, several Arab countries and US-based organizations funded by the US Agency for International Development), including significant agricultural development components, totals roughly 50 million US\$ per year (MOA 2003).

Price supports: A 1959 law supports government subsidization of wheat, barley, corn and sugar beet production. In recent years, only the wheat and sugar subsidy have continued, in addition to a subsidy for tobacco farmers. Periodically, bakeries have been given subsidized fuel) to encourage them to continue supplying bread: this occurred once in 1981 and again in 1991 (personal communication, A. Khoury, May 2005).

Export subsidies: Export Plus is a \$33 million program run by the Investment Development Authority of Lebanon with the objective of increasing exports to both new and traditional markets; controlling the quality of agricultural products to ensure compliance with international standards; and transferring knowledge to farmers and exporters. Because subsidies are for transportation and not production costs, Export Plus is apparently WTO compliant (IDAL 2006). The program contributes up to 100\$ per ton to cover the cost of shipping produce overseas and increased exports by 15% the first year and 5% the following year (IDAL, 2006). Farmers have complained however, that traders and other intermediaries are the main beneficiaries of the program (Gambill, 2003).

Agricultural and food trade policy in Lebanon in recent decades has done little to improve the situation of an agricultural sector weakened by years of civil war and occupation. While other sectors of the economy have received considerable financial resources for reconstruction (contributing to the countries massive debt load), agriculture has benefited from little aid or even attention from the national government.

A large portion of government funds (and private subsidization, in the case of wheat) which are attributed to agriculture go to the specific crops of wheat, sugar and tobacco. The fact that there are no specific criteria for eligibility for these subsidies indicates that they are not part of an overall strategy for agricultural development. The price supports also do not particularly encourage farmers to invest in the productive capacities of their farms but act instead as short term solutions to a problem (MOA 2003).

The current agro - food policy objectives of the Lebanese Government are focused on:

- Providing the necessary infrastructure such as roads, irrigation systems and extension and research services,
- Securing a steady stream of reasonably priced produce for the Lebanese consumer, giving assistance and support to the local producers,
- Creating suitable environment for competition and the efficient flow of information,
- Coordinating market activities to protect the economy from the negative effects of market failure.

Agro-food programs and subsidies

Financial assistance to agriculture in Lebanon takes many shapes and forms. The Government provides assistance to the sector in the form of input, or output subsidies and export subsidies as well as through credit. These are:

- 4) For Input subsidies: The Ministry of Agriculture subsidizes inputs to farmers (pesticides, seeds, seedlings etc) on an annual basis. Thus, pesticides are periodically subsidized for strategic crops including olives and wheat and in reaction to pest outbreaks. In addition, certified seeds produced by the Lebanese Agricultural Research Institute are sold to farmers at subsidized prices. Also, numerous irrigation projects are financed by the government and international donors (water is now used at prices that are significantly below its marginal cost of production). On the other side, the Ministry of Agriculture subsidizes inputs to livestock breeders in the form of reduced cost of vaccinations and veterinary drugs.

- 5) For the output subsidy: Five main agricultural products are subsidized by the government, namely: (wheat, sugar beet, apple, olive oil, and tobacco).
- Wheat and sugar beets are bought from producers at a higher than global market prices by the Directorate General of Cereals and Sugar Beets (DGCSB) at the Ministry of Economy and Trade, and then the wheat is resold to millers at the global price or slightly less. The state ensures that all wheat produce is purchased from local farmers at a subsidized rate.
 - Apples have started only recently enjoying the benefits of price support due to their small volume.
 - Olive oil: The Higher Commission for Relief, supports the marketing of their produce through buying the oil from farmers and cooperatives at guaranteed floor prices.
 - Tobacco subsidy program is run by the Régie des Tabacs at the Ministry of Finance.
- 6) For the credit subsidy: the Lebanese Government is using elaborate schemes of financial assistance as well as credit-assistance schemes relevant to the agricultural sector, which are of great importance in further organizing the sector. Subsidized interest loans are introduced from banks to the farmers. Those are mainly short term loans. Less than 1.5% of commercial banks' loans are allocated to the private sector of agricultural activities and those who receive them are mainly owners of large farms and agro-food industrial facilities.

There are other types of agricultural subsidies including:

1. Tax exemption: most of the agro - food activities is exempted from taxes. In addition, There are tax exemptions on agricultural buildings and land, and 10-year tax exemptions on agricultural industries.
2. Free agricultural services (research, extension, training, infrastructure, ...etc)
3. Subsidized food purchases: Agricultural products are periodically bought for the army at heavily subsidized prices.
4. An Export Plus Program was started in August 2001, aims at supporting the Lebanese agricultural exports. The main financial tenet of the Export Plus program bind to certain standards functions just like a subsidy, since it acts as a reduction on the cost of transport of the agro - food produce to the importer.

However, there is recent moves to cut subsidies that are driven partly by chronic budget deficits and public debt.

2.2 Objectives of current agro-food policies and support to agriculture

For socio-economic considerations, including reducing rural-urban migration, and in efforts to replace illicit crops, the government through the General Directorate of Cereals and Sugar beets in the MET regulates wheat related economic activities. The National Board for Tobacco and Tobacco (NBTT) in MOF monopolizes Tobacco and Tobacco production in the country. NBTT sets the prices, buys the farmers' harvest and supplies storage and processing of the product.

A recent decision taken by the Council of Ministers was about resuming Sugar beets market support as was strongly requested by Bekaa farmers a decision that was taken based on social considerations. This was after a year of taking an opposite decision within the context of reducing subsidies to farmers in response to WTO and EU agreements.

2.3 Price and income support policies

In recent years, only the wheat and sugar subsidy have continued, in addition to a subsidy for tobacco farmers. Periodically, bakeries have been given subsidized fuel) to encourage them to continue supplying bread: this occurred once in 1981 and again in 1991 (personal communication, A. Khoury, May 2005).

Export Plus Program: started in August 2001, aiming at supporting the Lebanese agricultural exports is still in place. This program was viewed as one of the programs that can boost and revitalize the productive sectors

in Lebanon. Investment development authority of Lebanon (IDAL) prepared this program, at an estimated amount of 50 billion LBP, from its allocated budget.

These direct payments were paid to farmers on the condition that the farmers bind to certain standards. This amount will depend on the cost of transporting the produce to its destined market and on the kind and date of agricultural production.

2.4 Input use policies

Input subsidies: MOA subsidies inputs to farmers (veterinary drugs and vaccinations, pesticides, seeds, seedlings, honey bee disease control...) on yearly basis. Furthermore, numerous irrigation projects are financed by the government and international donors, although costs to farmers are still high relative to other countries. Pesticides are periodically subsidized for strategic crops and in reaction to pest outbreaks – in the past this has included olives and wheat. Certified plants seeds produced by the Lebanese Agricultural Research Institute are sold to farmers at subsidized prices. Amount of the subsidies under its jurisdiction are given for 2001-2003 in the Ministry of Agriculture budget .

The total value of subsidized inputs for the year 2003 amounted to US \$ 3,2 million against US \$ 4,2 million in the previous year. This reflected MOA strategy in reducing the budget allocated to pesticides for the year 2003 in its efforts to disseminate IPM techniques and cutting down on pesticides applications and improving the quality produce.

2.5 Rural development policies

Rural development responsibility is fragmented among several ministries and agencies where each implements its own program and projects separately. However the Council for Development and Reconstruction (CDR) is the body responsible for national planning and coordination. Effectively, and in May 2002, CDR prepared a draft for a "Rural Development Strategy and Policy State". This represents an important measure concerning the formulation and application of a national and regional comprehensive rural development programs. The Proposed strategy and action plan for rural development emphasize the following:

- increasing effectiveness of public expenditures;
- improving access to social and economic infrastructure ;
- enhancing competitiveness of agriculture;
- provision of enabling policies, laws and regulations;
- improving the natural resource management;
- increasing contribution of rural women in development;
- adoption of a participatory approach for rural development.

The strategy aims at increasing allocations to rural areas to achieve a more balanced regional development and it will give elected Municipal Councils in rural areas, in a partnership with local communities and civil societies, a considerable role in identifying local needs and priorities and involving them in the implementation of rural activities.

2.6 Agro-environmental policies

Lebanon's agriculture offers environmental opportunities for green space, landscaped terraces and fresh and healthy produce. At the same time, improper agricultural practices lead to soil erosion and impoverishment, depletion of underground water resources, water pollution and health impacts from inappropriate use of pesticides and fertilizers, and environmental pollution from haphazard dumping of slaughter waste and animal farms. The Lebanese Government policies appear targeted to increasing the availability of irrigation water and controlling the use of pesticides, with however, little investment or incentives for water- and soil-conserving irrigation techniques.

Non governmental organizations alone and or in partnership with governmental related institutions namely extension department of the MOA, is gradually taking advantage organic farming and high-value agricultural produce.

Among the current related projects the following projects are presented.

The Convention to Combating Desertification

Lebanon launched its National Action Program to combating desertification on the 17th of July 2003. The NAP, which was prepared with the support of UNDP and GTZ, emphasized line of actions that are considered as commitments of the government towards the implementation of the UNCCD. These included: Water management, Forest management, sustainable agriculture, soil conservation, rangeland management, protected areas, socio-economic conditions, land use planning, and institutional framework and legislations. Also map of desertification prone area was produced.

The UNDP (through its project that will last till March 2004) will be mainly tackling resource mobilization strategy for the implementation of the NAP, awareness raising and pilot projects conduction in the areas affected by desertification.

GTZ is currently supporting Lebanon in developing its monitoring system that serve in assessing the status of desertification in Lebanon and for reporting to the United Nation Convention to Combating Desertification on the implementation of the convention and for decision makers.

2.7 Infrastructure policies

Infrastructure policies in Lebanon aims at the following :

- Develop the transport, energy, water and information society sectors and networks through sector liberalisation, investment in infrastructures and interconnection with EU networks.

- Identify the priority infrastructure projects in various sectors as well as addressing financing issues;
- develop land and water resources for the purposes of increasing farmers' incomes and protecting the environment through land terracing and harvesting of runoff water in small hill ponds;
- increase access to and from isolated rural areas through the construction of agricultural roads; (*European neighborhood policy, Eu-Lebanon action plan*)

2.8 Consumer policies

Consumer protection policy in Lebanon promotes the consumers' civil rights, and the development of the private sector. The promulgation of the Consumer protection law N-659, 2005 in Lebanon goes along with the process of modernizing laws essential for the country's development. This should be completed by the introduction of other legislations on competition, anti-monopoly, alimentary security, dumping and credit. For the past few years, governments and economic forces have forgotten about the consumer's interests, instead of making them a priority.

3. Trade policies

3.1 Macroeconomic

In general, for the macroeconomic policy, the government considered undertaking structural reforms that further liberalize the economy through modernizing existing laws, minimizing restrictions and simplifying procedures for the trade and investment, which will promote private trade and investment, improve public services, promote the process of privatization that enhance the productivity and render the economy more competitive⁴⁶.

The tax rates are exceptionally low by comparison to any other country and rates of collection are even lower.

3.1.1 Trade policy

The government trade policy has been focused on a liberalized and open market.⁴⁷ Economic and administrative reforms have been extremely important for Lebanon administration. The government has maintained a firm commitment to free its trade regime. The result was reflected in great trade imbalance since Lebanon relies severely on the imports of many goods.⁴⁸

The policy stipulates the restriction of imports of citrus fruits, apples, grapes, olives and potatoes. Other agricultural imports may be imported, but need the special permission of the Ministry of Agriculture. These include onions, cucumbers, tomatoes and raisons.⁴⁹

Some crops can be imported without this permission but only in special times of the year when similar Lebanese crops are in short supply such as, squash, watermelons, garlic, apricots, peaches, pears, etc.

The government intervenes very marginally in market outcomes. The government restricted its intervention to building infrastructure.

⁴⁶ Dr. Marinos Markou & Mr. George Stavri, October 2005, National Agricultural Policy Report for Lebanon, Agricultural Research Institute, Cyprus

⁴⁷ **TRADE GUIDE FOR LEBANON @ MuslimTrade**

⁴⁸ **Lebanon Trade, Lebanon Exports, Lebanon Imports,**

http://www.economywatch.com/world_economy/lebanon/export-import.html

⁴⁹ Atif Abdallah Kubursi, Lebanon's Agricultural Potential: A Policy Analysis Matrix Approach, McMaster University and Econometric Research limited

The Customs Administration have undergone modernization processes. The Port has made big investments to computerize its operations and upgrade its equipment, thereby simplifying procedures, speeding up operations and decreasing costs.

In late 2000, the government substantially reduced customs duties, adopted export promotion schemes for agriculture, decreased restrictions on foreign investments, and adopted an open policy. In 2001, the government approved a value-added-tax. The government focused on tax reforms and modernization, expenditure rationalization and privatization.

1- Export Policy⁵⁰

The objective of export policy is to increase exports to both new and traditional markets; control the quality of agricultural products to ensure compliance with international standards; and transfer knowledge to farmers and exporters.

Export of all sorts of goods and services were allowed. Lebanon does not provide subsidy to the national exports. Yet, export licenses are required for large consumption goods. Obviously, Exports have been very low compared to the country's growing imports.

2- Imports Policy

Foreign trade and customs regimes have been substantially simplified in recent years. Lebanese government abolished all discriminatory barriers against foreign imports. Therefore, Imports of food can now flow freely without substantive obstacles. In the same time, Lebanon does not impose any import quotas. However, it has maintained a complex system of import licenses.

Imported some of agro -food products require special licences include apples, olives, citrus fruit, pears, almonds, agricultural fertilizers and potato seeds. Regulations for the import of seed potatoes include sanitary barriers, gross imported quantity and varieties to be imported which are subject to yearly changes.

Some goods are prohibited from import due to one of the following reasons:

- > Products threatening public morals;
- > Products threatening public health;
- > Certain sensitive agricultural products. These include All kind of citrus produce, apples, quince, sweet tomatoes, cherries, plums, almonds, strawberries, leaf vegetables, parsley, mint, coriander, spinach, thyme, lettuce, green onion, carrots, radish and olives.

Other agricultural imports may be imported but need special permission from the Ministry of Agriculture. These include onions, cucumbers, tomatoes and raisons. Some crops can be imported without this permission but only in special times of the year when similar Lebanese crops are in short supply such as, squash, watermelons, garlic, apricots, peaches, pears, etc.

There are two categories of licenses that are required for the import of agricultural products:

1. Seasonal licenses: required for the import of fresh or frozen potatoes, onions, garlic, cucumbers, tomatoes, squashes, eggplant, green beans, cabbage, cauliflower, green barnia, watermelon, sweet green pepper, pears, peaches, grapes, apricots, passion flowers, green almonds, lima beans and green peas.

⁵⁰ Elizabeth Hunter, Agricultural and food trade policy in Lebanon: Overview and economic analysis, APRIL 2006.

2. Licenses required all year round: required for the import of olives, pine seeds, potatoes and onions for plantations and silk cocoon.

Customs tariffs are either ad valorem (a percentage of the value of imported products) or specific (a given amount of money per physical unit). Some may be subject to compound tariffs, a combination of ad valorem and types of products specific levies.⁵¹

Prices of imported goods are subject to customs fees and a value-added tax (VAT) of 10%. Lebanon has reduced tariff rates on imported goods to help revive domestic growth, to facilitate local, regional and global trade agreements.

Tariffs on agri-food items have been either abolished (wheat, maize, rice, flour, pulses and seeds etc...) or vary between 5% and 20% on most agri-food items deemed necessary. Customs duties are between 50% and 70% for agri-food products that are grown or manufactured in Lebanon (fresh/preserved fruits, vegetables and tubers, some dairy products, wine and olive oil) as a protection measure to the local production.

In compliance with Lebanese customs regulations, imported foodstuffs must bear specific labels containing the following information:

- The manufacturing and expiry date of the product;
- net weight and ingredients
- The product's country of origin⁵².

Labels in Arabic are not highly regarded as the Lebanese consider European and North American labels - in French or English - to be a guarantee of higher quality. Generally, focus should be on price and nutritional properties, as the Lebanese consumer is quite health-oriented and reads labels carefully⁵³.

3.2 General presentation of agro-food trade

The favorable geographic position, combined with the large entrepreneurial ability of its population and a liberal, market-oriented economic policy, made of Lebanon the gateway to and the turntable of the Near-East economy, especially in trade sector.

Lebanon imports more agricultural goods than it exports. The gap between domestic food production and consumption requirements is covered mainly by imports. However, Fruits, vegetables and poultry production exceed the local consumption and could contribute substantially to increasing exports, a national priority for mending persistent deficits⁵⁴.

Imports

The country imports 80% of its food requirements, food imports range from basic food categories to the finest foods, wines and spirits. food imports includes; basic commodities like animal products (live animal, meat, fish, dairy products) and crop products (wheat, tobacco, vegetables and fruits in some seasons).

On the export side, Lebanon has always been a major producer and exporter of a variety of agricultural products. The export opportunities in the Lebanese food sector can mostly be found in the processed foodstuff supplies and food processing equipment. Agro-food processing is well developed and is a major

⁵¹ http://www.customs.gov.lb/customs/laws_regulations/detlaw.asp?id=23&c=3

⁵² Dr. Marinos Markou & Mr. George Stavri, October 2005, National Agricultural Policy Report for Lebanon, Agricultural Research Institute, Cyprus

⁵³ <http://www.ats.agr.gc.ca/afr/4629-eng.htm>

May 2010, Miss Grace Dib, Agri-food Sector Profile - Beirut, Lebanon, Trade Commissioner, Beirut, Lebanon

⁵⁴ Dr. Marinos Markou & Mr. George Stavri, October 2005, National Agricultural Policy Report for Lebanon, Agricultural Research Institute, Cyprus

part of Lebanon's agricultural sector⁵⁵. The country also exports fruits and vegetables to the Gulf Countries. Lebanon generally exports apples, potatoes, tomatoes, cucumber, onions, garlic and citrus fruits. The total value of imports of plant and animal raw and semi-crude during the year 2006 was about 1237 billion LBP. This value has risen in 2007 to reach About 1,624 billion LBP.

In the meantime, the value of exports of plant and animal raw and semi-crude in 2007 was heightened to reach 225 billion LBP with an increase of 23% compared to 2006 .

Table 9 below shows changes in the structure of foreign trade. These are shown through the evolution of the proportion of exports to imports, since the rate of increase for all materials, rose from 20% in 2005, then to 24% in 2006, but remained stable in 2007.

As for the agricultural raw and manufactured materials, the percentage of exports to imports has declined in 2007 to 19%, while, it was stable at (20%) during the years 2005 and 2006

Table 9 Foreign trade of agricultural products during the last three years

Products	Import value Billion LBP			Export value Billion LBP		
	2005	2006	2007	2005	2006	2007
Plant products 4	595	571	874	159	158	209
Animal products and derivatives 5	641	666	750	10	14	16
Total agricultural products, raw and semi-raw	1236	1237	1624	169	172	225
Processed agricultural products	908	928	1290	266	264	335
Total agricultural products, raw and processed	2144	2165	2914	435	436	560
Total agricultural products and non-agricultural	14078	14172	17818	2821	3442	4247

Table 10 Evolution of agricultural foreign trade in raw and processed through the last three years

Year	Import value Billion LBP			Export value Billion LBP			Percentage of Export/	
	Total (1)	Agricultural (2)	2/1 %	Total (3)	Agricultural (4)	4/3 %	3/1 %	4/2 %
2005	14078	2144	15	2821	435	15	20	20
2006	14172	2165	15	3442	436	12	24	20
2007	17818	2914	16	4247	560	13	24	19

The total agricultural imports of raw and processed during the year 2007 reached about 2914 billion LBP (16% of the total imports, while exports of these products about 560 billion LBP or 13% of the total exports.

⁵⁵ *A country fact sheet on youth employment - Regional side event of the Near East, North Africa and Europe Division*

Here are some of the share of imported processed agricultural products to the total manufactured imports for 2007;

- Alcoholic beverages, about (16%)
- Manufactured tobacco about (15%)
- Grease, fats and vegetable oils (14%)
- Miscellaneous food preparations (11%)
- Preparations of cereals & flour (11%)
- Sugar & sugar confectionery (10%)

As for exports, the preparations of vegetables and fruit are of the most prominent processed agricultural exports as amounting to about 102 billion LBP in 2007, and constitute 30% of the total value of exports of food industry valued at 335 billion LBP, followed by alcoholic and liquids beverages (20%) and preparations of grain and flour, which constitutes approximately 11% of the total processed agricultural exports.

Regarding the year 2006, the total agricultural of raw and processed imports were approximately 2165 billion LBP represents (15%) of total imports, while exports of these products were about 436 billion LBP (12%) of total exports. The following are the shares of some imported processed agricultural products to the total manufactured products imports in the 2006:

- Manufactured tobacco (about 17%)
- Grease, fats and vegetable oils (15%)
- Miscellaneous food preparations (13%)
- Preparations of cereals & flour (13%)
- Sugar & Sugar confectionery (10%)
- Preparations of meat & fish (9%)
- Alcoholic and liquids beverages (approximately 7%)

As for exports, the preparations of vegetables and fruit are of the most prominent processed agricultural exports as amounting to about 83 billion LBP in 2006 and constitute 31% of the total value of exports of food industry valued 264 billion LBP, followed by alcoholic and liquids beverages (21%) and preparations of grain and flour, which constitutes approximately 11% of the total processed agricultural exports.

In 2009, total food imports were estimated at US\$ 2.216 billion, or 13% of Lebanon's total imports (US\$ 16.242 billion). In 2009, Lebanon imported a total of US\$ 62 million of food preparations products. The main suppliers were: USA 12%, UK 8%, Thailand 8% and France 7%. Canada 3% (source: Lebanese Customs)⁵⁶.

Lebanon top ten agro-food import products in 2009 were: Live Bovine Animals - 2. Cheese - 3. Meat (bovine/boneless) - 4. Wheat (Durum) - 5. Sugar - 6. Maize (Corn) - 7. Food - 8. Milk Powder Preparations - 9. Sheep, Live - 10. Coffee.

⁵⁶ <http://www.ats.agr.gc.ca/afr/4629-eng.htm>

May 2010, Miss Grace Dib, Agri-food Sector Profile - Beirut, Lebanon, Trade Commissioner, Beirut, Lebanon

Prices of imported goods are subject to customs fees and a value-added tax (VAT) of 10%. Lebanon has reduced tariff rates on imported goods to help revive domestic growth, to facilitate local, regional and global trade agreements.

The main import partners are; Syria (10.5% of all imports), France (9.5%), USA (9.3%), Italy (7.3%), China (6.8%), Germany (4.9%), Saudi Arabia (4.8%) and Turkey (4.2%).

Lebanon imports Grains, dairy products, meats and fish primarily from the United States, Syria and the European Union. The following tables presents the main import agricultural commodities in 2007, 2008 and 2009.

Table 11 Imports: Commodities by Lebanon in 2007

Commodity	Quantity (tonnes)	Value (1000 \$)
Cattle	181476	136704
Cigarettes	7099	124115
Wheat	410443	114722
Beverage Non-Alc	282810	91712
Meat-Cattle Boneless (Beef&Veal)	26242	79036
Food Prep Nes	21542	
Maize	321699	74080
Sugar Refined	138724	61040
Cheese of Whole Cow Milk	18127	58929
Milk Whole Dried	13498	55560
Potatoes	117650	53572
Coffee, green	22280	49247
Chocolate Prsnes	12185	45913
Processed Cheese	11621	44267
Pastry	16017	37847
Cake of Soybeans	120385	35654
Soybean oil	30116	34349
Sunflower oil	28053	33326
Bever. Dist.Alc	5384	27520
Butter Cow Milk	7254	24975

Source: <http://faostat.fao.org/desktopdefault.aspx?pageid=342&lang=en&country=121>

Table 12 Imports: Commodities by Lebanon in 2008 and 2009

Commodity	2008 Value (1000 \$)	2009 Value (1000 \$)
Cattle	170880	179424
Cigarettes	155144	162901
Wheat	143403	150573
Beverage Non-Alc	114640	120372
Meat-Cattle Boneless (Beef & Veal)	98795	103735
Food Prep Nes	96115	100921
Maize	92600	97230
Sugar Refined	76300	80115
Cheese of Whole Cow Milk	73661	77344
Milk Whole Dried	69450	72923
Potatoes	66965	70313
Coffee, green	61559	64637
Chocolate Prsnes	57391	60261
Processed Cheese	55334	58100
Pastry	47309	49674
Cake of Soybeans	44568	46796
Soybean oil	42936	45083
Sunflower oil	41658	43740
Bever. Dist. Alc	34400	36120
Butter Cow Milk	31219	32780

12 Source: estimation calculated based on FAO information and the ministry of finance information on the business development. For more information see: <http://www.finance.gov.lb/NR/rdonlyres/45142E98-EDF7-4FC3-8A52-F4B0DEB7E37D/0/LITE200912.pdf>

On the other hand, exports of goods and services have been growing fast, but their impact on aggregate growth is still limited by their small size in GDP. Lebanon has the ability to gain more export market shares by eliminating the remain anti-export biases⁵⁷.

⁵⁷ August 2007, *Jean-Claude Berthélemy, Sébastien Dessus & Charbel Nahas*, Exploring Lebanon's Growth Prospects

Lebanon mainly exports to neighboring Arab and Gulf countries. Lebanon's primary export partners are;

Syria (24.9% of total exports), UAE (12.9%), Switzerland (6.6%), Saudi Arabia (6.1%) and Turkey (4.2%).

Jordan and Bahrain are also major export markets for Lebanese agricultural products. It is also surprising to see that Russia, the US and Belgium and Germany are also significant importers of Lebanese agricultural products. However, it is noticed the absence of stability in these market shares.

The following tables shows the major export agricultural commodities in 2007, 2008 and 2009.

Table 13 Export Commodities by Lebanon in 2007

Commodity	Quantity (tonnes)	Value (1000 \$)
Tobacco, unmanufactured	8299	33906
Food Prep Nes	12952	21332
Beverage Non-Alc	38854	21098
Sugar Confectionery	4481	20649
Vegetables Preserved Nes	15804	19951
Prepared Nuts (Exc.Groundnuts)	5684	16247
Chocolate Prsnes	2189	14031
Wine	1926	12925
Apples	53371	12339
Pastry	6004	11750
Potatoes	129449	11633
Oranges	116298	10934
Olive oil, virgin	3169	10094
Fruit Prp Nes	4697	9958
Vegetables in Vinegar	10501	8452
Fruit Juice Nes	11232	7421
Breakfast Cereals	2792	6763
Coffee Subst. Cont.Coffee	1170	6656
Grapes	26189	4966
Cherries	4029	4808

Source: <http://faostat.fao.org/desktopdefault.aspx?pageid=342&lang=en&country=121>

Table 14 Export Commodities by Lebanon in 2008 and 2009

Commodity	2008 Value (1000 \$)	2009 Value (1000 \$)
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Tobacco, un manufactured	34754	35970
Food Prep Nes	21865	22631
Beverage Non-Alc	21625	22382
Sugar Confectionery	21165	21906
Vegetables Preserved Nes	20450	21166
Prepared Nuts (Exc. Groundnuts)	16653	17236
Chocolate Prsnes	14382	14885
Wine	13248	13712
Apples	12647	13090
Pastry	12044	12465
Potatoes	11924	12341
Oranges	11207	11600
Olive oil, virgin	10346	10708
Fruit Prp Nes	10207	10564
Vegetables in Vinegar	8663	8967
Fruit Juice Nes	7607	7873
Breakfast Cereals	6932	7175
Coffee Subst. Cont. Coffee	6822	7061
Grapes	5090	5268
Cherries	4928	5101

Source: estimation calculated based on FAO information and the ministry of finance information on the business development. For more information see: <http://www.finance.gov.lb/NR/rdonlyres/45142E98-EDF7-4FC3-8A52-F4B0DEB7E37D/0/LITE200912.pdf>

3.2 Trade agreements

In the context of liberalizing its agricultural trade⁵⁸, Lebanon bilateral and multilateral trade and economic agreements have been or are being implemented with more than 35 countries such as: Australia, Belarus, Chile, Indonesia, Iran, Morocco, Pakistan and others.

Bilateral agreements between Lebanon and most countries in the region allowed various trading benefits to the country. Therefore, Lebanon has signed bilateral Free-Trade Agreements with Iraq, Egypt, Kuwait, Syria, Jordan and the United Arab Emirates⁵⁹. Moreover, Lebanon also has signed over 17 agreements on avoidance of double taxation and the prevention of fiscal evasion and about 30 bilateral agreements on Investments Promotion and Protection (IPPA)⁶⁰.

⁵⁸ Dr. Marinos Markou & Mr. George Stavri, October 2005, National Agricultural Policy Report for Lebanon, Agricultural Research Institute, Cyprus

⁵⁹ In 2006

⁶⁰ Lebanese Industry Agro-Food Sector challenges & Needs logimed Forum 23 –24 November 2010 casa Llotja De Mar, Barcelonahussam Kobayterc.C.I.A. Tripoli -Lebanon

Lebanon has joined GAFTA (Greater Arab Free Trade Area) in 1997, since then, Lebanon is a member of GAFTA, through which it receives full exemption of customs duties to 16 other member countries after the full implementation in January 2005.⁶¹

3.2.1 Intra MPC trade

Lebanon committed to reducing tariffs with Syria and most other Arab countries as part of regional free-trade efforts.

3.2.2 Trade agreements with the EU

the Association Agreement between Lebanon and EU is very important since it opens new horizons in their bilateral relations and consolidates the Euro-Mediterranean partnership. Both sides will benefit from the implementation of the AA. For EU, about 40-46% of Lebanese imports are originated from the EU and for Lebanon, 20-26% of the Lebanese exports are destined to EU countries. Also, the Association Agreement offers important concessions in agricultural exports to the EU. In fact, the agreement with the EU has benefits for Lebanon, but also has its costs.⁶²

Lebanon has signed the Association Agreement with the EU in early 2002, then the agreement entered into force in April 2006. No tariffs is a reality with the EU since 2008.

The main characteristic of the Agreement is the full liberalization (i.e. no duty, no quota) for most Lebanese agricultural products, with a list of exceptions covering sensitive areas of EU domestic agriculture. The list includes (olives, olive oil, table grapes, wine, potatoes, pears, apples, garlic and tomatoes products) which are massively produced in other EU member states. Moreover, significant reductions in duties of processed agricultural products will also be applied. Furthermore, duties will be phased gradually on a wide range of food and other processed farm products from Lebanon. Actually, on the economic level, the agreement would result in the complete removal of Lebanese duties on EU industrial and agricultural imports between 2008 and 2015.

The main challenge for Lebanese products remains in its ability to follow up with the EU and international standards and norms to benefit of the potential markets. As for the benefits, Liberalizing trade with EU is expected to facilitate the transfer of new technology and know how as a result of the expected increased inflow of Foreign Direct Investment. Nevertheless, The Association Agreement will stimulate agricultural production, widen the export potential of certain commodities to the EU and create export opportunities for Lebanese producers of high-value crops such as organic food, fruit and vegetables, medicinal plants and poultry products. Also, taking into consideration the low cost of production, mainly attributed to the low labor cost. It is estimated that products like olive oil and citrus will easily find outlets to European markets. In the mean time, Technical and financial assistance for Lebanon is introduced through the MEDA program and (ELCIM) program for modernization of SME.

3.2.3 International trade agreements & globalization

Lebanon is not a member, but it is still in the process of accession to the World Trade Organization (WTO). In 1999 Lebanon was granted the status of observer. The working party was established in 14 April 1999, then the Memorandum on the Foreign Trade Regime was circulated in 13 June 2001. The first meetings of the Working Party was in 14 October 2002 and the Seventh meeting of the Working Party was held in October 2009. Multilateral work is proceeding on the basis of a revised draft of Working Party Report and bilateral market access negotiations are conducted on the basis of revised offers on goods and services.⁶³

⁶¹ 2009, Lebanon Trade Brief World Trade Indicators /10

⁶² Dr. Marinos Markou & Mr. George Stavri, October 2005, National Agricultural Policy Report for Lebanon, Agricultural Research Institute, Cyprus

⁶³ Dr. Marinos Markou & Mr. George Stavri, October 2005, National Agricultural Policy Report for Lebanon, Agricultural Research Institute, Cyprus

A number of areas where Lebanon has to bring its legislation into WTO compliance have been identified. Areas of concern included the lack of conformity with WTO requirements on sanitary and phytosanitary measures, technical barriers to trade, import licensing and intellectual property.

3.3 Tariff and non-tariff barriers

Lebanon is among the most open countries in the region. It has less restrictive for trade than other countries in the region. At present, more than 84% of customs tariff lines have duties equal to 0 or 5%, and tariff peaks do not exceed 75%.

In addition, tariff preferences to specific sectors are provided in accordance to bilateral or regional free trade areas such as GAFTA.⁶⁴

Lebanon also does not maintain any tariff quota system other than on potato seeds. However, Lebanon prohibits the importation of around 326 goods for various reasons (i.e., health, safety, and environment). It also regulates the importation of drugs, while it requires import licensing for around 79 tariff groups. As for export, only a few goods are subject to taxes, licenses or quotas. Exporters must simply comply with registration requirements.

4. Future prospects

4.1 Agro-food sector outlook (including a SWOT chart)

Weakness⁶⁵

- Agricultural productivity is hindered by:
 - The agriculture sector suffers from lack of funding, receiving less than 1% of the state budget. Private-sector finance and bank loans to agriculture are limited. The net result has been a lack of investment, undermining productivity and competitiveness.
 - The absence of compliance with the EU food safety standards and other requirements,
 - Weak farmers organizations,
 - Inadequate marketing structures,
 - Water shortages,
 - Limited access to water and soil-conserving irrigation techniques.
- Small field sizes reducing the economies of scale (Seventy-three per cent of Lebanese farmers have a plot of less than one hectare. This adversely affects their creditworthiness and access to other agricultural inputs).
- The local distribution market suffers from a lack of marketing regulations, and competition from lower-priced products from border and neighboring countries.
- High costs of inputs
- High labor cost
- Poor regulatory framework for quality control assurance (e.g. certification, quarantines, pesticide applications) and in cases where available, they are not enforced

Strengths⁶⁶

- The Investment Development Authority of Lebanon initiated an Export Plus program in 2001 to contribute to supporting agricultural exports (vegetables, fruit, flowers and eggs). Therefore, farmers received support for complying with certain standards,
- The Government of Lebanon started to oversee quality control of agricultural products in order to expand the country's exports of high-quality processed food products to the EU, the Gulf countries and the United States (The Government has hired three international companies for this purpose),
- The government has expanded a subsidy program on interest rates targeted at reducing the cost of borrowing for small-and medium-sized businesses,
- The geographical Location of Lebanon as a centre of trade between the East and West,

⁶⁴ May 2006, Sébastien Dessus & Joey Ghaleb, Lebanon — Trade and Competition Policies for Growth

⁶⁵ A country fact sheet on youth employment - Regional side event of the Near East, North Africa and Europe Division

⁶⁶ A country fact sheet on youth employment - Regional side event of the Near East, North Africa and Europe Division

- Availability of skilled human resources that can be instrumental in developing and implementing the needed technologies,
- The Lebanese are known for their entrepreneurship and exposure to foreign market trends and the ability of Lebanese growers to take risks.

Threats⁶⁷

- Ratification of regional and international agreements leading to open markets
- High cost of living in Lebanon makes locally produced products less competitive in the region
- Countries in the region have economies of scale and cheaper labor costs for similarly produced agricultural commodities (mainly Syria and Turkey)

Challenges⁶⁸

- liberalization policies that are not backed by training schemes,
- Increased urbanization is blocking the growth of agricultural production.
- High costs of production in comparison to other Arab Countries,
- Inefficient institutional quality control or lack of knowledge and training.
- Technical barriers to exports (even customs barriers)⁶⁹

4.2 Agro-food policies' evolution outlook

Lebanon is restructuring to become a much more efficient economy better able to compete based on its core competences that allow it a sustainable competitive advantage than relying on the previous practice of state interventionism.⁷⁰

Lebanon is looking forward to making further liberalization of import and export through the alleviation of tariff and non-tariff barriers on trade. It is expected that in the future Lebanon will develop its past role as being a primary trade center in the region and between the GAFTA and the Euro-Mediterranean. Given this fact, Lebanon is targeting for organizing and further promoting agricultural exports to Europe as well as to the Arab world and the Gulf countries in particular.

The government policy aims to increase the contribution of agriculture to the economy through:

- A stronger commitment of the State toward agriculture through the implementation of projects of public interest (communication networks in rural areas; water and irrigation projects; environmental protection; watershed management; education in rural areas, etc.) and through a stronger participation of the rural population and the grass-root organizations in the decision making process.
- The updating of legislation to be better adapted to the market needs and to the health of the consumer
- The opening of the market through bilateral and multilateral agreements
- Giving stronger role to the private sector with a drastic reduction in public intervention
- Enhancing Lebanon's export potential by further liberalizing agricultural trade, simplifying and upgrading customs legislation and procedures, improving standards and modernizing the sanitary and phytosanitary systems.
- Ensuring progressive liberalization of trade in services.
- Strengthening the environmental dimension of public policy.
- Promoting sustainable development policies and actions,

⁶⁷ UNESCO, Science Policy Studies www.unesco.org

⁶⁸ (<http://executive-magazine.com/getarticle.php?article=11737>,

⁶⁹ hussam kobayterc, Lebanese industry agro-food sector challenges & needs *logismed forum*23 –24 november 2010 *casa llotja de mar, Barcelona*.c.i.a. tripoli -lebanon

⁷⁰ Dr. Marinos Markou & Mr. George Stavri, October 2005, National Agricultural Policy Report for Lebanon, Agricultural Research Institute, Cyprus

- Designing and implementing a comprehensive social development strategy that contributes to poverty reduction.
- Creating macroeconomic conditions for sustainable growth.
- Identifying and adopting measures and appropriate legislation with an aim of encouraging sustainable trade flows.
- Promoting the use of modern technology in the agricultural sector and in different production phases.
- Further enhancing export potentials by increasing the quality of Lebanese products and their competitiveness on international markets.
- Increasing food safety for consumers and facilitating trade

The main features of the food agricultural development strategy⁷¹

- a. Follow up the legislation on the agricultural sector
- b. Work to reduce the cost of production and improve product quality.
- c. Develop a practical mechanism to facilitate loans for agricultural projects and develop the National Bank for Agricultural Development.
- d. Initiate insurance risks and natural disasters that affect the agricultural sector.
- e. Mobilize water and rationalize its utilization
- f. Appropriate land use
- g. Efficiency of the techniques
- h. Improve the production lines

5. Concluding remarks

Lebanon has a good potential to boost the agro-food sector. Despite the importance of the agricultural sector, Lebanon has a widening agricultural deficit and growing food dependence. Promoting and strengthening the agricultural sector in Lebanon will contribute to alleviating a major socio-economic and environmental problem, namely rural migration that results in heavy concentrations in Beirut and its suburbs, which is unsustainable in terms of development and the environment.

To develop and improve the agro- food sector trade, Lebanon is seeking to diversify and produce more unusual fruit varieties, such as kiwi fruit, pomegranate, custard apple and even truffles.

The Agro-food industry is the most important sector of the Lebanese industry accounting for 20% of industrial enterprises and contributing with 26% to GDP. Food and beverages products are considered as an important sector in the economy. The industry represents 4,2% of the total exports.

The government is undertaking structural reforms that further liberalize the economy through modernizing existing laws, minimizing restrictions and simplifying procedures for the trade and investment, which will promote private trade and investment, improve public services, promote the process of privatization that enhance the productivity and render the economy more competitive.

The government trade policy has been focused on a liberalized and open market. Therefore, the government has maintained a firm commitment to free its trade regime.

The objective of export policy is to increase exports to both new and traditional markets; control the quality of agricultural products to ensure compliance with international standards; and transfer knowledge to farmers and exporters. In the meantime, Lebanese government has abolished all discriminatory barriers against foreign imports. Moreover, in the context of liberalizing its agricultural trade Lebanon bilateral and multilateral trade and economic agreements have been or are being implemented with more than 35 countries such as: Australia, Belarus, Chile, Indonesia, Iran, Morocco, Pakistan and others. Also, Lebanon has signed the Association Agreement with the EU in early 2002, then the agreement entered into force in April 2006. No tariffs is a reality with the EU since 2008. However, Lebanon is not a member, but it is still in the

⁷¹ <http://www.fao.org/sard/common/ecg/2862/en/SARDMcountryassessmentLebanonJuin2007NewLogo.pdf>

Sustainable Agriculture and Rural Development in Mountain Regions Project (SARD-M)

<http://www.nationsencyclopedia.com/World-Leaders-2003/Lebanon-DOMESTIC-POLICY.html>

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process of accession to the World Trade Organization (WTO). In 1999 Lebanon was granted the status of observer.

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National agro-food policies in Tunisia:

Team of Tunisia

Led by

Boubaker Thabet

1. Description of agro-food sector

Presently, the Tunisian population fluctuates between 10.5 and 11.5 millions⁷² with an annual growth rate of slightly above the 1% mark, which constitutes a major decline over past decades. It is also the lowest of all Arab and Muslim world.

This slowdown in population growth has contributed positively to the general well being of the population as the per capita income is among the highest of developing nations, including some petroleum and gas endowed ones.

This continuing population growth but at a slower rate, together with the improvement in per capita incomes, has implications for food policy as the consumer food and non food demand, while still increasing, is structurally changing in that it is including more and more a quality dimension.

1.1 Importance and role of agro-food sector

Around a third of the Tunisian population is active one sector or another of the economy, with agriculture providing a minimum of 16% of the employment, which is also a major decline from the sixties when major employment (about 30%) used to be generated by rural activities and the agricultural sector in particular.

While this is an indication that other sectors of the economy have been contributing more and more to employment, and to general economic growth for that matter, agriculture is still contributing adequately as (1) its share in total investment does not exceed 10% and (2) its economic growth is lagging behind that of the overall economy. This suggests that on a 1% basis of investment, agriculture is still contributing to employment than other sectors.

If we refer to the statistical base corresponding to the last decade only, beginning with the year 2000, it appears that agriculture is rather stagnating as its share in the national GDP as well in the share of agricultural exports in the national total are growing somewhat negatively. The share of agriculture in exports has been however much more volatile (17.5) than that of the performance of the overall sector of agriculture (11.7), in view of the compensating effects in variability as one goes from one sector to another.

⁷² Depending on estimation sources.

Agriculture in the overall economy

Period: 2000-2010, Unit: (%)

Indicator	Share of agriculture in GDP	Share of agricultural exports in total	Balance of agricultural trade	Overall trade balance
Average	11.8	9.3	71.1	74.2
Annual Growth rate ⁷³	-2,59	-2,58	-0,60	-0,16
Coefficient of variation ⁷⁴	11.7	17.5	26.3	5.3

Source: Own calculations based on INS statistics

The present contribution of Agriculture to national GDP stands at an average just under 12%, in spite of the significant drop to 7.32 % that occurred in the year 2010⁷⁵. Over recent decades however, most indicators show that the relative importance of agriculture in the overall economy has been declining.

In so far as the balances of trade are concerned, and while both have been exhibiting chronic deficits, between 71 and 74% on average, the agricultural balance has been much more fluctuating from one year to the next (26.3 %), than the overall flow of trade (5.3). While the latter has almost always been below 80%, that of agriculture and food products has registered surpluses during some years, but has registered major drops particularly in the years 2002 (30%), following a historically catastrophic production of olive oil, and 2008 (54%), following the international food crisis.

1.2 Main agricultural commodities

Approximately 16 million Ha, or equivalently 160 000 Km², make up the size of Tunisia, about a third of which only is arable. The usual breakdown of the total area of Tunisia is as follows:

<u>Category</u>	<u>Percentage</u>
Arable land	30
Forests	27
<u>Non arable</u>	<u>43</u>
Total	100

About 40% of the arable land is located in the northern part of the country where rainfall and soil fertility allow for adequate development of annual crops and diversification. The other 60% of the cultivable part of the land is in semi-arid-to-arid areas of the country which cover the center and southern zones.

Total arable land, of about 5 million hectares, is typically allocated to three main activities: one third to cereals, one third to olive trees and the rest to everything else.

⁷³ The calculation of the growth rate utilizes the following formula. Annual growth rate = $(100/T) * \sum \log(X_t/X_{t-1})$, where T is the number of years over of which the growth is computed minus one.

⁷⁴ The coefficient of variation is not defined here in the standard statistical way, in the sense that it does not use as a numerator the usual coefficient of variation (square root of the sample variance). Instead, the mean of the sum of absolute deviations, from the mean, is used as an indicator of the variability, as suggested by Norton and Hazell. For that matter, the respective comparative values using the standard statistical definition of the coefficient of variation, in this case, are 15.5, 22.2, 33.7 and 6.5. While suggesting similar relative variability as one goes from one variable to another, they are nevertheless higher.

⁷⁵ Resulting primarily from low production levels registered for two of the main agricultural activities cereals and olive oil.

1.2.1 Crops

The major crops grown in Tunisia are cereals, food legumes, cash crops, forages and tree crops. Cereals are made up of durum, soft wheat, and barley and with an increasing share of triticale. Food legumes include beans (mainly of the type faba) and chick beans. Cash crops are much diversified and are usually grown on irrigated lands which amount to about 460000 Ha; i.e. about 8% of total arable land. Tree crops constitute a large component of the agricultural activity of farmers as they cover over 2 million Ha, with the dominating activity being olive production.

The breakdown of arable land among the major agricultural activities is shown in the table below.

Major agricultural activities⁷⁶

Crops	Areas (10 ³ Ha)	Production (10 ³ quintals)	Yields (Quintals/Ha)
Cereals	1457.6	17367.2	11.9
Durum	758.0	10746.6	14.2
Soft wheat	142.3	2501.4	17.6
Barley	557.4	4119.2	7.4
Dry food legumes	83.723	82490.0	9.9
Olive oil		176	
Areas	1743		0.101 Ton/Ha or 101 Kg/Ha
Trees	71206		0.0025Ton/Tree or 2.5 Kg/Tree
Potatoes	24.8	3630.0	146.4

Source: Ministry of agriculture

As can be seen from these numbers, yields are on average quite low, in comparison with international standards, suggesting the existence of important constraints and challenges facing Tunisian farmers in so far as additional insertion of national products into world markets is concerned.

1.2.2 Livestock

Broad categories of livestock activities are quite universal. The structure of the activities and herds are however specific. One notices, for example, the almost even breakdown in terms of cattle stocks between pure breeds and cross breeds, in spite of the limited adaptation of imported pure breeds to most of the production zones of the country which are typically characterized by weak and variable feedstuff supplies.

Past policies consisting of subsidizing feed inputs explain the relative overdevelopment of livestock production based on imported certain pure breeds with limited adaption to the conditions of the country. Livestock production activities and outputs are summarized in the following table.

⁷⁶ Units are indicated in the first row of the table unless otherwise specified.

Livestock structure and production

Activities	Numbers (10 ³ heads)	Production (10 ³ tons)	Yields (Kg/Head)
Cattle	447	Meat 50.3	112.5
	Pure breeds 48.5% Cross breeds 51.5%	Milk 110.5	247.2
Sheep	4098	49.2	12.0
Goats	825	Meat 9.6	11.6
Poultry		151.0	
	Meat Eggs (10 ⁶ units)	1566.3	

Source: Budget économique, Ministry of agriculture

One also notices the development of the white meat industry which took place over recent decades, thus splitting the present meat supply mix for the Tunisians between 40% red and 60% white. Just like cereals crops, livestock activities exhibit low physical productivities, both in terms of meat and milk, to withstand increasing international competition.

1.3 Agricultural sector structure

Surveys on farm structure and other socio economic indicators are conducted and published in Tunisia every 15 to 25 years. As in many developing countries, Tunisian farm structures are characterized primarily by their skewed distribution nature between the small and the large categories. Over the approximately half a million of farm operators; i.e, one sixth of the active part of the population, almost all of them (95%) are owners of their land, suggesting a strong attachment to land, but with a property status that is always clearly documented and registered (about 20%).

1.3.1 Farm structures

As an illustration, farm sizes of less than 5 hectares are predominant in numbers, increasing from 41% in 1970 to 53% according to the last survey available which was conducted during the campaign year 2004/05, but do not represent more than 9% of the total area. Conversely, those holding 50 hectares and more do not represent more than 3% of farm operators but cultivate as much as 26 % of the total arable area.

Consequently, small farmers are increasing in relative numbers while large ones are diminishing. During the same period, the number of farms of sizes greater than 100 hectares declined by half. However, their share in total arable land declined by much less, only 24%; thus suggesting a relative increase in their farm sizes. The farm structures in Tunisia as they were depicted through the various available surveys are summarized below:

Farm structure in Tunisia

Farm size (ha)	% of total area			% of total holdings		
	1976	1980	2005	1976	1980	2005
< 5	6	6	9	41	42	53
5-10	11	10	12	23	22	20
10-20	16	18	17	20	20	15
20-50	21	23	23	11	12	9
50-100	12	12	11	3	3	2
> 100	34	24	26	2	1	1

Source: Enquête structure, Ministry of Agriculture (2005)

On the other hand, what is generally considered as medium size farms in Tunisia; i.e., with sizes going from 10 to 50 ha, seems to have been rather stable over time, both in terms of percentage of total area as well as in percentage of total holdings, with of the exception of what revealed the 2004/05 survey which suggests a major drop in that category from over 30% to about 24%. Most of the drop reflected a move towards the lower size category of 10 ha and less which increased in proportion from 64%, in 1980, to 73% in 2004/05.

This is another indication of the increasing agricultural land fragmentation process that is taking place in the country. Obviously, this is posing a major constraint to the agricultural development in the country as investment in the sector is severely handicapped by adequate and sufficient collaterals and economic viability of farms.

1.3.2 Agricultural labor

Again and while declining in contribution to the overall employment of the country, agriculture is still providing an important and significant share, from 16 to 18%, according to different estimations. The major portion of this employment is however of a family nature; i.e., farm operators and their family relatives. This situation, which was estimated at about 87%, four decades ago, increased even further to 93%, two decades ago, but declined a bit to 90%, as revealed by the 204/05 survey. The breakdown of the panorama of the agricultural employment situation in Tunisia is as follows:

Agricultural employment (%)

Categories	1961-1962	1994-1995	2004-2005
Farm operators	38	51	54
Family labor	49	42	36
Wagers	13	7	10
Total	100	100	100

Source: Ministry of Agriculture (2005)

While the sector is employing significantly, the relative demand it expresses on the labor market is not increasing, it is rather declining. The percentage of farm operators is clearly on the upward trend. This however is not an indication of economies of scale or size. It is rather a consequence of the legal and social inheritance process characterizing the country, implying gradual and continuous cutting down in land holdings.

Other statistical indicators of the agricultural land tenure system in Tunisia reveal that full time operators do not exceed 39% of all farmers, only 11% of farmers have an age below 40 and about half (46%) are above 60 years of age (Ministry of agriculture).

With respect to the employment generated by the different agricultural activities, there is the livestock subsector which generates about 43% of labor demand. Tree crops are on the top of agricultural activities, as far as derived labor demand is concerned, followed by cash crops with about 17%.

In terms of employment duration, livestock activities stand by far ahead of other agricultural activities with near 60% of permanent demand for family labor and even in the case of occasional wage earners, with near 38%. Seasonal demand for labor is typical of tree crop activities, particularly during olive harvests. Cash crops came next with about 49%.

It may be worth noting also that the cereals sector, which uses about a third of the arable land of the country, provides a limited amount of employment, in view of its increasingly mechanized nature. Food legumes provide less employment in total than cereals, obviously, but, on a hectare basis, they provide much more. The overall picture of the employment breakdown is shown below.

Labor generation by activity (%)

Activity	Farm operators	Family labor		Wage earners		Total
		<i>Permanent</i>	<i>Temporary</i>	<i>Permanent</i>	<i>Temporary</i>	
Cereals	7.0	4.6	5.9	6.4	8.8	6.4
Food legumes	1.2	0.8	1.0	1.2	2.1	1.2
Forages	4.2	3.2	2.7	3.8	3.7	3.5
Cash crops	17.8	13.8	14.7	18.4	25.2	17.2
Tree crops	23.5	15.1	22.4	21.3	48.6	24.5
Other activities	4.3	4.1	2.9	10.9	3.6	4.5
Livestock	42.0	58.3	50.4	37.9	7.9	42.7
Total	100	100	100	100	100	100

Source: Ministry of agriculture

1.3.2 Water utilization

In view of the regular climate difficulties faced by the country, there has been a major emphasis put during recent decades by public authorities on the development of irrigated areas by mobilizing surface and deep water resources. The end result is that about 460 000 Ha are presently irrigable in the country, corresponding to about 8% of the total arable land.

Actual irrigation is much below that total (86%), but contributes significantly to agricultural production. It accounts for about 35% of the total value of agricultural production, 20% of agricultural exports and 27% of the labor force. Irrigated perimeters, contribute to 95 % of the vegetable production, 70 % of fruits and 30 % of the dairy output.

These contributions, while significant, are perceived as reflecting a low intensification of crops. This is why one of the main objectives of the ongoing five year agricultural development due to terminate at the end of this year is to bring the intensification rate to 1.5.

Irrigated perimeters (10³ Ha)

Year	Irrigable	Irrigated	Percentage of irrigated (%)
1997	372	317	85.2
2000	376	301	80.1
2003	397	314	79.1
2006	428	344	80.4
2008	435	362	83.2
2010	457	391	85.6

Source: Ministry of Agriculture (2010)

As it appears from these numbers, the intensification through irrigation does not seem to be dependent only on the creation and expansion of irrigated perimeters, in spite of the existing public incentives (*subsidized irrigation water and irrigation equipment along with machinery*). It presumably depends on other factors such as credit availability, marketing facilities of produce, technical knowhow, adequate insurance programs to help farmers manage risk and uncertainty, in addition to socio economic structural constraints; chief among these is the generally limited size of farming operations.

1.3.3 Other inputs

By and large, agriculture has moved into the mechanization intensive mood since the sixties. As a result, animal traction has, to a large extent, disappeared from the country along with the animals that used to serve that purpose. Camels and camel raising activities have become hardly visible, except for tourist entertainment. This was encouraged initially by inexpensive world energy prices during the sixties and early seventies as well as other by public incentives that were put into place to cope with increases in those same prices, following the energy crisis that occurred later on during the seventies.

Apart from the increasing costs of energy sources, excessive use of mechanization in cultivation practices has proven to be detrimental to soil both quantitatively (erosion) and qualitatively (fertility). An apparent return to traditional techniques of soil cultivation by using animal traction in view of its suitability, particularly to small scale farming conditions, along with a drive into other resource conservation techniques using limited or no tillage is increasingly observed in the country.

1.4 Agro-food industry

The agro-food industry is increasingly perceived by farm operators as a safe way to enhance the sustainability of agricultural activities. Most agricultural produce, being perishable in its raw form, creates the need for, and relevance of, its transformation and marketing in various ways. In addition to generating additional income sources, product transformation constitutes a hedging strategy for farmers against risk and uncertainty.

Agro-food products use most of the agricultural produce either in a blended or packaged form or by way of transformation. While sea food, oranges, dates, other fruits and vegetables belong to the first category, olive oil and part of the tomato production that goes to transformation belong to the second; i.e. are processed and then internally commercialized or exported.

Agro-food industrial products are increasingly part of the export bundle of products that are exported and make up between 2.5 and 3% of total GDP, or equivalently 25% of the agricultural GDP, on average. Furthermore if the exported products, in their fresh form, go for the most part to traditional markets (of the EU, mainly), exported transformed products are spread out over many more world destinations.

2. Current agricultural and food policies⁷⁷

On the production side, public policy as regards staple food commodities has always tried to seek a compromise between the desire to boost producer prices so as to support farm incomes and, at the same time, take advantage of the relatively low prices that have prevailed at the world market during several decades.

In actualities and in the case of cereals, this resulted in putting a ceiling on domestic producer prices during all of the seventies, eighties and nineties. This situation prevailed practically all the way through the world food crisis of 2007 and 2008. In the meantime, Tunisian cereals imports kept increasing, mostly in terms of quantities.

The resulting public compensation was initially somewhat manageable, anywhere between a third and half of the price of imports for Durum wheat and 50 to 75%, in the case of soft wheat. During the food crisis period (2007 and 2008), the amount of subsidies got multiplied by 2 or 3 and, during some months of the year 2008, by 4.

On the consumption side, public policy has been for a long time that of maintaining cereals⁷⁸ prices low to preserve the income purchasing power of the middle to poor income segments of the population.

Studies have shown (Rejeb and Lahouel) that the Tunisian universal subsidy program allocated to the cereals sector, as practiced during the seventies and early eighties, resulted in an uneven distribution of public budgets between various segments of the population, particularly the rich and the poor. While public subsidies were designed to help the poor, in the first place, they ended up helping rather the least needy; i.e., the higher income brackets of the population. This has resulted in a major economic reform that the country went through during the eighties and nineties.

In spite of the publicly declared reforms, Government intervention went on, almost to the present, for apparently social considerations. Critical levels were reached in the early eighties in terms of foreign

⁷⁷ This presentation describes agricultural and food policies as they have existed and evolved over past decades. As is well known now, Tunisia went through a major political change (revolution) as of January 2011. Its future economic policies are likely to undergo major changes in the years to come.

⁷⁸ considered staple food items

exchange reserves to finance increasing expenditures on imports, due among other things to an overvalued currency of the country and slow economic growth in general. This again led to a new economic reform; materialized by the implementation of the WTO guidelines which included as a major instrument the liberalization of the national currency.

On the agricultural side, price fixing for the main staple commodities continued, even though maintained at almost the same level during more than a decade, as comparative international prices were consistently lower. This has led to continued price support both at the production and consumption which led to rapidly increasing consumption levels of subsidized commodities with no compensating response of those products at the national levels.

As an illustration of how high public subsidies went during recent years, particularly during the international food crisis, the following table provides indicators of that situation for the main two types of wheat, durum and bread.

Share of public subsidies in main cereal product prices (%)

	2005	2006	2007	2008	2009
Domestic production					
Durum	38.8	37.3	40.4	60.4	73.2
Soft wheat	57.0	65.7	64.9	72.1	67.0
Imported commodities					
Durum	16.9	33.9	51.9	126.4	125.2
Soft wheat	20.4	40.6	80.9	99.5	33.7
Share of food subsidies in national GDP (%)	0.6	0.7	1.5	2.1	1.5

Source: Ministry of Commerce, Office of Cereals

The high levels of subsidies, exceeding the corresponding commodities prices during the years 2007 and 2008, are to be noticed. These years coincide with the period when the recent international food crisis was at its peak.

During recent decades though, attempts were made to identify ways to target the subsidies to the truly needy people of the country. First timid attempts were made to target food subsidies to the poor by gearing them towards economically inferior products⁷⁹ (large size bread, bread made by bakeries located in remote areas, etc.). Then there was the adjustment in the weight of bread itself, which was gradually reduced from initially near a kilo per bread to about 400 grams, nowadays. In a parallel fashion, timid but continuous increases in the prices of basic bread, as well as other basic cereal by-products, were initiated.

⁷⁹ For which the demand elasticity with respect to income is negative

Apart from what is usually considered in the country as basic food commodities; i.e., other categories of bread and cereal byproducts destined to pastries became marketed freely of any administrative control.

2.1 Retrospective view of agricultural policies

As in many developing countries and for social considerations for the most part, Tunisia has adopted the inexpensive food policy approach by subsidizing staple food commodities at the consumption level, namely the cereals products, sugar and vegetable oil. This translated into much higher consumption levels of these products than otherwise would be the case.

At the same time, nominal prices at the production levels were maintained constant during decades which, together with fluctuating production resulting from climatic conditions, led to increasing import needs of these products. This was also encouraged by stability in world prices during along period of time.

Public budget outlays on main the cereal products

(Unit : 10⁶ dinars)

	Average 2000-2006 (1)	2007/08 (2)	(2)/(1) %	2009
National production	82.8	101	+ 22.0	215
Durum	65.3	73	+ 11.8	179
Soft wheat	17.5	28	+ 60	36
Imports	82.0	557	+ 579	345
Durum	28.8	264	+817	197
Soft wheat	53.2	293	+ 551	148
Total wheat	164.8	658	+ 299	560
Total cereals	170	723	+325	640

Source : World Bank, May 2009

One can see the almost six-fold increase in budget expenditures on imported wheat, as compared to average expenditures during the period 2000/06, so as to maintain domestic wheat prices at their levels prior to the rising in the respective world prices. This has resulted in a revision in domestic cereals prices which were increased on three different occasions, the third one of which was then called exceptional measure, meaning transitory, but in reality more likely to be permanent.

2.2 Objectives of current agro-food policies and support to agriculture

As indicted above, Tunisia has recently known political uprising which led to a change of the President of the country but also of Interim Governments on three different occasions. Presently a

significant amount of work is being done to lay the groundwork for democratic elections for the first time in the history of the country.

It is expected that by the end this year a new Government would be put in place and, among other things, a new agricultural policy will be designed.

To what extent the new set of agriculture and food policies will inherit past policy trends, is anybody's guess. Will it reinforce previous public commitments to market liberalization, as materialized by the country's adherence to most world trade agreements (WTO, EU, Arab State trade agreements, etc.), or will it be more social in nature by reviving some features of the old protectionism era, is hard to tell.

From the lessons that were learned during this uprising which revealed the existence of major poverty pockets and a very skewed distribution of growth between the coastal zones and the western inland areas, it may be fair to assume that future agricultural and food policies will be more social in nature in that they will be put a major emphasis on inequity reductions between population segments and geographical zones of the country.

This should imply continuous Government intervention in the economy, but interventions that will likely be aimed at reducing income disparities between the western and coastal areas of the countries, on one hand, and between various segments of the population, on the other. This could take the form of additional taxation for the rather well off parts of the country or the population and designing appropriate mechanisms to further support the other parts or segments.

2.3 Price and income support policies

The preservation of income purchasing power of both consumers and producers will in all likelihood be at the center of future economic policies. A trade-off however will be searched by public decision makers between the need to promote economic growth, which implies the reduction in inefficiencies that may result from increasing bureaucratic running of the economy, and the necessity to promote social stability through reductions in inequities.

As a specific possible measure to sustain incomes for low income segments of the population (in agriculture and outside) there will be the activation of the minimum wage laws either by increasing their levels significantly or via enhancing their scope. Other policy measures that are likely to be designed and implemented will aim at identifying specific incentives to encourage inland, as opposed to coastal, investment.

2.4 Input use policies

They are related to the above point dealing with price and income support policies. The recent past has been marked with a quasi-elimination of subsidies on farm inputs, in line with WTO guidelines, with the exception of irrigation water and some farm equipment.

In spite of this public rhetoric, many forms of aid still exist: special subsidies to equipment (machinery and irrigation), livestock breeding, insurance programs, subsidies to agricultural investments,

promotion of organic farming, etc. What will future agricultural policy bring in terms of new orientations is hard to tell at the moment.

From the reading one makes of the political rhetoric expressed by the numerous political parties competing for elections and the across-the-board bold promises being made, it is unlikely that the process of opening up of the economy on the rest of the world, in line with the WTO guidelines, will be enhanced in the near future to come.

2.5 Rural development policies

There is a major concern in Tunisia now that the inland rural areas have not had their fair share in terms of rural development promotion, in comparison to urban and coastal ones. Besides, there is increasing evidence that poverty in rural areas may turn out to be much more critical than the generally favorable picture based on previous statistical aggregate indicators revealed.

Indeed, it is now publicly admitted that quite a bit of variation surrounds the national average publicly announced of 3.8% at the end of the year 2010. It appears that the spread around that average goes as high as 12% (INS), and may even exceed 20% in some places of the country, according to some unauthorized sources.

Recent rural development policy concentrated on improvements in rural infrastructure (roads, schools, health facilities, drinking water services, extensions of irrigated areas, etc.) Where agricultural occupation is limited by farm size or other constraints, financial injections are increasingly provided by especially designed institutions such as the Solidarity Bank or ENDA Arab International. So far, these funds have been activated primarily in urban areas. It is likely that expanding such financing mechanisms and micro finance sources in general, to rural and agricultural activities, will be at the forefront of upcoming rural development policies.

2.6 Agro-environmental policies

In view of the aridity of the Tunisian climate, natural resource (soil and water) preservation will certainly continue to be at the center of future policies, as it has been in the past. Hitherto conservation programs and their corresponding budgets have been geared towards water mobilization through dams and hill reservoirs construction, in the case of water, and erosion breaks and brakes, in the case of soil.

Efficiency considerations along with maintenance problems of these conservation projects, along with limited budget resources, are raising new questions as to their economic and environmental relevance. Alternative techniques of resource conservation based on relative soil immobilization through reduced tillage, or absence thereof, are being contemplated and experimented.

On the basis of international information and experience, it appears that these techniques could enhance and stabilize farm incomes through the reduction of negative externalities generated by excessive mechanization at the farm level, such as soil and water erosion. Conservation agriculture is also bound to have positive environmental impacts outside specific farm boundaries by better harvesting rain water

runoffs, thus better protecting and valuing water catchments and possibly protecting neighbouring infrastructure facilities such as roads, both in rural and urban areas.

2.7 Infrastructure policies

By and large Tunisia has a fairly adequate public agricultural infrastructure, as compared to similarly natural resource endowed countries. Access to most areas is fairly decent but requires maintenance, in most cases.

Perhaps among the most lacking aspects of infrastructure in Tunisia is the one that could facilitate marketing services (internal and external). This includes transport means and refrigeration centers to store, package agricultural produce and mitigate marketing power that may prevail on agricultural markets. The provision of such services may require the input and collaboration of farm operators through the setting up, and/or activation, of farm organizations.

Such a rehabilitation of farm organizations could turn out to be very critical as national agricultural exports are confronted with increasing competition as well as qualitative restrictions from world markets. Meeting these challenges could be facilitated through collective work effort.

2.8 Consumer policies

Support to consumers through administrative price control is not likely to disappear in a near future; particularly that the “street power” in Tunisia has proven to be strong and effective. There is however an increasing awareness that constantly pursuing cheap, or inexpensive in some cases, food policies has resulted in world record, or at least high, consumption levels of certain products (cereals globally, bread specifically, other cereals by-products, sugar and fats).

Beyond the budgetary considerations, there is a growing social concern that these policies have resulted, or at least contributed to, increasing obesity and health problems of the population, as a consequence. Hence future prospects for public consumer policy are likely to give more attention to qualitative and safety aspects of consumption and progressively deviate from the exclusively quantitative feeding objective of the consumer that has been pursued so far.

3. Trade policies

3.1 General presentation of agro-food trade

During the period beginning in the year 2000 (see appendices), agricultural exports have been growing moderately, in nominal terms, and at a similar pace as all exports. This has coincided with an accelerated depreciation of the national currency as compared to the main trading ones, such as the Euro and the US dollar. However the share in total exports has declined over past decades when it used to exceed 10%. While this is an indication that other exports have been growing too, the annual growth rate in the share of agricultural exports in the total has not been increasing, on the contrary.

Evolution of Tunisian exports

(Unit: million dinars)

Years	Agricultural exports	Total exports	Share (%)
Average	1408.9	11281.0	9.3
Growth rate (%)	4.7	4.2	-0.4

Source: INS

Furthermore, a closer look at the trends in the evolution of typically most exported agricultural products during the decade 2000/10, olive oil and dates, reveals that most of the increase in the nominal value of exports comes from improvements in the unitary value of the exported commodities.

In the case of olive oil, for example, the impressive levels recorded both in terms of receipts and volumes actually exported during the past decade, particularly in the year 2004, while taking advantage of the sliding value of the currency of the country (dinar) with respect to the major trading currencies, did not turn out to be sustainable. The actual annual growth rate of the volume of exported olive oil during that period has rather been negative. This is a direct reflection of the continuing severe variability in the national production of olive oil.

The situation of dates is rather different as exports, both in terms of volumes and receipts, have been increasing significantly, while unitary values much less. The comparative situation of the two commodities is illustrated below.

Recent evolution of exports for typical products

Years	Agricultural Exports (10 ⁶ Dinars)	Olive oil			Dates		
		Quantities	Values	Unitary values	Quantities	Values	Unitary values
Average	1408.9	123.0	462.7	3.5	50.7	146.2	2.8
Growth rate (%)	4.2	-0.2	2.2	2.4	5.7	7.3	1.6

Source : INS

Among the typical products that are exported, olive oil is evidently at the top, followed by the fruit category, which includes primarily dates. Then there is the group of seafood products which occupy a steady second position after olive oil.

Main agricultural exports

(Unit : million dinars)

Products	Period 2005/2008	
	Average	Share (%)
Olive oil	690	37
Dates	167	9
Corn oil	124	7
Sea food	225	12
Other fruits	50	3
Fresh vegetables	31	2
Cereal preparations	85	5
Other agricultural products	473	26
Total	1845	100,0

Source : Ministry of agriculture

Cereal preparations, such as diverse brands of couscous and other pasta products, are taken an increasing share in the balance of agricultural exports. Vegetables such as potatoes and artichokes are also growing in importance. Finally there is the category of "*other agricultural products*", which includes a long list of small agricultural products, in terms of weights, but is steady ones in terms of transactions. Together, they make up about 26% of total agricultural exports.

A major share of all exports of agricultural commodities goes to traditional markets of the UE. Some diversification of these markets is presently taking place, particularly for olive oil and dates as these products are exported towards new markets like the USA, some Asian countries and Arab states (Gulf and North Africa). For the year 2007, picturing the situation prior to the international food crisis, the breakdown of the destinations for Tunisian agricultural exports between the EU and the rest of the world is as follows:

Export markets for Tunisian products (%)

(Year 2007)

Products	EU Share	Rest of the world
Olive oil	92	8
Citrus	97	3
Wine	79	21
Fresh tomatoes	88	12
Tomato paste	4	96
Cut flowers	99	1
Potatoes	91	9
Apricots	41	51

Source: www.invest-in-tunisia.tn

On the other hand and as part of the international trade agreements that the previous Tunisian government signed international trade bodies, there are diverse trade regimes and preferences. Some of these preferences characterize the free trade area agreement with the EU which officially underway but practically moving very slowly. As an indicator of such inertia the following table shows the rates of fulfillment of quota preferences that are tolerated for Tunisian products.

Rate of fulfillment of export quotas for Tunisian products with the UE (%)
(Year 2007)

Products	Quota fulfillment
Olive oil	79
Citrus	60
Tomato paste	22
Wine	50
Cut flowers	34
Potatoes	13
Apricots	5

Source : invest-in-tunisia.tn

3.2 Trade agreements

The previous Government of Tunisia committed the country to most of the international trade agreements, be they multilateral or bilateral.

3.2.1 International multilateral trade agreements & globalization

Tunisia is a member of WTO almost since its creation (March 1995). As such, it adheres to the general spirit of market liberalization and trade promotion. As is well known, WTO agreements rest upon three basic principles: market access facilitation, reduction in internal support to the economy and the elimination of subsidies on exports. By and large Tunisia has been faithful to these principles, even though a formal WTO agreement on agricultural commodities has not been reached yet.

Among the challenging implications of the WTO agreements, as far as the Tunisian exports are concerned, is the increasing emphasis on norms and standards the tradable commodities need to increasingly conform to. One important difficulty with these norms is that they are constantly changing for a given destination. They are also variable from one destination to another. Furthermore their implementation requires continuous adjustment costs that are not affordable by all traders.

3.2.2 Trade bilateral agreement with the EU

This agreement is part of the general partnership agreements between the European Union and the Mediterranean states that are promoting free trade. With the EU, Tunisia signed an agreement in July 1995 but was not implemented until March 1998. Both parties are committed to promoting a free trade area over a period of 12 years.

With respect to agricultural commodities, the agreement calls for progressively promoting the liberalization of trade, as of January 2001. Presently, certain commodities such as peppers, capers, food legumes, mandarins, grenades, cactus figs, etc. are already freely traded. Others are also freely traded but are subject to quotas, beyond which various import barriers are imposed as in the cases of olive oil, oranges, potatoes, etc.

With European states and apart from the agreement on establishing a free trade area with the EU, there is the agreement with the European Association for Free Trade (EAFT) signed in June 2005 between Tunisia and 4 European states: Liechtenstein, Switzerland, Norway and Island.

This agreement provides for safeguard measures for Tunisia in the case of infant industries and/or cases of adjusting sectors and activities that are experiencing serious difficulties on economic, social or environmental grounds.

The EAFT agreement also provides measures for international cooperation and technical assistance for the sake of implementing the general objectives of free trade promotion.

3.2.3 Intra MPC trade

Within the MPC zone trade agreements do exist also. First there is the big Arab Zone for Free Trade **AZFT** involving most Arab states (18). Presently, 14 Arab zones give free access into their territories to Tunisian products.

Then there **Agadir (Morocco) Agreement** between four Arab Mediterranean sates (Tunisia, Morocco, Egypt and Jordan) calling for the promotion of a free zone area between themselves and with the European Union. Finally there is the Union for Maghreb states (Tunisia, Algeria, Morocco, Mauritania and Libya) agreement also calling for trade promotion and facilitation.

As far as Tunisia is concerned, most of the trade is taking place with the European Union (over 75%). Some new developments are taking place in terms of trade diversification. There is on one hand the opening up of the US and Canadian markets, particularly for Tunisian olive oil. On the other hand there is the expanding Libyan market for Tunisian products which is much more diversified.

However, the political uprising that has been taking place in the North African region since the beginning of the year 2011 has interrupted most trading mechanisms with all country and particularly with Libya as the uprising took place on both sides of the border between the two countries.

Presently, a big uncertainty hangs over future outlook in terms of trade promotion and general cooperation, more generally, between Tunisia and the rest of the world.

3.3 Tariff and non-tariff barriers

As is known, not all trade barriers, past or present, are of a tariff nature. As a matter of fact those that are of this type are undergoing major revisions so that they would be either reduced or converted into tariff equivalents, in line with WTO guidelines. Some non tariff barriers such as norms and standard requirements, calendar export restrictions, variable entry price restrictions, administrative rigidities and slowness in export procedures are more cumbersome and difficult to overcome.

4. Future prospects

In view of the political turmoil presently taking place not only in Tunisia but also in other neighboring states which are experiencing similar changes (Libya, Egypt, Syria, etc), two possible scenarios are likely to come

out. One scenario could be qualified as somewhat conservative which will likely honor previously established agreements seeking trade promotion and liberalization.

An alternative scenario is equally likely to come out of the ongoing political negotiations which could put more emphasis on equity considerations thereby implying a possible return to new forms of protection of the economy, and consequently less reliance on world trade.

The likely consequences of either scenario are quite different both on the growth of the overall economy, and therefore on the welfare of the Tunisian population, and on the Tunisian flow of agricultural trade with the rest of the world which also has impacts on economic growth.

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Agriculture in the overall economy (%)

Years	Share of agriculture in total GDP	Share of agricultural exports in total exports	Balance of agricultural trade	Overall trade balance
2000	13.3	8,8	68.9	68,2
2001	12.4	8,2	61.2	69,6
2002	10.9	7,1	30.0	72,2
2003	13.7	7,3	50.8	73,7
2004	13.36	11,5	105.4	76,6
2005	12.58	10,7	90.7	79,8
2006	12.56	12,1	109.3	77,8
2007	12.07	9,7	70.1	79,4
2008	10.56	9,1	54.2	78,3
2009	10.76	9,5	82.0	75,2
2010	7.32	8,0	60.04	65.7
Average	11.8	9.3	71.1	74.2
Annual Growth rate	-2,59	-2,58	-0,60	-0,16
Coefficient of variation	11.7	17.5	26.3	5.3

Source: INS

Evolution of Tunisian exports

(Unit : million dinars)

Years	Agricultural exports	Total exports	Share (%)
2000	707,2	8004,8	8,8
2001	785,1	9536,2	8,2
2002	694,9	9748,6	7,1
2003	749,9	10342,6	7,3
2004	1430,9	12403,8	11,5
2005	1471,1	13793,6	10,7
2006	1886,2	15558,1	12,1
2007	1888,0	19409,6	9,7
2008	2155,6	23637,0	9,1
2009	1849,5	19469,2	9,5
2010	1879,4	23519,0	8,0
Average	1408.9	11281.0	9.3
Growth rate (%)	4.2	4.7	-0.4

Source: INS

Agricultural Exports

Années	<u>Olive oil</u>			<u>Dates</u>		
	Value 10 ⁶ Dinars	Quantities 10 ³ tons	Unitary value UV	Quantity 10 ³ tons	Value 10 ⁶ Dinars	Unitary value Dinars/Kg
2000	263,9	113,9	2,3	22,4	52,7	2,4
2001	200,3	94,5	2,1	28,0	65,7	2,3
2002	55,8	22,5	2,5	41,9	97,5	2,3
2003	114,3	39,9	2,9	37,1	95,2	2,6
2004	708,0	211,2	3,4	40,4	105,1	2,6
2005	482,0	110,6	4,4	50,1	130,6	2,6
2006	834,9	168,8	4,9	37,6	117,0	3,1
2007	696,0	172,6	4,0	68,9	211,0	3,1
2008	759,0	169,0	4,5	69,5	209,2	3,0
2009	533,4	141,7	3,8	77,3	237,7	3,1
2010	442,2	108,8	4,1	84,0	286,0	3,4
Average	462,7	123,0	3,5	50,7	146,2	2,8
Annual growth rate	2,2	-0,2	2,4	5,7	7,3	1,6

Snapshot of performance indicators of the agricultural sector of Tunisia

Indicators	Average	Average 2000/08	Average 2000/Average 90's	
	1990/99		Ratio (%)	Variation (%)
Structural				
GDP at market prices (Millions of dinars)	17127,6	36494,2	213,1	113,1
GNP at market prices (Millions of dinars)	16325,5	29324,6	179,6	79,6
National disposable income (Millions of dinars)	17063,8	30875,1	180,9	80,9
Per capita disposable income (Dinars)	1915,3	3109,3	162,3	62,3
Agriculture & fisheries value added (Millions of dinars)	1879,3	2410,9	128,3	28,3
Agriculture value added (en Million de dinars)	1759,5	2280,7	129,6	29,6
Value added of fisheries (en Million de dinars)	119,3	130,1	109,0	9,0
Contribution of agriculture & fisheries to GDP (%)	14,2	12,0	84,7	-15,3
Penetration in the world market				
Food imports (Millions of dinars)	574,7	1311,2	228,1	128,1
Agricultural exports (Millions of dinars)	476,6	1104,2	231,7	131,7
Balance of agricultural trade (Millions of dinars)	-98,1	-207,0	211,0	111,0
Balance of agricultural trade (%)	0,884948	0,854864	96,6	-3,4
Degree of openness of agriculture (%)	0,062	0,064	102,7	2,7
Export market shares (%)				
Tunisian Dates "Deglet Nour" (%)	0,086	0,089	103,4	3,4
Tunisian Maltaise oranges (%)	0,02	0,01	64,8	-35,2
Tunisian seafood products (%)	0,17	0,14	81,5	-18,5
Tunisian olive oil (%)	0,38	0,30	79,1	-20,9

Source: Owon calculations based on ONAGRI data, Ministry of agriculture

Evolution of performance indicators of the agricultural sector established by the Ministry of agriculture

	Average 1990/99	2000	2001	2002	2003	2004	2005	2006	2007	2008
Structural indicators										
GDP at market prices (Millions of dinars)	17127,6	26650,8	28757,2	29923,8	32170,3	35216,8	37751,2	41384,7	45638,1	50954,6
GNP at market prices (Millions of dinars)	16325,5	25393,7	27445,7	28571,8	30824,2	33663,2	35628,4	39321,0	43073,2	48152,1
National disposable income (Millions of dinars)	17063,8	26496,0	28833,8	30144,0	32468,9	35435,7	37558,7	41468,7	45469,8	50070,2
Per capita disposable income (Dinars)	1915,3	2770,7	2980,5	3081,6	3299,8	3564,6	3745,0	4094,5	4446,9	4848,7
Agriculture & fisheries value added (Millions of dinars)	1879,3	2283,0	2237,0	1991,0	2419,0	2664,0	2478,0	2565,0	2650,4	NA
Agriculture value added (en Million de dinars)	1759,5	2155,6	2108,6	1857,6	2294,0	2526,3	2343,4	2435,9	2524,5	NA
Value added of fisheries (en Million de dinars)	119,3	127,4	128,4	132,7	124,6	137,7	134,6	129,1	125,9	NA
Contribution of agriculture & fisheries to GDP (%)	14,2	13,3	12,4	10,9	12,5	13,0	11,6	11,4	11,1	NA
Penetration indicators in the world market										
Food imports (Millions of dinars)	574,7	782,4	887,6	1143,0	894,1	1037,3	1093,3	1321,9	2042,8	2598,5
Agricultural exports (Millions of dinars)	476,6	628,2	669,9	556,5	565,8	1227,2	1225,6	1599,0	1615,5	1849,9
Balance of agricultural trade (Millions of dinars)	-98,1	-154,2	-217,7	-586,5	-328,3	189,9	132,3	277,1	-427,3	-748,6
Balance of agricultural trade (%)	0,88	0,802914	0,754732	0,486877	0,632815	1,183071	1,121010	1,209623	0,790826	0,711911
Degree of openness of agriculture (%)	0,06	0,053	0,054	0,057	0,045	0,064	0,061	0,071	0,080	0,087
Export market shares (%)										
Tunisian Dates "Deglet Nour" (%)	0,09	0,052	0,111	0,120	0,112	0,069	0,083	0,057	0,102	0,090
Tunisian Maltaise oranges (%)	0,02	0,01	0,01	0,02	0,01	0,01	0,01	0,01	0,01	0,01
Tunisian seafood products (%)	0,17	0,15	0,15	0,19	0,19	0,11	0,13	0,12	0,12	0,11
Tunisian olive oil (%)	0,38	0,34	0,23	0,07	0,14	0,49	0,32	0,43	0,36	0,34

*Degree of openness: ratio of the sum of agricultural imports and exports over GDP

***REVIEW OF NATIONAL AGRO-FOOD POLICIES AND INSTITUTIONS
IN TURKEY***

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Introduction

This report aims at describing the agro-food sector in Turkey with respect to its role in overall economy. The report mainly focuses on product pattern, structural characteristics, policy framework and expected future developments. The descriptive information is mostly collected from national and international secondary data sources, yearbooks and working papers. Policy and institutional information is mostly gathered from experts in the related institutions and public officials.

As the content of the report involves a wide range of topics regarding the agro-food sector, the page limit became a trade-off between covering all the required topics and the depth of the information given. Nevertheless a snapshot of the sector was tried to be given.

Part 2 explains the importance and structure of the agro-food sector while part 3 and 4 summarize the domestic and border policy framework including rural and environmental policies as well. Part 5 presents the possible developments in the sector in the near future, by including a SWOT chart. The report concludes in part 6.

2. Description of agro-food sector

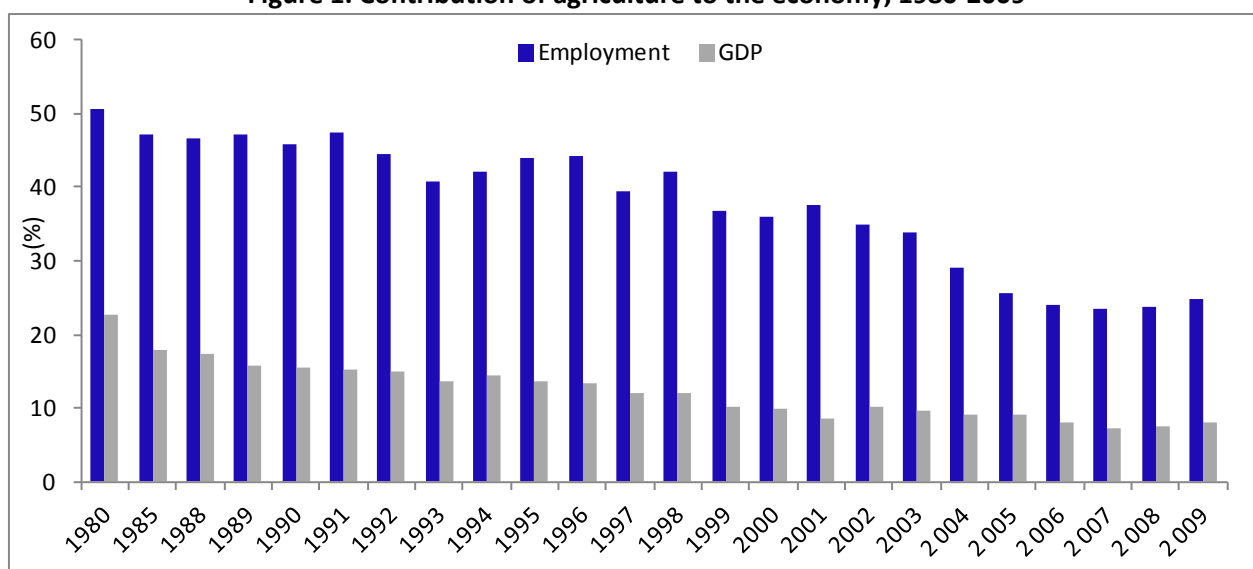
2.1. Importance and role of agro-food sector

2.1.1. Relative size to national economy

The agricultural sector, historically, has been a major contributor to Turkey's GDP and exports, in addition it has been the largest employer sector in the economy. Although the sector loses its importance in overall GDP and exports in the last decade, it still absorbs significant amount of unemployed people. For instance while the agricultural sector's share in the economy has fallen down from about %20 in 1980's to %8.3 in 2009, it has been employing almost about %50 of total employment in late 1980's whereas it is about %25 of total employment and %63 of rural employment in 2009. Obviously, the contraction in agricultural GDP is expected as the urbanization increases with the economic development but surprisingly agricultural employment does not adjust to development that fast. Still, it is the only sector that provides employment opportunities for female population in the rural areas⁸⁰.

The importance of agriculture in Turkey is further enhanced when the whole agro-food chain is considered. The food industry particularly is one of the major manufacturing sectors that play an important role in the economic growth of the Turkish economy and rural development, plus it contributes to exports significantly. Agriculture supplied 11% of total exports and accounted for 7% of total imports in 2008.

⁸⁰ When the relatively lower (about %9 in 2009/almost half of the urban areas) level of unemployment rate in rural areas is considered, the significance of agricultural sector in terms of creating job opportunity in rural areas is better understood.

Figure 1. Contribution of agriculture to the economy, 1980-2009

Source: Adopted from OECD (2011).

2.1.2. Agro-food sector and the society

In rural areas, expenditures on food and non-alcoholic beverages constitute the largest part of total expenditures and this is followed by housing and rent spending. This ranking does not differ by income groups but while the first %20 income group spends about %40 of their total expenditures on food the fifth %20 group (highest income group) spends about %28. Transportation, housing appliances/furniture, alcoholic beverages and clothing expenditures follow housing and rent spending. In rural areas, the least share belongs to health (between %1,7-3,8), education services (%0,4-1,5) and then entertainment related (%1,3-2,6) expenditures. As expected their shares in total expenditures do not change significantly between different income groups.

In Turkey, food consumption patterns are not officially followed via Turkish Statistics Institute through time rather the international statistics give a sight to understand the changing and current patterns. In addition, the household income and expenditure survey (HIES) data has been providing the single most important source of data on consumption patterns in Turkey. According to the findings from 2002-2010 HIES, that share of household food consumption expenditures in total consumption expenditures has decreased from 26.7% to 21% in the 2002-2010 period. While this fall is from 23.9% to 19.8% in urban areas in the mentioned period, it is from 32.5% to 28.6% (in 2009 it was 33.9%) in rural areas.

In Turkey, as expected, there has been an increase in the number of students in preschool, primary school (8 years) and secondary school levels since year 2000. While this increase in preschool and secondary school levels does not show any difference by gender, at the primary school level there has been no significant increase in the number of male students in the last 10 years. It is observed that majority (more than %95) of the secondary school students are settled in urban areas and this share do not differ significantly neither by gender nor by year in the last decade. In the rural areas preschool level education is seen to become more common. In the beginning of the decade only about %11 of preschool students are settled in rural areas while it is about %26 in 2009. This trend in share does not change by gender as well. There has been only a slight increase in the share of urban areas in total primary school level students. For both genders in the beginning of the decade about %73 of students were in urban areas while this share increased to %77. This might be an outcome of out migration from rural areas. A common finding for all the regions is that more than %90 and sometimes %95 of both male and female students in the secondary school are settled in urban areas and this share do not change during the last decade. During the last

decade, while the share of rural female students has been slightly increasing in Southeastern and Centraleastern Anatolia regions, it is more stable for male students at the same education level. For the other regions except Istanbul the share of both male and female rural students at primary school level has been decreasing since year 2000 and this decrease is quite sharp for Eastern and Western Blacksea regions and for Eastern Marmara regions. One common finding is that in the 15-64 age group, except in Western and Eastern Blacksea regions, Northeastern and Centraleastern Anatolia regions, more than %50 of illiterate people are settled in urban areas, however in these regions they are settled in rural areas. This outcome does not differ with respect to gender.

In 2008, it is observed that poverty line in urban areas is quite higher than it is in rural areas however poverty ratios in both areas are almost the same (about %15). This actually explains the severity of the rural poverty problem in Turkey. The highest poverty line is in Istanbul and then it is followed by Eastern Marmara and Western Anatolia regions and then Aegean and Western Marmara regions. The poverty lines in these regions are above the Turkey's average level. The lowest line is in Southeastern Anatolia and it is followed by Central and Northeastern Anatolia regions. The lowest poverty ratios are in Central Anatolia, Eastern Marmara and Istanbul regions (about %9). This is interesting when the relatively high poverty lines in the last two regions are considered. The highest poverty ratio is observed in Northeastern Anatolia and then in Aegean regions. This finding for Northeastern Anatolia is interesting as well, as the poverty line in this region is relatively low. When main economic activities of the poor people are examined it is observed that the ratio of poor people working in agricultural sector is higher than the poor ratio among people who are looking for a job both in Turkey and in urban areas. This finding is also valid for rural areas but the situation is worse as the ratio of poor among people who are looking for a job is almost the same with the ratio in agricultural sector (about %35-40). The employment status of the poor people also provides remarkable findings. In overall Turkey and in urban areas about %1,5 of the employers are poor and between %3,8 to %5,9 of the paid workers are in the poor category. In the rural areas while the rate is about %4,1 for the employer group, it is about %16 for the paid workers. The situation for the family workers is even worse. The ratio of poor people among this group is almost %38 whereas it is only %6,5 in urban areas. Apparently, the main reason behind this is the status of huge number of people working in agricultural sector, who are mainly unpaid family workers.

In Turkey and in all regions the majority of the mobile people are of 15-64 age group. The main motivation behind this age group might be finding employment opportunities and better social and economic living standards. Their ratio in total is about %77-78 except in Centraleastern and Southeastern Anatolia. In those regions it is about %70-72. On the average, the share of 0-14 age group in and out migrating people is about %20 whereas in Southeastern region it is about %25. The ratio of migrating people by age group does not show significant differences by gender. In Turkey the majority of the migrating people have high school or an equivalent degree (about %33) and this is followed by primary school (5 years) graduates (about %21) and university graduates (about %16). Both in high school and university graduates the share of males in migration is a little higher than that of females. The ranking by educational level does not differ significantly among regions but the ratios sometimes differ by the direction of migration significantly in different regions. For example, while people out migrating from Istanbul region are mostly primary school (5 years) graduates, in migrating people are high school graduates. The opposite case is observed in Western Blacksea region. While people in migrating to the region are mostly primary school (5 years) graduates, out migrating people are high school graduates.

2.2. Main agricultural commodities

Turkey is ranked among the largest countries in the world in terms of the covered agricultural land area. In 2009, the utilized agricultural area was 38 935 000 hectare but since 1998 this land has decreased by around 3 million hectares (an annual average rate of 0.3%). According to the 2006 Agricultural Holdings Structure Survey results, %66 of the land is operated by holdings engaged in both crop production and animal husbandry; the share of land operated by holdings engaged only in crop production and animal husbandry is %34 and %0.5 respectively, (TurkStat, 2008). Distribution of agricultural holdings is shown in Table 1.

Table 1. Distribution of holdings according to economic size and typology classification (%), 2006

Class type	(%)
Specialist field crops	25.7
Specialist horticulture (vegetables and flowers)	1.0
Specialist permanent crops	19.8
Specialist grazing livestock (bovine animals, sheep and goats)	16.7
Specialist granivores (poultry and rabbits) ⁽¹⁾	0.1
Mixed cropping	9.1
Mixed livestock holdings	6.1
Mixed crops and livestock	21.7
Total	100.0

Note: 1. This includes holdings rearing poultry or rabbits (breeding females), in addition to crop production or bovine animal or sheep and goat husbandry.

Source: TurkStat.

Table 2 shows the distribution of agricultural lands by main use. From the table it is observed that in the last 20 years there has been a decrease of about %7 in total arable crop land and an increase of about %6 in pastures and meadow areas. Areas used for permanent crops have also increased as well. The concomitant decline in the harvested area and area left fallow resulted in almost unchanged cropping intensity.

Table 2. Agricultural land by main use (%), 1988-2009

	1988-90	1995-97	2000-02	2005-07	2008	2009
Total arable crops	62	62	62	57	55	55
Area sown	45	47	47	43	42	42
Fallow	13	13	13	11	11	11
Vegetable	2	2	2	2	2	2
Permanent crops	6	6	6	7	8	8
Area of fruits, beverage and spice crops	3	3	3	4	4	4
Area of vineyard	1	1	1	1	1	1
Area of olive trees	2	2	2	2	2	2
Meadows and pasture	32	31	31	36	37	38
Total utilised agricultural land (000 ha)	39 273	39 317	39 317	40 311	39 122	38 935
Cropping intensity	81	81	81	82	83	82

Notes:

1. Data used for the calculation of share of permanent meadow and pasture are the results of 1980, 1991 and 2001 General Agricultural Censuses and are compiled every ten years.
2. Since 1995, only the closed area of fruit and olive trees is included.
3. 2009 data are provisional.
4. Cropping intensity = percentage share of area sown in total cultivated land.

Source: Adopted from OECD (2011).

2.2.1. Crops

Area and Production

In world markets Turkey has a significant place with respect to production of several commodities. For example Turkey is ranked as the biggest in hazelnuts, apricots and cherries production; as the second-largest producer of cucumber, pistachios, watermelons, figs, lentils and chestnuts; and the third

most important producer of chickpeas, onions, apples, walnuts, olives. Fruit and vegetable production together accounted for 55% of total production value in 2009 and it is mainly composed of apples, tomatoes, grapes, watermelon, citrus, apricots, cherries, hazelnuts, chestnuts, figs, pistachios and cucumbers. In OECD (2011) it is mentioned that wheat has the largest land use share with an area of about 10 million ha and annual production of 20 million tons on it. Wheat is followed by barley and then by industrial crops and oilseeds. In terms of production value, wheat constitutes the largest share in cereals (%63), followed by barley and maize (%18 and %12 respectively). While sugar beet, cotton and tobacco constitute almost all the produced value of industrial crops (%49, %35 %17 respectively), chickpeas, dry-beans and lentils are the important pulses, while sunflower and potato are the two important oil and tuber crops, respectively.

Consumption and Self-sufficiency

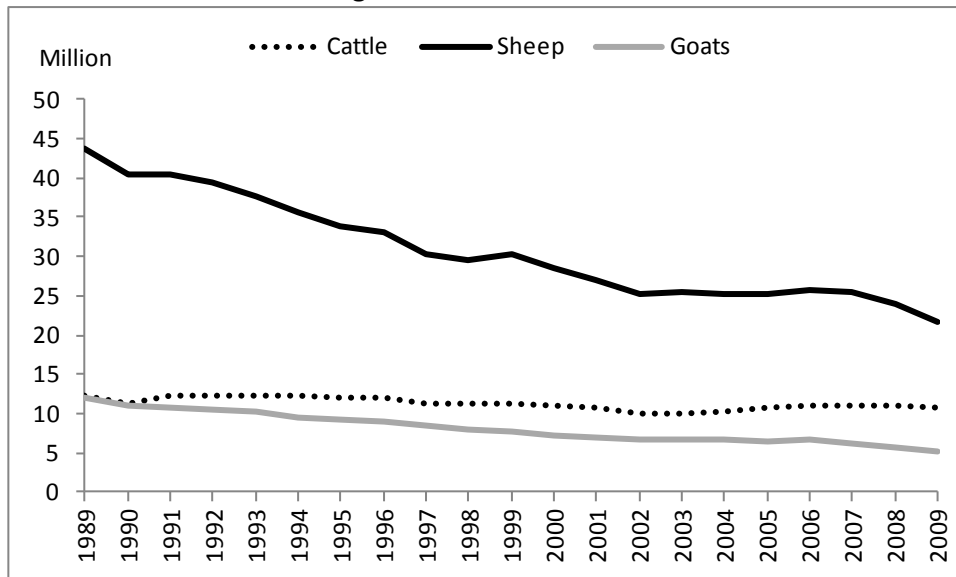
Since early 1980s Turkey has been more or less self-sufficient in food production particularly in some field crops, fruits and vegetables, sometimes in sweeteners and pulses. Turkey is definitely giving deficit in oil crops, some years in sweeteners and pulses, rice, oil crops and vegetable oils. She is close to self-sufficiency in wheat and starchy roots (including potatoes, in most of the livestock products.

2.2.2. Livestock

Area and Production

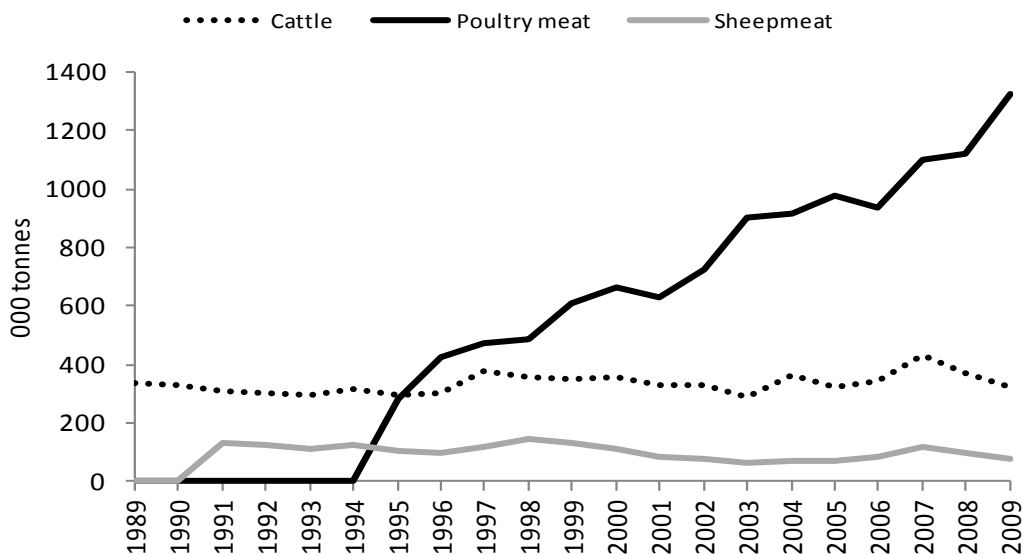
Animal husbandry has a significant role in Turkey's agricultural sector. The country provides larger areas for grazing animals. The number of cattle totals approximately 11 million; sheep around 24 million; and goats about 6 million. However, due to small herd sizes and unfavorable domestic agricultural policies, animal numbers went down over time, Figure 2 (Çakmak, 2004). In addition, foot and mouth disease, socio-economic factors, such as the rapid migration of young farmers to cities and the increasing age of livestock farmers played an important role in the decrease as well however an improvement in animal numbers has been experienced since 2002. Poultry and beef is the most important meat product in Turkey in terms of production quantity and value. With the surge in domestic demand for poultry meat at the beginning of the 1990s, poultry production is now the world's 11th. Over the same period egg production reached about 60 million. This expansion was related both to the shortfall in red meat supplies and to a rising population with increasing incomes coupled with the affordability of poultry meat. The great bulk of the poultry output is (%95) is chicken meat and the rest is turkey meat. Figure 3 presents that sheep and goat meat is less important, though sheep and goat production is important on subsistence and semi-subsistence farms as well.

Figure 2. Animal numbers



Source: Adopted from OECD (2011).

Figure 3. Meat production volume, 1989-2009



Source: Adopted from OECD (2011).

Turkey is among the largest milk producers of the world with her annual output of about 12.2 million tons (2008) and with a world share of around 1.7% of total production. The distribution of this milk into animal types is such that respectively (92), (6) and (2) are obtained from cows, sheep and goats. As it is with the meat production, the trend in milk production started to incline again in 2002.

Consumption and Self-sufficiency

In Turkey per capita meat and milk consumption is comparatively quite low (while meat consumption is 1/5th of the EU average, it is half of it for the milk). Cheese and yoghurt are the preferred dairy products. Per capita consumption of sheep meat is higher than in the EU and per capita consumption of poultry meat has sharply increased over time, while that of bovine meat has decreased, particularly since 1985. Per capita consumption of milk, and sheep and goat meat has gradually declined over time, while per

capita egg consumption is quite low. Self-sufficiency ratios for various crop and livestock products are shown in Table 3.

Table 3. Self-sufficiency ratios, 1985-2007 (%)

	1985	1990	1995	2000	2005	2006	2007
Wheat	87	109	98	112	114	103	88
Barley	103	97	109	102	103	104	102
Maize	95	81	75	70	98	105	77
Rice (paddy equivalent)	66	42	29	40	59	66	67
Oilcrops	97	99	83	78	65	72	60
Pulses	146	144	124	99	109	123	114
Starchy roots	100	86	102	93	100	99	104
Sugar and sweeteners	113	99	87	144	119	95	110
Vegetables	104	104	104	105	106	106	106
Vegetable oils	73	66	67	74	66	67	61
Fruits	113	117	120	122	130	131	128
Bovine meat	90	98	87	100	100	101	101
Mutton and goat meat	110	102	101	100	100	100	100
Poultry meat	102	100	101	100	105	104	105
Eggs	116	101	101	100	101	102	106
Milk (excluding butter)	99	99	100	99	100	99	99

Source: Adopted from OECD (2011).

International Trade

Unprocessed agricultural products accounted for 48% of Turkey's total agricultural exports and 55% of imports in 2009. While their shares in both exports and imports have decreased over the 1986-96 period, they have remained fairly steady since 1996 (Figure 4). The share of agricultural exports and imports in total exports and imports fell steadily from 18% and 8% in 1996-2000 to 10% and 5% in 2006-10, respectively. While the ratio of exports in imports of the agricultural sector remained stable over time, at around 1.2 and proportion of the processed products is increasing, the share of agricultural exports in total exports seems to have stabilized at around 10%.

Figure 4. Agricultural exports, imports and trade balance, 1996-2010 (million USD)



Note: Data refer to SITC, REV3; 2010 data are provisional.

Source: Adopted from OECD (2011).

In Turkey, fruits, nuts, vegetables and related processed products comprise 60% of total agricultural exports and a further 20% originates from tobacco, cereals and sugar. Turkey is the third-largest exporter of fruit and vegetables in the world, after the US and the EU. Throughout the 1986-2007 period, fruits and vegetables comprised over half of Turkey's agricultural exports, with citrus, tomatoes, dried fruit and nuts being the most important individual categories and main products are hazelnuts, raisins and tomatoes.

Non-food agricultural commodities such as raw hides and skins, leather and textile fibre scrap comprise the main agricultural imports of Turkey. Cereal and cereal products; animal feed; tobacco and tobacco products; animal and vegetable oils, fats and waxes; oilseeds and oleaginous fruits are the other main imported product groups. Sugar imports peaked in 1996 and had fallen to low levels by the end of the decade. There is relatively very little trade in meat, dairy and eggs, mainly due to high tariff and non-tariff barriers.

Bilateral Agro-Food Trade

The EU is the Turkey's main export and import partner in agricultural sector. Currently, the EU employs larger degree of liberalization to imports from Turkey compared to what Turkey employs against the EU. In practice about 70% of Turkish agricultural exports to the EU enter duty free and another 11% are subject to reduced tariff rates (EC, 2003). Turkey has a trade surplus with the EU in the field of agriculture, in contrast to the merchandise trade.

Turkey has also important trade relations and a trade surplus with countries in the Mediterranean basin and the Gulf region. Turkey's most important trade partner on the import side is the United States, in particular for tobacco and tobacco products, cereals and oilseeds.

While Turkey's main agricultural products imported from the EU include hides and skins, essential oils and cotton, her main exports to the EU covers fresh, dried or processed fruit, vegetables and nuts. Turkey's international trade destinations and origins in agro-food sector are presented in Table 4.

Table 4. Turkey's agro-food trade by destination and origin, 2007-09

Imports				Exports			
	2007	2008	2009		2007	2008	2009
Total (million USD)							
	8041	10952	8251		9417	10970	10785
Share (%)							
European Union	50.0	41.8	41.8	European Union	56.0	51.1	45.1
United Kingdom	4.0	3.9	3.9	Germany	11.6	10.2	9.7
Germany	5.5	4.0	4.0	Italy	7.2	5.4	5.3
Italy	3.1	2.5	2.5	France	4.1	3.6	3.2
Netherlands	2.4	2.2	2.2	United Kingdom	5.2	4.9	5.7
Romania	2.3	1.9	1.9	Netherlands	3.7	3.5	3.3
Greece	2.2	2.1	2.1	Romania	2.4	2.0	1.7
France	2.0	1.6	1.6	Belgium	2.4	2.6	1.9
United States	19.8	17.0	17.0	Russian Federation	8.0	8.0	7.6
Russian Federation	5.0	7.4	7.4	United States	4.9	3.4	4.2
Ukraine	5.1	6.7	6.7	Iraq	7.4	11.0	12.8
Argentina	4.2	6.4	6.4	Saudi Arabia	2.5	2.3	3.0
Brazil	2.5	2.6	2.6	Free zones	2.5	2.2	1.7
Kazakhstan	2.3	4.1	4.1	Ukraine	1.8	2.2	2.1
India	2.3	1.4	1.4	Switzerland	1.2	1.2	1.1

Note: Data refer to SITC, REV3.

Source: OECD Secretariat calculations based on OECD, *ITCS Database*, September 2010.

2.3. Agricultural sector structure

2.3.1. Farm structures

Although relatively high number of larger and more specialized farms are located in the Aegean and Mediterranean regions of Turkey, except in the Aegean and Marmara coastal regions farms in Turkey are typically family-owned, small and fragmented. There are 3.1 million agricultural holdings on a total of 23 million ha of land and the average cultivated area per holding is about 6 ha and this figure remained almost unchanged between 1991 and 2006. The 2006 Agricultural Holding Structure Survey results show most agricultural holdings to be concentrated in the 2-5 ha holding size group (33%), while land operated by agricultural holdings is concentrated in the 20-50 ha holding size group (24%) (TurkStat, 2008). More than 90% of farm households have no more than 20 hectares (ha) of land, and 66% of all landholdings are less than 5 ha in size, which are mainly oriented towards self sufficiency and have lower than average income. About 79% of agricultural holdings occupying 34% of the land are less than 10 ha in size. Around 21% of agricultural holdings are of 10 ha or more in size; these agricultural holdings operate 66% of the total land.

A major structural problem in Turkish agriculture is that a typical farm is fragmented in parcels. Table 5 presents the fragmentation information by farm holdings for various years. Over 80.5% of farms are divided into more than 3 parcels. This level of fragmentation limits the opportunities for efficient mechanization and the adoption of intensive grazing systems, and involves increased losses and higher production costs.

Table 5. Number of plots per farm holding, 1980, 1990, 2001, 2006

Number of plots	Number of holdings (000)				Share in total (%)			
	1980	1990	2001	2006	1980	1990	2001	2006
1	337	578	589	308	9.5	7.9	19.1	10.2
2-3	933	1139	1119	801	26.2	15.5	36.4	26.5
4-5	797	904	615	653	22.4	12.3	20.0	21.6
6-9	791	760	485	644	22.2	10.3	15.8	21.3
10+	701	3967	214	604	19.7	54.0	7.0	20.0
10-15			171	402			5.6	13.3
16+			43	212			1.4	7.0
	3559	7348	3076	3022	100	100	100	100

Source: TurkStat.

In 1980, less than 10% of the total number of farms was situated on single plots and approximately 64% were highly fragmented, consisting of four or more plots. The 1991 census showed a rise in the share of single-plot holdings (up to 15%), and a fall in the share of holdings with four or more plots (down to 57%), OECD (2011).

According to the 2006 Agricultural Holding Structure Survey, when land tenure type of agricultural land is examined, the rate of agricultural holdings operating only their own land in total agricultural holdings was 85% and the rate of land operated by them in total agricultural land was 71% (TurkStat, 2008). Of total agricultural holdings, 13% operated both their own and other's land; 2% operated rented or shared land only; and 0.2% operated land on the basis of more than one type of tenure. In OECD (2011) it is reported that number of parcels of land belonging to agricultural holdings are most frequently composed of 4-5 parcels and the land operated by the agricultural holdings in this group constitutes 16% of total agricultural land.

2.3.2. Agricultural labor

There has been a significant decrease in employment level in overall Turkey and this is mainly caused by the decrease in rural areas (%8)ü in urban areas the fall is only about %1,5 since year 2000. In general, while there is a fall in labor participation rate in Turkey, it is observed that there has been almost no change in female labor participation whereas a %3 fall has been experienced in male participation rate. In urban areas, there has been a slight fall in male participation rate but an increase was observed during the decade in female participation rate of about %5. In rural areas labor participation rates for both male and female labor force falls about %5-6 since the beginning of the period. In general participation rate in rural areas seem to be higher than urban areas and this difference is bigger in female participation. The family workers in rural areas might explain this divergence. Unemployment rate is calculated for total economic sectors and for non-agricultural sectors. As expected, non-agricultural unemployment is higher in Turkey both in male and female labor force during the whole decade. In urban areas this gap closes both for males and females but in rural areas the gap is quite wide especially for females. In general non-agricultural unemployment for both genders in rural areas is higher compared to urban areas and unemployment figures are lower. This is expected as well due to lack of non-agricultural job opportunities in rural areas.

One of the findings in rural areas is that male participation rates at all levels of education decreases from 2000 to 2009. This might be due to the out migration from rural to urban areas however a similar trend in urban areas especially for the lower education levels is also observed. Therefore the fall in participation rates cannot only be explained by migration. Another interesting and common finding is that both in rural and urban areas unemployment rate rises as the education level of the labor force increases. In addition except for the lowest levels of education in rural areas unemployment rate increases during the decade both for the male and female labor force. Again this might be due to lack of job opportunities and especially non-agricultural job alternatives in both areas. It becomes difficult for relatively more qualified labor force to find a job.

In Turkey, since the beginning of the period the main increase in employment is observed in services and manufacturing industries and this increase is observed both in male and female labor force but particularly in urban areas. The labor force in construction is mainly male and while there has been a fall in rural employment in this sector, in urban areas employment increases. In Turkey, after services sector agriculture is the second biggest sector that creates job opportunities. Although the number of employed in agriculture decreases for female population this sector is still the main economic activity. The highest agricultural employment is seen to be in Western Blacksea, Mediterranean and Aegean regions. However, in these regions services and manufacturing also provides relatively large alternative job opportunities. In Northeastern, Central and Centraleastern Anatolia and Eastern Blacksea regions agriculture is the main economic activity. In Istanbul, Eastern Marmara and Western Anatolia regions agriculture's share in total employment is relatively small.

In the agricultural sector self-employed and unpaid family labor constitutes the two main types of employment, each making up to approximately 45% in 2009. Hired labor in agriculture made up about only 9% of total agricultural employment. Unpaid family labor in agriculture is more dominant among female workers, with as much as 76% (1.9 million) working as unpaid labor in 2009.

Illiteracy rates in the agricultural workforce are significantly higher than in the rest of the economy. Despite a significant improvement over the last two decades, illiteracy among agricultural workers remains as high as 15%, compared to less than 2% for those employed outside agriculture. The major contributors to this high rate of illiteracy is the female sector of the agricultural workforce (with an illiteracy rate of 25%), who represent 60% of the total agricultural workforce. In rural areas, where the agricultural population dominates, only 2% of the village (rural) population has university or other higher educational institution education.

2.3.3. Inputs usage and machinery

Land Use and Irrigation

The area used for agricultural production is about 184,348,224 decar⁸¹ and this is owned by 3,076,649 agricultural holdings in Turkey. The average size of the agricultural area is about 6 ha/holdings and most of the agricultural holdings are less than 0.2 ha in size (the biggest portion of them is situated in 1 parcel). Majority of the area in Turkey is owned by the holdings between 10-49 hectares and those are generally situated on 3 to 5 parcels. Most of agricultural holdings in all sizes generally engaged both in crop production and animal husbandry. Less than 30% of holdings only engaged in crop production. Sole animal husbandry farms are more common in Mediterranean and Centraleastern Anatolia regions. Fallow land in Turkey is approximately %15 of the total agricultural area. It is observed that about %80 of the remaining agricultural area are sown by agricultural holdings. In addition, only %2.5 of the remaining area is used for vegetable and flowers gardens and %11,5 is used for fruit orchards and other permanent crops. The rest are poplar-willow grove, permanent pasture, unused potentially productive area, meadow, forest, and woodland. Vegetable and flower gardens are mostly between 10 to 50 hectares and are generally irrigated. Fruit orchards and other permanent crop areas are generally between 0.2 to 0.5 hectares.

The operation type of agricultural holdings varies based on whether holdings own their own land or not. Some holdings prefer both operating their own land and other's land. More than %80 of agricultural holdings operate their own land and this ratio rises up to %86 when ownership land is included. The holdings not having their own land are only %3,5 of total agricultural holdings. Among the holdings which do not operate on their own land, the most preferred type is renting rather than share cropping or other types. The holdings operating both on their own and others' land is at least as much as the holdings which operate on rental areas. Only less than %1 of the area sown is used for growing crops on the same area successively during the production year and those are only %0.88 of total agricultural holdings. These crops are mostly field crops and only a small portion of them is used for vegetables. In Mediterranean region though majority of the area is used for successive production in the same land whereas in Central Anatolia region no area is used for growing crops on the same area during the production year.

The proportion of irrigated land increased from 14% in 1991, to 20% in 2001 and to 24% in 2006. The share of irrigated land is much higher in the western areas than elsewhere in Turkey. A third of the holdings smaller than 1 ha are irrigated and specialize in the production of fruit and vegetables. According to the 2006 Agricultural Holding Structure Survey 28% of the irrigated land is sown (Table 6). Out of this area, 72% is used for growing vegetables and flowers (including land under seedlings and land under protective cover); 26% is used for fruits, other permanent crops and beverage and spice crops (including land under nurseries and land under protective cover). Also around 35% is permanent meadow; and 58% of poplar-willow groves are irrigated.

⁸¹ 1 decar is 0,1 hectare.

Table 6. Irrigated and non-irrigated land by land use, 2006 (%)

Land use	Total	Irrigated land	Non-irrigated land
Total land	100	24.1	75.9
Area sown	100	27.8	72.2
Land under vegetables and flowers ¹	100	72.7	27.3
Land under fruit, other permanent crops and beverage and spice crops ²	100	25.8	74.2
Poplar- willow groves	100	58.4	41.6
Unused and undeveloped potentially productive land	100	7.3	92.7
Permanent meadow	100	35.0	65.0
Other ³	100	-	100

Notes: 1. Including land under seedlings and land under protective cover. 3. Includes fallow land, pasture, woodland and forest, non-agricultural land. 2. Including land under nurseries and land under protective cover.

Source: TurkStat.

About 5.4 million ha of land are under irrigation. Without irrigation, much of the land can support only low-yielding dryland crops. Agricultural products for both domestic consumption and export include wheat and other cereals, pulses, oilseeds, cotton, tobacco, tea and a range of fruits and nuts, as well as Mediterranean fruits and vegetables. Taking irrigation as the main indicator of crop production intensity in Turkey, MARA has estimated that: intensive crop production is practiced on 4.1 million hectares of fully irrigated land (15% of cultivated land); semi-intensive crop production is practiced on 0.8 million hectares of insufficiently irrigated land (2.9% of cultivated land) and; extensive crop production is practiced on the remaining 21.7 million hectares of non-irrigated, rainfed land (dryland farming) (81.5% of cultivated land) (MARA, 2007).

On the average Turkey has about 112 billion m³ of usable water and about 88% of this is from surface flows. Surface flow is the net amount after evaporation of the rainfall and discharge of some amount to under soil. About 75% of total used water is used by agricultural sector and about 15% and 10% are used by households and industries respectively. In Turkey main sources of agricultural irrigation are wells, springs, streams, lakes, artificial lakes and dams. All these sources are accessible in all regions except for dams in Eastern Blacksea. More than %30 of agricultural holdings in Turkey have access to irrigation but irrigated area only reflects less than 20% of the total agricultural area. Agricultural holdings' main irrigation sources are wells, springs and streams. Although only about %10 of the agricultural holdings use dams as irrigation source, the area irrigated by dams is almost %15 of the total irrigated area. Moreover, Aegean, Mediterranean and Southeastern Anatolia regions use more irrigation compared to other regions and this fact is due to dams in these regions.

There are only three irrigation systems in Turkey. Agricultural holdings generally choose flooding, sprinkler and drop irrigation system. Most of agricultural holdings use flooding irrigation system that reflects the %81 of total irrigated land in Turkey. Moreover, there is a trend to change irrigation system from flooding system to sprinkler and drop irrigation systems in the recent years. It is interesting to see that usage of the drop irrigation system getting widely-used in Southeastern Anatolia, Western Anatolia and Eastern Blacksea regions when compared with other regions. In addition, Mediterranean region is the leading one in using sprinkler irrigation system. The preference of the system might be a natural outcome of the agricultural activity type.

It is very common to use farm manure, fertilizer, crop chemicals and pesticide in agricultural production in Turkey. It is observed that more than %90 of the settlements are using fertilizer in their production. In the NUTS regions, Western Anatolia, Eastern Marmara, Western Marmara and Aegean regions are leading the usage of crop chemicals and pesticides, whereas, the less usage of crop chemicals

and pesticides is observed in the Northeastern Anatolia region. A good proportion of agricultural holdings have agricultural machinery and equipment and only a little rate of them are shared. Larger scale agricultural holdings, between 10 to 50 hectares, have the largest proportion of the agricultural machinery and equipment. Moreover, less than %10 of the agricultural holdings have the agricultural machinery and equipment and they do not even share those (share-use). In the NUTS regions, most of the agricultural machinery and equipment is situated in the Aegean region and usage is not common in Eastern Blacksea region. It is important to note that a significant part of tractor usage depends on rental, nevertheless a big portion of the agricultural holdings have their own tractor. Moreover, majority of the holdings (more than %90) use rented combine harvester.

2.4 Agro-food industry

2.4.1 Description, importance

Production in the food and beverage sector reached TRY 8,852 million in 2009, which constitutes %18-20 of the country's production as a whole. Significant sub-sectors within the Turkish food and beverage industry include meat and meat products, baked products, dairy products, fruits and vegetables, oils, confectionery, alcoholic and non-alcoholic drinks, soft drinks, ready-made food and baby food. The proportion of Turkish household expenditure allocated to food, beverages and tobacco, which was around %26 and rose to about %27-27.5 in 2009-10. The total consumer spending on food, beverages and tobacco, which is estimated at around USD 130 billion in 2008, was around USD 120 billion in 2007.

According to the data issued by the Industry Database of Union of Chambers and Commodity Exchanges of Turkey (TOBB), the number of active companies in the food and beverage industry decreased from 23,276 in 2007 to 22,092 by the end of 2008. The majority of the Turkish food and beverage sector is formed of SMEs, which are mostly privately held. The capacity utilization rate is around 70 percent for the food and beverage sector.

2.4.2 Main products

Turkey's processed food sector has many world leading products. The sugar and chocolate confectionary industry has increased its product variety and volume in the past few years. Turkey is self sufficient in the production of sugar which has led to sugar confectionary having a great role in Turkish traditions. Confectionaries are widely exchanged as gifts during religious festivals, wedding ceremonies and celebrations. Although the sugar and chocolate confectionary sector in Turkey is historically based on the production of traditional Turkish confectionary products such as Turkish delight and halva, other confectionary products such as chocolate confectionary and chewing gum are growing rapidly. The Turkish gum sector is very competitive, due to the presence of powerful local and multinational companies hence production of gum has steadily increased production of sugared gum, sugar-free gum, and bubble gum since 2000.

The pasta industry in Turkey is one of the biggest in the world. Semolina and macaroni factories were among the first branches of the food industry to be established in Turkey. Today, annual production of pasta in Turkey is over 600,000 thousand tons and is exported to over 100 countries. Turkey exports mainly uncooked pasta without egg, constituting up to 80-90% of the total Turkish pasta exports so far.

Turkey is a major producer of olive oil as well. Turkey holds the second place in table olive production and fourth in olive oil production in the world. Turkish olive oil is an important ingredient in many Turkish dishes and is well known throughout the world. Turkish olive oil is in demand in every part of the world and is exported to over 90 countries. With its highly diversified production base, Turkey offers a wide range of agricultural products to the world at notably competitive prices.

Turkey has traditional eating habits that remain stable in the majority of the population. However, the Turkish food sector is becoming more elaborated as retailers require higher standards from food manufacturers, and investments accompanied by improvements in the sector take place. Through the widespread presence of modern MGR outlets and rising disposable incomes, consumption patterns have been shifting to packaged and processed foods, such as ready-to-eat meals and frozen foods. Additionally, the increases in the number of females in full-time employment have supported the trend towards packaged, frozen and ready food. Therefore, considering that Turkey still has the lowest per capita consumption of packaged food in Europe, there is considerable potential in the aforementioned sub-sectors. Globally, Turkey is one of the largest markets for baked goods, since such goods have a significant share in the diets of the Turkish population. With rising incomes, packaged bread consumption presents an increase and at the same time, demand for different bread varieties, such as high-fibre and speciality artisan breads offer an opportunity for this higher profit market compared with traditional baked products.

According to BMI estimates, total food consumption in Turkey is expected to grow by 34 percent and food consumption per capita by 21 percent between 2009 and 2014. Developments in the mass grocery retail industry and processed food industry are the key driving factors of the estimated growth.

2.4.3 Structure and typology of the food industry

Turkish Statistics Institute calculated the average capacity utilization rate in food industry about % 70. However in the sub-industries of meat and dairy processing, flour, olive oil and other vegetable oils this rate falls down to % 50 mostly due to the large number of firms operating in these sub-sectors. The lack of coordination in the vertical relationships in the food chain, lack of contracts, unstable raw material supply and unregistered production are argued to be the main factors behind excess capacity.

According to the Deloitte report entitled "Global Powers of the Consumer Products Industry 2010", during the global financial crises consumers were attracted to discounted products with lower prices and avoided private labels although the food and beverage industry managed to perform well during the crisis. In other words the crisis environment made consumers more cautious and keen to seek quality in their purchases. Manufacturers are taking these changes into consideration. Together with the recovery from the crisis, mergers and acquisitions are anticipated to increase globally in the coming years. This also heightens attention to food safety, with the focus on growth in emerging markets. According to BMI, the Turkish Government has announced the Ministry of Agriculture and Food will be re-established taking into consideration food safety as one of its main concerns and enhancing the relationship between the Turkish food and agriculture industries.

2.4.4. Investments

Turkey was ranked the 5th according to the CEE Business Environment Ratings prepared by BMI. The analysis emphasizes the food and beverage industry's attractiveness to investors by taking into consideration the market size, current consumption levels, future potential growth and the legislative and political environment. Additionally, as a major agricultural producer with an increasingly positive food and beverage trade balance, Turkey offers easy access to raw materials. The food and beverage sector, which is largely dependent on the agricultural sector in Turkey, has an important share in the country's production i.e. a share ranging between 18-20 percent. The number of foreign companies operating in Turkey's food and beverage sector increased from 376 in 2008 to 421 in 2009. It was only 8 in year 2000. Foreign direct investment reached a peak of USD 1.2 billion in 2008 which was about USD 14 million in 2002. Due to the effects of the global financial crisis, FDI in the manufacturing sector registered a shrinkage of 58 percent in 2009 and of 83 percent in the food and beverage sector.

It is observed that foreign companies mostly prefer to establish joint ventures in agro-food sector in Turkey. The share of joint ventures in the sector is about % 65. The share of foreign agro-food companies which own the whole shares (%100) is only about % 36. In about % 31 of all agro-food sectors the share of foreign capital is less than % 50 and in about % 19 their share is more than % 50. In about % 74 of all joint ventures the foreign partner is only one firm. The main factors behind foreign companies' investing in agro-food sector of Turkey are: protecting their technology, quality assurance, risk sharing, fast access to markets, the reputation of the domestic firm, and the experience and information that the domestic firm has. The foreign investors' origin is mainly in Europe and mostly in Germany. Near and middle East countries follow Europe. About % 57 of all foreign investments are in Marmara region, this is followed by Aegean region with % 17. Black sea and Southeastern Anatolia regions are the one which attract minimum foreign investment with % 1,7 and % 2,9 respectively.

Organic Food Industry

Organic agriculture started in 1985 with the production of İzmir grapes followed by figs and apricots. Organic products are mainly produced in the Aegean region forming 39 percent of the total organic production followed by the Black Sea region with 18 percent and Central Anatolia with 13 percent. Turkey exports almost all of its organic food production, with Europe occupying a dominant position as the destination for 85 percent of the total organic food exports. With this strong demand from Europe and ongoing reforms for promoting organic agriculture, Turkey has a potential to grow in the organic food industry.

Halal Food Industry

Being a Muslim country, Turkey also has potential to sustain growth from the “halal food” industry. According to the World Halal Forum, the global halal food industry is expected to reach USD 650 billion in 2010.

2.4.5 Agro-food trade flows

According to the Turkish Statistical Institute, Turkey's food and beverage trade balance moved negatively between 2007-2009. Turkey is a major exporter of dried fruit, tobacco and hazelnuts. Turkey's main agricultural imports include cotton, soya beans, vegetable oils, tobacco, maize and rice.

Turkey is the largest producer and exporter of agricultural products in the Near East and North African region. The favorable climate conditions and relatively unpolluted land allow Turkey to produce a large variety of products in high quantities exported throughout the world. Over half of the land in Turkey is arable. The leading sector of Turkish agriculture is vegetal production. Turkey's fresh fruit industry produces approximately 13 million tons of produce with a variety ranging from temperate to tropical products. About 40% of Turkey's fresh fruit industry consists of grape-like fruits. Turkey is also a large producer of nuts and dried fruits. Turkey is the number one producer and exporter of hazelnuts, dried apricots and figs in the world. Turkey is one of the few countries in the world with a favorable climate for hazelnut production and produces about 70% of worldwide hazelnut production.

As bread is a staple food of Turkey, cereals constitute a large portion of Turkish agriculture and are grown on about 75% of arable land. High production of cereals and cereal-based products has driven Turkey's exports of agricultural produce to 19%. Turkey is also the second biggest exporter of wheat in the world. Wheat is the leading crop in Turkey and wheat flour factories are in almost every province.

Table 7 presents exports and imports value of Turkey by main sub-sectors of food and beverages industry categories. Turkey is a net exporter in all sub-sectors except for animal feeds, ethyl alcohol from fermented products, meat and products, starchy products and vegetable and animal origin oils. Processed fruits and vegetables, milled grain products and bakery products are the main sectors that contribute to export revenue. Meat and products and starchy products are the main ones that contribute to imports.

Table 7. Food and beverages sector international trade 04-2009)

\$US million	2004	2005	2006	2007	2008	2009	2004	2005	2006	2007	2008	2009
	Exports						Imports					
Animal feeds	2	2	2	5	36	46	55	61	73	88	113	90
Bakery products	216	231	264	347	424	417	13	15	19	24	37	39
Beer and malt	31	42	42	48	64	62	4	3	4	2	4	2
Cocoa, chocolate & confectionary	391	424	468	611	665	628	70	67	93	104	144	150
Dairy products	41	62	89	112	136	142	60	67	80	115	133	120
Ethyl alcohol from fermented products	13	23	29	35	33	27	27	35	47	56	66	92
Fish products	110	106	129	148	173	154	82	77	105	134	141	138
Floury products	50	66	80	108	182	149	2	2	3	3	4	5
Meat & products	55	67	60	83	112	177	461	368	414	426	375	214
Milled grain pro.	271	532	377	572	814	787	68	91	83	136	184	151
Non-alcoholic beverage, mineral & spring water	62	76	67	85	92	82	18	12	21	32	38	31
Other food pro.	194	234	323	440	545	537	266	326	393	443	431	362
Processed fruits & vegetables	1548	1850	1789	2082	2318	2146	41	63	75	105	179	143
Starch and products with starch	37	48	55	52	68	56	129	161	161	189	250	167
Sugar	38	5	58	16	21	4	17	25	20	33	46	25
Vegetable and animal origin oils	281	497	498	411	785	508	589	737	858	767	1611	1172
Wine	8	8	9	9	8	8	2	3	4	4	5	4
Total	3348	4273	4339	5164	6476	5930	1904	2113	2453	2661	3761	2905

Source: Deloitte (2010).

3. Current agricultural and food policies

3.1. Short retrospective view of agricultural policies

Traditionally, Turkey's key policy objectives for agriculture, as mostly set out in successive Development Plans are: improving productivity; ensuring food security and food safety; and stability of food supply; raising self-sufficiency and exploiting export potential; providing stable and sustainable income levels in agriculture; enhancing competitiveness; fostering rural development; and intuitional-capacity building to come into alignment with EU agricultural and rural development policies.

Historically, government intervention in agriculture has been considerable, with price support, input subsidies and high border protection being the main policy instruments (OECD, 1994; Burrell and Kurzweil, 2008; Olgun, 1991). Over the mid-1980s-2000, domestic agricultural support measures in Turkey were almost entirely based on commodity price support for crop commodities and variable input subsidies. Although the rates of support on products and input use fluctuated considerably prior to 2000, there were no fundamental changes to the kind of policies and delivery mechanisms used.

Market price support was primarily carried out through intervention buying operated by the SEEs (grains and pulses, sugar, tobacco, tea) and the ASCUs (horticultural crops, cotton, oilseeds, nuts and olive oil). Intervention buying of crop commodities at support prices began in the early 1930s with wheat: by 1992 the total number of crops accorded price support was up to 25 (OECD, 1994).

Restrictions on area planted were introduced for three commodities (hazelnuts, tobacco and tea) in the mid-1980s, under the authority of the relevant ASCU or SEE. However, enforcement was ineffective and stricter controls and compensation incentives were adopted in 1994. From 1994 onwards, tea growers were also required to cut back part of their plantation each year, in order to improve the quality of the crop. A “pruning premium” was introduced to compensate them for lost volume. Over the period 1996-2000, payments for tea pruning averaged USD 17 million annually. In addition, informal area controls operated for sugar beet.

By contrast, in the livestock sector, domestic policies played a relatively less important role. Since 1986, producers delivering milk to dairies that were certified as meeting certain technical standards have received an extra payment per litre, the “milk incentive premium”. The only other form of support for dairy products has been provided by border measures. Tariffs on most dairy products are bound at 180% (lower for some cheeses). Applied MFN tariffs were significantly below these bindings in the late 1990s, but moved closer to bound levels in the early 2000s. Apart from temporary intervention purchases of live animals during the drought of 1989, the only source of support for bovine meat has been from border measures. For example, in 1995 MFN tariffs on red meat stood at just 15%, but shortly afterwards were raised to 165%. Since 1996 there have been restrictions on red meat and live cattle imports due to concerns over animal diseases, such as BSE, FMD and blue tongue in a number of countries of origin. The restrictions have been progressively and partially lifted for some countries from the second half of 2010, following changes in the animal health status in these countries. A meat incentive premium was paid in 1990-01, and again in 1994-05, per kilogram of beef and sheepmeat, on animals delivered to abattoirs satisfying modern hygiene standards. During 1987-89, the compound feed was also subsidised at a rate of 20-25%.

Support to input use has been extensive. Until 1999, credit to farmers was heavily subsidised, and the government also provided subsidised credit to the agricultural input industries. Interest rate levels for farmers tended to be 40-60% below commercial rates, and from the late 1970s until 1998, the real interest rates on loans to farmers were negative. In 1994, for example, the average real interest rate on agricultural loans reached -45% (OECD, 1994; World Bank, 2004). The use of credit subsidies to agriculture peaked in the period 1994-99, averaging over USD 1.3 billion per year. The World Bank (2004) noted that, starting in the mid-1990s cheap and abundant credit encouraged credit delinquency and, due to the high administrative costs and inefficiency of the delivery agencies, only 80% of the implicit subsidies ever reached the farmers.

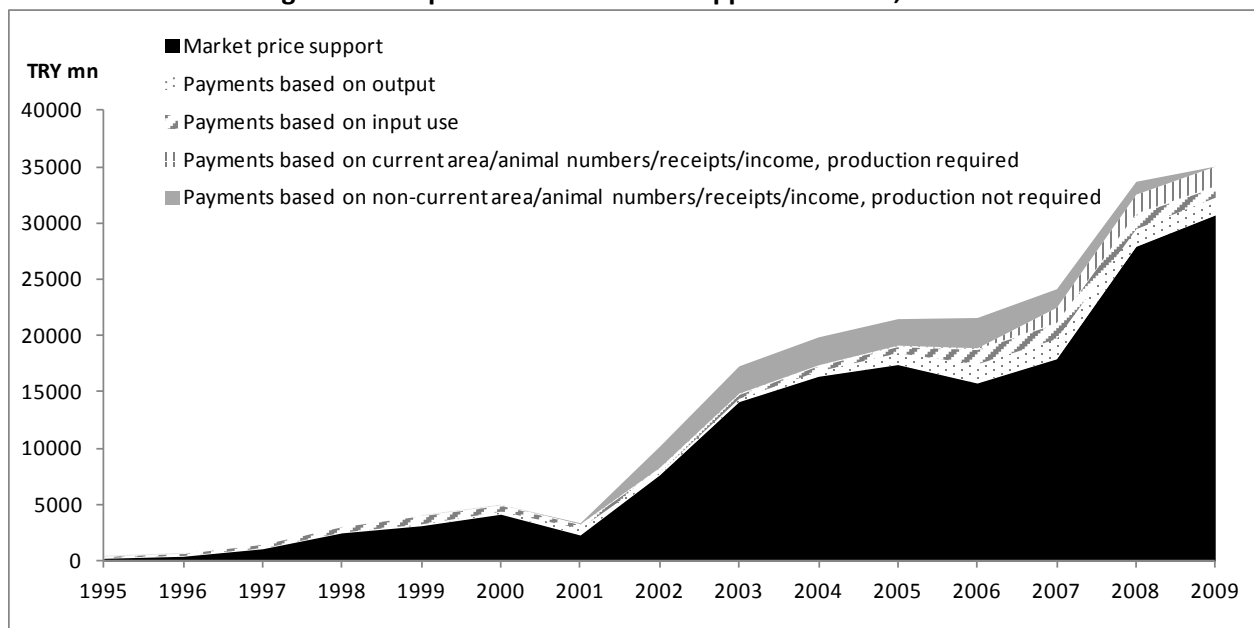
From 1986 onwards, the government made subsidies available to fertilisers used by farmers via the Agricultural Bank. For a brief period (1994-97), these subsidies were paid direct to farmers, upon presentation of a sales invoice, but this procedure was eventually reversed due to the heavy administrative burden of the scheme and its susceptibility to fraud (World Bank, 2004). During 1990-97 annual expenditure on fertiliser subsidies averaged USD 363 million. The fertiliser subsidy was 39% of the market price in 1993, and 50% in 1997. In 1997, the government began phasing out the fertiliser subsidy, and it ceased completely at the end of 2001.

Agriculture’s use of pesticides has been supported in two ways. First, the government assumes the cost of protective measures taken when epidemic crop diseases or pest infestations occur. Second, from 1987 onwards the Agricultural Bank has been authorised to pay a rebate of 20% on the value of pesticides bought by farmers themselves. Over the period 1996-2001, annual disbursements by government on this item averaged USD 26 million.

Starting in 1985, a subsidy was paid to certified producers of hybrid maize, hybrid sunflower, soybeans and nitrogen-fixing bacteria (OECD, 1994). Total payments under this scheme fell during the 1990s from their peak of USD 31 million in 1987 to low levels in the early 2000s. Subsidies have also been paid to farmers, at various times, for seeds and animal feed.

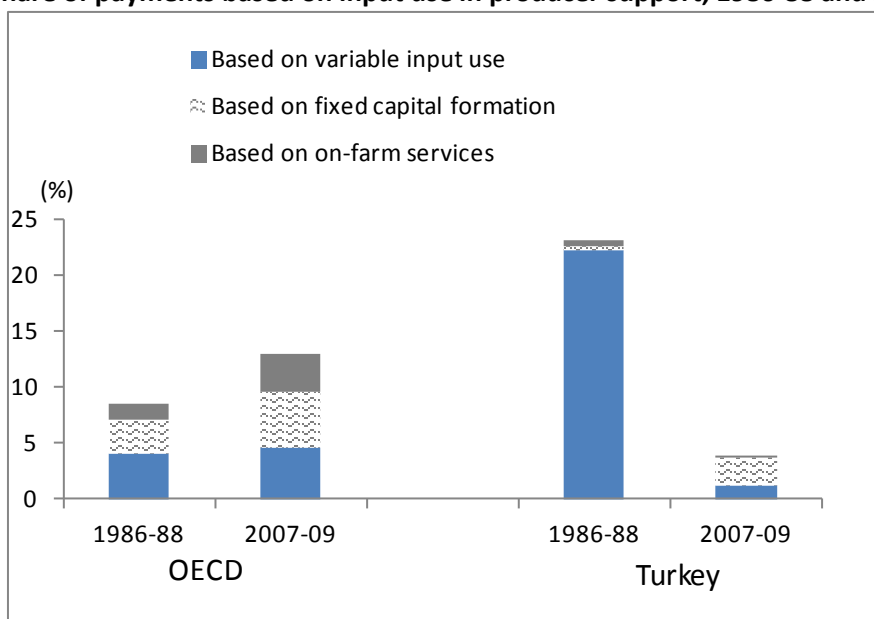
Incentives for capital investment were paid to farmers during the 1980-85, largely in the form of reductions in customs duty on imported machinery and other tax deductions. From 1985 onwards grants were paid for various investment projects, such as the establishment of feedlots. This form of aid ceased in 1994. MARA also funded on-farm development work (such as field-leveilling, soil improvements, etc.), with costs averaging USD 23 million for 1986-90, USD 52 million for 1991-95; and USD 63 million for 1996-2000. A similar rate of expenditure has continued into the 2000s. Figure 5 and 6 provide distribution of agricultural support by type.

Figure 5. Composition of Producer Support Estimate, 1995-2009



Source: OECD, PSE/CSE Database, 2010.

Figure 6. Share of payments based on input use in producer support, 1986-88 and 2007-09 (%)



Source: OECD, PSE/CSE Database, 2010.

3.2. Objectives of current agro-food policies and support to agriculture

Agriculture was one of the sectors that was targeted for structural reform in order to stabilise the Turkish economy. Aside from promoting allocative efficiency in the agricultural sector, reforms were necessary for fiscal stabilisation. “The Agricultural Reform Implementation Project (ARIP)”, was launched in 2001 and implemented during 2001-08. The project was underpinned by the World Bank and it was also a pre-condition of obtaining International Monetary Fund (IMF) support for the macroeconomic stabilisation programme, which aimed to reduce the high inflation rate and stabilise the general price level. Under ARIP, Turkish agriculture policy has been oriented towards closer alignment with the EU’s CAP. Under the reform programme, agricultural related measures have been taken in four main areas: i) reducing output intervention purchases financed from the budget leading to price cuts; ii) phasing out price support, credit and fertiliser subsidies, and replacing them by a less distorting direct income support (DIS) scheme to farmers based on a uniform per-hectare payment; iii) withdrawing the state from direct involvement in production, processing, and marketing of crops; and (iv) making available one-time transition grants to farmers. ARIP is implemented to set up NFRS and provide technical and financial assistance to restructure ASCUs, to facilitate the reform program described above. Within the reform framework, indirect support policies (price and input subsidies) were phased out at the end of 2002 and replaced with the DIS programme. DIS payments (about USD 90 per ha) were independent from crop type and quantity of agricultural production and were made to those farmers (individual persons or legal entities) dealing with land-based agricultural activity, regardless of the status of land tenure. Farmers must be registered in the National Farmers’ Registry System (NFRS), which was initiated in 2002. DIS payments were started in 2002 according to NFRS for land between 0.1ha and 50 ha. Agricultural land either needed to be tilled or otherwise sustained for agricultural use. Farmers must be associated with agricultural activity for minimum of one production season (8-10 months) on the same land. State-owned land; deserted or inaccessible agricultural land with no current use; forestry areas and communal property, such as pastures, were excluded from DIS payments. Additional DIS payments were granted to farmers who undertake soil analysis, practice organic farming or utilise certified seeds on their land. Payments for soil analysis were limited to a maximum area of 6 ha. DIS payments were applied to over 16.4 million ha of land (around 63% of total agricultural land) and have benefited 2.8 million farmers (89% of the total).

A key element of ARIP was the privatisation of SEEs and the restructuring of ASCUs. The state-owned Turkish Sugar Company (TURK SEKER) and the state-owned Tobacco Company (TEKEL) were to be privatised, whereas the TMO and quasi-governmental ASCUs, which had previously administered support prices for certain commodities, were to be restructured. ARIP supported the implementation of the 2000 ASCU Law. Prior to this date, most of the ASCUs had been acting as government purchasing agencies, and were highly overstaffed and lacked working capital. It foresaw to lay off, with severance payments, more than half of the workers in the ASCU system (WB, 2001). In addition, TRY 250 trillion was made available from the budget as a credit to the ASCUs in order to increase their working capital.

The third element of ARIP comprised one-time payments to farmers to cover the cost of switching away from crops in excess supply, such as hazelnuts and tobacco, to alternative activities (net imported products). Initially, the programme intended to cover the costs of shifting from producing hazelnuts, tobacco and sugar beet to the production of oilseeds, feed crops and corn. Participation in the scheme has been limited, and is mostly made up of tobacco farmers, as with the privatisation of TEKEL, prices are determined by a bidding mechanism.

The ARIP has been amended and extended to the end of 2008. The amendment included new sub-components such as cadastral works, rural development activities and agri-environmental policies. The ARIP, which is restructured by the ASP, is supported by a World Bank Loan Agreement. Projects started up in this context are: Land Consolidation, Village Based Participatory Investments Programme, Licensed Warehousing investments and the Conservation of Agricultural Lands for Environmental Purposes (ÇATAK). However, the Agricultural Strategy Paper and the 2006 Agriculture Law appeared to re-couple part of the DIS payment, and support linked to production was defined as a key instrument of agricultural policy. As a

result, starting from 2005, the weight of DIS payments in total budgetary support to agriculture has decreased (from 19% of PSE in 2002 to 3% in 2008).

The share of crop-specific deficiency payments and support to livestock production has been increasing. Some concessional credit became available once again in 2004 (about USD 30.5 million in 2004), albeit under strict conditions that it should target producers aiming for higher-quality output, such as those using higher-quality livestock breeds. The new items in the policy agenda, such as the environmental protection schemes, crop insurance support and rural development projects have not been able to have an equal share of funding.

3.3. Price and income support policies

Purchasing prices

Minimum purchase prices exist for cereals, sugar, tobacco and tea. These prices, which are set by the relevant SEE, take into account world prices, the cost of production and domestic market conditions. However, as these prices are generally not announced until well after the planting date – and sometimes after the delivery date – market uncertainty is accentuated and farmers' production plans can be frustrated.

Deficiency payments

Deficiency payments (so called “premium payments”) are provided for the products that are in short domestic supply. The payments are made in the form of a lump sum for every production period. Production costs, domestic and world prices, as well as budgetary considerations, are taken into account in determining the amount of support. Producers of oilseeds, olive oil, cotton and cereals and tea since 2005, and pulses (in 2009) benefit from such payments. As from 2005, there has been a growing interest in producing energy crops in Turkey. In 2010, a “basin-based support programme” was introduced, under which crop deficiency payments are differentiated according to 30 agricultural basins throughout the country. The law requires the Cabinet to determine “the agricultural basins where agricultural production is to be concentrated, supported, organised and specialised according to the regions' ecological conditions”. The boundaries of these 30 agricultural basins were established in 2009, based on a sophisticated model developed by MARA. According to estimates made by MARA, under the new support system total crop production is expected to increase by 7.1 million tonnes more than under the current system, which provides support to 16 crops no matter where they are produced. In particular, the new support system is expected to increase production of wheat and oilseeds, despite the fact that area planted for wheat is estimated to decrease.

Area payments for hazelnuts

“The previous policy was ineffective in controlling excess hazelnut production in areas that were not best-suited to this activity, in terms of environment and quality of production. As a result, an area-based payment to reduce production was announced for 2009-12, replacing previous public intervention measures. The new support system shifts all support to per-hectare payments. Licensed producers will receive about USD 1 000 per hectare for three years (150 TRY/da/year), with compensation of the unlicensed producers being slightly more in the first year of participation. The hazelnut-growing regions are defined at the district level. The government's target is to achieve a fully licensed, high-quality hazelnut production area of 432 000 ha, and to uproot 237 000 ha of un-licensed plantings.

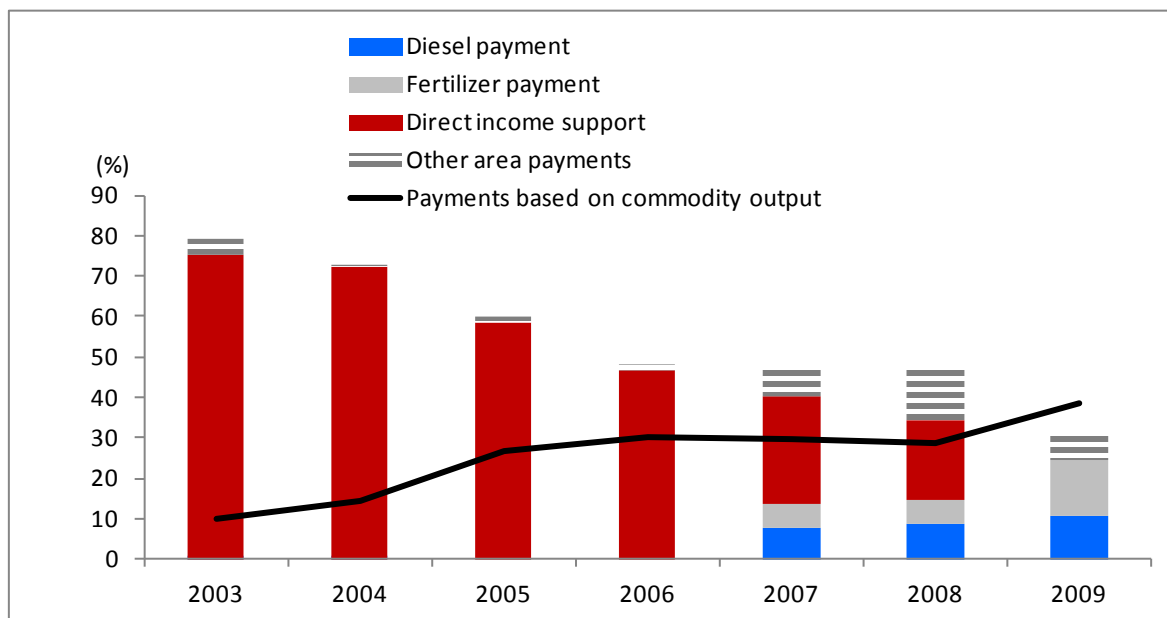
Compensatory payments

Tea growers are partially (70%) compensated for the costs incurred in implementing the strict pruning requirements to control, supply and increase quality. Compensatory payments are also granted to potatoes and livestock producers to compensate for income losses. A new, three-year transitional payment programme aimed at helping farmers switch from tobacco to other commodities was approved in 2009.

Livestock support

Budgetary support is also given to the livestock sector (“animal improvement support”): fodder crops; apiculture; animal health; registration of animals; and protection of animal gene sources. There is also support for dairy premiums and milking units. These support programmes are production-based (per head, litre or kg) or project-based, for fodder crop support. Animal husbandry supports, which were implemented for five year period since 2000, have been implemented annually as of 2008. The share of these two programmes in total budgetary payments has increased from 7% in 2004 to 22% in 2009.

Figure 7. Share of area-based and commodity output-based payments in total payments to farmers, 2003-09



Source: OECD, PSE/CSE Database, 2010.

3.4. Input use policies

Fertilizer and diesel subsidy

In 2003 and 2005 the so-called “diesel” and “fertiliser” payments respectively were introduced for farmers who are eligible for DIS. These payments are based on land area, with rates varying by product groups. The diesel payment varies between TRY 18 (USD 14) per hectare for fruit and vegetable production and can reach TRY 54 (USD 41) per hectare for industrial crops. Fertiliser payments are between TRY 15.5 (USD 9) per hectare for fruit and vegetable production and TRY 30 (USD 23) per hectare for industrial crops. In 2009, each registered farmer under the NFRS received, on average, a “diesel payment” of TRY 29.2 (USD 18.9) per ha and a “fertiliser payment” of TRY 38.2 (USD 24.7) per ha in 2009. The share of these two programmes in payments based on area has increased from 30% in 2005 to 87% in 2009 (SPO, 2010).

Agricultural insurance payments

Prior to 2006, farmers were compensated by government for major income losses due to severe weather conditions (mainly hail) and other catastrophic natural events (Ucak and Berk, 2009). However, from 1957 until 2006 only 0.5% of farmland was covered by insurance and only 9 out of the 62 insurance companies operating in Turkey offered insurance policies for agriculture (Karaca *et al.*, 2010). In 2006, a new, government-supported agricultural insurance system, providing cover for natural disasters, was introduced: it is open to all producers, regardless of the commodity produced and the size of area planted. The scheme covers crops (including crops produced in greenhouses), bovine animals, poultry and aquaculture. Moreover, the system provides coverage for additional risks, such as floods, frosts, fires, storms, twisters, earthquakes, landslides and loss of livestock due to disease or accident. The system mainly comprises an agricultural insurance pool, established by law, and government support for insurance

premiums, as well as support to insurance companies for re-insurance. The agricultural insurance pool is a public body entity, which is operated by a company controlled by a board. As from 1 June 2006, standard policies are issued by 23 insurance companies, which have an agricultural license and are members of the Agricultural Insurance Pool (TARSIM). The level of government support for premiums is determined by the Cabinet, taking into account recommendations from MARA, which is responsible for checking the records in the Farmer Registration System before transfers to the pool can be made. The Cabinet determines the portion of the insurance premiums to be paid by the State. The scheme operates in 807 districts (out of a total of 850) and in 15 860 villages. Over 2006-10, the major share of government support for agricultural insurance was allocated to crop insurance (63%), followed by livestock (31%), greenhouses (4%), aquaculture and poultry (1% each).

Interest concessions

Support to farmers in the form of interest concessions through the Ziraat Bank (TCZB) and the ACCs continue, with a subsidy rate varying between 25 and 100%. The difference between the current rates and the rates applied to farmers, namely income loss, is paid by the Treasury to TCZB and ACC. Agricultural enterprises and farmers are entitled to benefit from interest concessions on loans such as those for good agriculture practices, organic farming, production of organic inputs, production of certified seeds, agricultural research and development, breeding dairy cattle, livestock production aquaculture production, stock farming, irrigation, agricultural mechanisation (except tractors and harvesters), greenhouse horticulture, bulb production for export purposes, production of medical crops, livestock production in specialised industrial zones based on agriculture, milking units and milk-cooling tanks, and animal waste disposal facilities. Credits regarding the pressurised irrigation system (drip and sprinkler irrigation) have been offered by TCZB since mid-2007 and by ACC since the beginning of 2009 with a 100% subsidy rate. For other irrigation credits, the subsidy rate is 60%. As of 1 January 2011, the subsidy rate for other irrigation credits is also increased from 60% to 100%.

3.5. Rural development policies

The main problems facing rural areas are summarised as follows in OECD (2011):

- a poorly educated and skilled workforce,
- an ineffective institutional structure and a lack of efficient farmer organisations (co-operatives, producer unions, *etc.*),
- a scattered pattern of settlement in some regions
- an insufficient development and maintenance of physical, social and cultural infrastructure,
- a high rate of dependence on subsistence agriculture,
- inadequate diversification of agricultural and non-agricultural income-generating activities,
- a high rate of hidden unemployment and low income levels,
- increasing migration (from rural to urban and inter-regional areas),
- and the ageing character of the rural population.

Rural development policies in Turkey have aimed essentially at upgrading the economic and social infrastructure in rural areas in order to raise the rural population's standard of living and reduce the rate of migration to cities. Broadly, policy has focused on: upgrading transport and telecommunication links in rural areas so as to facilitate the flow of goods and services; improving government services in the areas of education, health care and sanitation; and facilitating agrarian reform and encouraging land consolidation.

Traditionally, rural development policy has been under the umbrella of the overall development policy, consisted by large infrastructure projects, under the authority of the SPO. It also comprised sectoral projects, mainly aimed at improving rural and agricultural infrastructure, in order to increase agricultural production and to improve health and education services. Turkey has only lately (end of January 2006) adopted a National Rural Development Strategy (NRDS) developed the first rural development strategy plan for the country, as part of the EU accession requirements. The NRDS forms the basis of the EU

Instrument for Pre-Accession Assistance Rural Development (IPARD). The NRDS and the Law of Agriculture, which describes the basic domestic agricultural policy instruments, form the basis for future agricultural and rural development policies. In August 2010, a new Plan called “Rural Development Plan (2010-13) was adopted as a High Planning Council Decision. The Plan is aimed at familiarising stakeholders with the topic of rural development through monitoring the activities of the government agencies involved in the implementation of rural policies. Currently, the main objectives of rural development policy relate to the framework of integration with the EU, Turkey being a candidate country, and National Development Plans are set so as to: ensure social cohesion and competitiveness by increasing the income level of rural communities; to develop human resources in rural areas through expanding training and participatory organisational approach; and to protect environmental and cultural heritage in rural areas.

The main goal of NRDS is to develop and ensure that the sustainability of the living and job conditions of the rural community in their territory is compatible with that in urban areas, on the basis of utilising local resources and potential, and protecting the rural environment and natural and cultural heritage. The four strategic objectives identified in order to reach this target can be summarised as follows:

- *Economic development and increased job opportunities*, through the diversification of the rural economy and the creation of a competitive agriculture and food sector brought about by: the enforcement of producer organisations, an efficient utilisation of water and land resources, increasing the competitiveness of the Turkish agro-food industry, strengthening of consumers’ rights and improved food safety.
- *Development of human resources*, improving local capacity by strengthening education and health services, combating poverty and increasing the employability of disadvantaged groups.
- *Improvement of rural infrastructure services and quality of life* by investing in rural infrastructure and developing and protecting rural settlements.
- *Protection and improvement of the rural environment* by improving environment-friendly agricultural practices, protecting forest ecosystems and sustainable utilisation of forest resources and the management and improvement of protected areas.

As a candidate country, Turkey is eligible to benefit from the EU’s Instrument for Pre-Accession Assistance (IPA) framework for assistance to candidate countries and potential candidate countries, including the component on Rural Development (IPA Rural Development- IPARD). The programme is of seven-year’s duration – 2007-13. The IPARD Programme for Turkey has been designed by taking into account both the priorities and needs of the country in the pre-accession period within the context of rural development. The programme defines several priority agricultural sectors, such as dairy meat, fruit and vegetables and fisheries, and will be implemented in 42 provinces. More specifically, overall policy aims of the IPARD programme are to contribute to:

- The modernisation of the agricultural sector and processing sectors through increasing efficiency and competitiveness, while at the same time encouraging the improvement of EU *acquis* – related food safety, veterinary, phytosanitary, environmental or other standards as specified in the EU Enlargement Package.
- Capacity-building and preparatory actions for the implementation of agri-environmental measures and the LEADER method.
- Development and diversification of the rural economy, increase of quality of life and attractiveness of the rural areas, counteracting rural out-migration.

The implementation of the Rural Development Investments Support Programme (RDISP) started in 2006 in 65 provinces. The programme has two components: investment support to economic activities

and investment support to agricultural infrastructure. The economic activities component includes investments in: new or unfinished constructions for the storage, processing and packing of agricultural products; capacity increase or technology renewal of current facilities used in connection with the storage, processing and packing of agricultural products; building of greenhouses that incorporate alternative energy sources; and modern pressurised irrigation facilities. In addition, the programme provides support for the purchase of new agricultural machines, new baling and silage machines, pressured irrigation systems and new cold storage transportation vehicles.

3.6. Agro-environmental policies

The development of agri-environmental policies has been limited since 1990, although recently more policy initiatives have been undertaken. In the context of the Turkey's EU accession negotiations, the environment is regarded as one of the most important areas. Under the 2006 Agricultural Policy Strategy (2006-10), the share of budgetary support for agri-environmental purposes is to reach 5% by 2010. The *Environmentally Based Agricultural Land Protection Programme* (ÇATAK) came into effect in 2005, as part of the amended (2005) ARIP programme. It was financed by external sources and it was implemented in four pilot provinces in the years 2006, 2007 and 2008 (25 provinces in 2011). The objectives of the Programme were to protect the quality of soil and water resources in agricultural lands, to ensure the sustainability of renewable natural resources and to decrease the adverse effects of intensive agricultural activities. There are also several initiatives underway to implement various EU Environmental Directives, such as the Habitats and Birds Directive, and the Water Directive.

Economy-wide environmental policies also affect agriculture. The National Environmental Action Plan, which came in force in 1998, provides for national and regional plans to generate information to combat land desertification and reduce discharges of nutrients, and stipulates a number of regulations designed to control water and soil pollution, and protect biodiversity. A Nitrate Directive was adopted in February 2004, as part of the goal to harmonise with EU policies, but there is still a need to define the responsibilities of the organisations defined under the Directive. The Regulation on Water Pollution Control (1988) defines water quality criteria according to the purpose for which the water is destined, including treated waste-water used for irrigation.

The 2004 *Law on Organic Farming* and the 2005 *By-law on Principals and Application of Organic Farming* regulate organic agriculture in a similar way to the EU Regulation (EEC) 2092/91. Up until 2006, no support payments were provided for organic farming. However, the "Farmer Transition Programme", provides financial incentives to encourage farmers to divert from over-produced commodities to alternative commodities and creates an opportunity for the introduction of environmentally benign management practices.

The key environmental concerns relate to: soil degradation, especially from erosion; over-exploitation of water resources; water pollution, including salinization from poor irrigation management practices; and adverse impacts of farming on biodiversity (OECD, 2008a).

The most widespread form of soil degradation is erosion, with approximately 86% of land suffering from some degree of erosion, mainly caused by water. Turkey loses as much as 1 billion tonnes of topsoil annually (MARA, 2007). The main causes of these elevated rates of erosion include: natural conditions, especially climate and steep topography, and mismanagement of cultivated land (e.g. inappropriate tillage; stubble burning; abandonment of rural infrastructure; especially terracing and inappropriate or excessive irrigation); deforestation (forest degradation due to forest fires; over-harvesting; illegal cutting; misuse of fuel wood or clearing of land for farm and urban uses); over-grazing and stubble burning in some regions (OECD, 2008a; MARA, 2007). Other forms of soil degradation are more limited, with an estimated 6% of arable land suffering yield limitation due to salinization, and a further 12% being affected by water logging. Inappropriate irrigation and fertiliser-management practices, as well as excessive water extraction have been important causes of soil salinity in some areas, with the problem rapidly escalating in parts of the area under *South-Eastern Anatolian Project* (GAP) (OECD, 2008a).

There are two aspects to the impact of agriculture upon water resources – agricultural water use and agricultural pollution. Water use is one of the most critical environmental issues facing Turkey. The pressure on water resources is increasing over time, as a result of global climate change; alterations in water consumption habits due to increasing socio-economic development and growing urbanisation; and the increasing demands of agriculture and the tourism industry but – most importantly – from rapid population growth (MARA, 2007). Irrigated agriculture currently consumes 75% of total water consumption, which corresponds to about 30% of renewable water availability (Çakmak, 2010).

Agricultural pollution of water bodies from nutrients is a concern in specific parts of Turkey, such as the Aegean and Mediterranean regions. In agricultural areas, 2.5% of monitoring sites exceed recommended drinking water standards for nitrates in groundwater (OECD, 2008a). Evidence suggests that the uptake rates of nutrient management practices are low, as many farmers have little access to necessary capital for investing in manure storage and other manure treatment technologies, and their knowledge of nutrient management practices is limited.

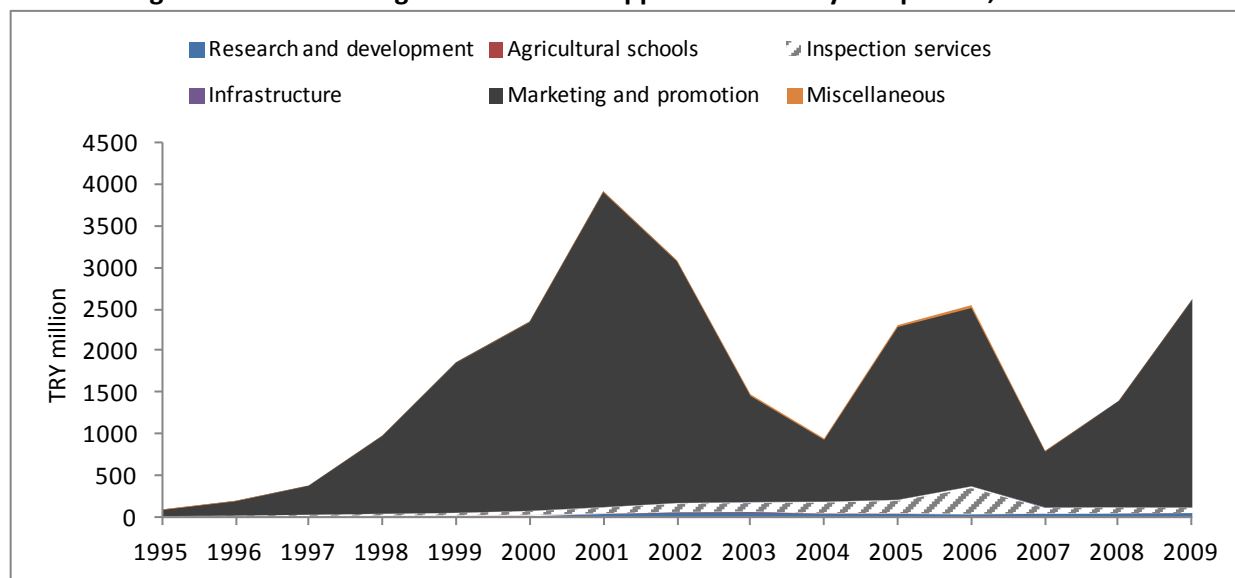
Turkey has a very rich biodiversity, but is coming under growing pressure from agriculture, although the impacts are diverse, complex and poorly monitored (OECD, 1999; 2008b). The increasing pressure on biodiversity mainly due to: intensification in fertile areas, with greater use of agro-chemicals; construction of large rural development projects that alters the ecology of entire regions (*e.g.* GAP); and diversion of water for irrigation to the detriment of wetlands (Redman and Hemmami, 2008). At the same time, there is the loss of some farmed habitats from conversion to urban use, and, in some marginal farming areas, from the afforestation and abandonment of semi-natural farmed habitats to overgrowth, although the overall area of agricultural land has increased since 1990 (OECD, 2008a; 2008b).

Farming accounts for around 6% of total national agricultural greenhouse gas (GHG) emissions (OECD, 2008a). In Turkey the main agricultural and livestock production activities causing GHGs can be described as follows: livestock production; use of fertilisers; stubble burning; and to a lesser extent rice production. Agricultural GHG emission reductions are largely explained by the decrease in cattle, sheep and goat numbers (lowering methane emissions), partly offset by higher fertiliser use and crop production. With the projected expansion of agricultural production up to 2016 and rising direct on-farm energy consumption, it can be expected that agricultural GHG emissions may rise.

3.7. Infrastructure policies

The General Services Support Estimate (GSSE) indicator entails transfers whose aim is to improve the functioning and competitiveness of the agricultural sector. The transfers are non-commodity specific and do not accrue directly to individual farmers and include policy measures, such as investments in research and development, agricultural schools, infrastructure, marketing and promotion, and public stockholding. In Turkey, GSSE support to the agricultural sector has been low and declining in importance over time. The share of support to general services in total support to agriculture decreased from 8% in 1986-88 to 5% in 2007-09, and remained far below the OECD average of 23%. In general, transfers to general services are considered relatively benign, with a potential for distortion that is deemed lower than transfers to producers. By contrast, in Turkey, a key feature of the support to general services is that it has consisted largely of bail-out payments to the SEEs and ASCUs.

In particular, the GSSE is dominated by marketing and promotion, which in 2007-09 accounted for as much as 93% of GSSE. The marketing and promotion category is, in turn, comprised of two elements: i) transfers to ASCUs and equity injection from Treasury to SEEs (80% in 2009); ii) duty loss and debts write-offs. During 1995-2002, these payments never fell below 85% of the GSSE, and over the same period they averaged one-third of total support. Even since the reforms in 2001, the cost of financing these organisations continued to require considerable transfers. More specifically, spending for marketing and promotion rose sharply in 2001 due to duty loss and debts write-offs, and again in 2006 and 2009, due to equity injection from the Treasury to SEEs.

Figure 8. Evolution of general services support estimate by component, 1995-2009

Source: OECD, PSE/CSE Database, 2010.

3.8. Consumer policies

The changes in support to agricultural producers are essentially the result of variations in the gap between world prices and domestic prices, as measured by market price support. These changes are also reflected in the evolution of transfers from consumers to producers, the main component of the Consumer Support Estimate (CSE).

The cost imposed on consumers, as measured by the %CSE, has been very variable over time, with some years higher than the average in the OECD area, and other years lower. It increased from 25% in 1986-88 to 38% in 2007-09. However, while since 2002 the %CSE of the average in the OECD area has declined steadily, for Turkey the trend was upwards. Consumers paid prices in 2007-09 that were 38% higher than world prices, as compared to 25% in 1986-88.

4. Trade policies

4.1. General presentation of agro-food trade

In Turkey, fruits, nuts, vegetables and related processed products comprise 60% of total agricultural exports and a further 20% originates from tobacco, cereals and sugar. On the average, total unprocessed agricultural products account for 45-50% of Turkey's total agricultural exports. Among the processed agricultural commodities processed fruits and vegetables, milled grain products and bakery products constitute majority of the export revenue. Turkey's main importable agricultural products/groups are cereal and cereal products, meat and products, starchy products, animal feed tobacco and tobacco products, animal and vegetable oils, fats and waxes, oilseeds and oleaginous fruits; raw hides and skins, leather and textile fibre scrap comprise the main non-food agricultural imports of Turkey. On the average, unprocessed agricultural products accounted for about 50-55% of Turkey's total agricultural imports. At the specific product base Turkey is a major exporter of dried fruit, tobacco and hazelnuts and her main imports include cotton, soya beans, vegetable oils, tobacco, maize and rice.

The EU is the Turkey's main export and import partner in agricultural sector. Turkey has also important trade relations and a trade surplus with countries in the Mediterranean basin and the Gulf region. The most important trade partner on the import side is the United States, in particular for tobacco and tobacco products, cereals and oilseeds. In contrast to the merchandise trade, Turkey has a trade

surplus with the EU in the field of agriculture. Turkey is the largest producer and exporter of agricultural products in the Near East and North African region.

Over the period of 1986-2010 Turkey is a net exporter in agricultural trade but the trade surplus is quite low in year 2000 and 2008. When the trade relationship with respect to Turkey's main agricultural trade partners over the 2007-2009 period is examined, it is observed that Turkey is a net exporter to the EU (including northern Mediterranean countries) and to Russia and a net importer from the USA and Ukraine. Other than these Turkey's main import markets are Argentina, Brazil India and Kazakhstan and main export markets are Iraq, Saudi Arabia, Switzerland and free zones.

4.2. Trade agreements

4.2.1. Intra MPC trade

Turkey's agricultural trade with the MPCs is shown in Table 8. From 1996 to 2006 Turkey's agricultural exports to these countries have increased but shares of countries in total have fallen in most cases. The only two countries that have slightly increased their share in exports of Turkey are Morocco and Tunisia. This finding applies for total exports as well. The increase in exports to Russia and Middle East countries in the same period might be one of the reasons behind the experienced trend with MPCs.

Table 8. Turkey's agricultural exports to the MPCs

Agricultural Exports (000 USD)			Share in Agricultural Exports			Share in Total Exports		
Countries	1996	2006	1996	2006	Change	1996	2006	Change
Algeria	56,944	111,998	0.85%	0.78%	-0.07%	0.25%	0.13%	-0.12%
Egypt	81,336	109,432	1.21%	0.76%	-0.45%	0.35%	0.13%	-0.22%
EU	3,439,196	7,572,743	51.31%	52.53%	1.23%	14.92%	8.85%	-6.07%
Israel	168,205	182,843	2.51%	1.27%	-1.24%	0.73%	0.21%	-0.52%
Lebanon	49,541	58,815	0.74%	0.41%	-0.33%	0.21%	0.07%	-0.15%
Morocco	8,222	72,799	0.12%	0.51%	0.38%	0.04%	0.09%	0.05%
Syria	125,851	133,522	1.88%	0.93%	-0.95%	0.55%	0.16%	-0.39%
Tunisia	12,389	68,870	0.18%	0.48%	0.29%	0.05%	0.08%	0.03%

4.2.2. Trade agreements with the EU

The agricultural sector was not covered by the Customs Union formed in 1996, but Turkey and the EU have agreed to extend the preferential regime in basic agricultural products with a view to assisting Turkey to adapt its agricultural policy to that of the EU. Since 1998, Turkey has given preferential market access to many EU agricultural products, but for the most part, preferential concessions have been accompanied by a quota limit.

Overall, concessions agreed in 1998, and updated in 2006, are in favour of Turkey. Apart from a full *ad valorem* exemption on almost all agricultural products, Turkey acquired concessions in a number of products including: tomato paste, poultry meat, sheep and goat meat, olive oil, cheese, certain fruits and vegetables, hazelnuts, marmalade and jams in the form of duty exemption/reduction, within tariff quotas or without any quantity restrictions. Roughly 70% of Turkish exports to the EU entered duty free.

Similarly, Turkey has granted concessions to the EU in the form of tariff quotas on live bovine animals, frozen meat, butter, cheese, seeds for vegetables and flowers, flower bulbs, apples, peaches, potatoes, cereals, refined or raw vegetable oil, sugar, tomato paste and some animal food.

Turkey adopted EU's tariff system regarding processed (non-Annex I) products, and aligned its import regime accordingly and introduced separate duties for the agricultural and industrial components of non-Annex I products. Regarding the industrial component, Turkey applies the EU's Common Customs Tariff *vis-à-vis* third countries.

4.2.3. International trade agreements & globalization

Aside from the EU, Turkey has also signed a number of multilateral and bilateral agreements on free trade, defining preferential trade conditions with EFTA, Egypt, Israel, Morocco, Tunisia, Syria, Palestinian Authority, Bosnia and Herzegovina, Albania, Croatia, the former Yugoslav Republic of Macedonia, Georgia, Jordan, Chile, Serbia and Montenegro. In general, tariff preferences on agricultural products granted under Turkey's trade agreements are subject to quotas. Turkey is also part of the Euro-Mediterranean Partnership (Barcelona Process) aimed at establishing a free-trade area in the region.

4.3. Tariff and non-tariff barriers

Tariffs

Tariffs are the main policy instruments of Turkish agricultural trade policy. Within the framework of the URAA in 1995, all border levies were converted to tariff equivalents and bound. Under the URAA, Turkey's tariff bindings had to fall by an average of 24% over 10 years, with a minimum 10% reduction per tariff line. Turkey opted for the minimum 10% reduction on many products, including a number of animal products, tea, most grains, flours and cereal preparations, a few vegetables and nuts, sugar and unprocessed tobacco.

The tariff structure of agricultural products is mostly composed of *ad valorem* tariffs, while non-*ad valorem* tariffs in the form of specific, mixed or compound and formula duties are utilised only to a limited extent. For agriculture, tariff escalation is observed for some products such as edible vegetables and its preparations", while negative escalation is observed for processed dairy, meat and grain products which constitute a significant proportion of all processed agricultural products.

In general, tariff protection for agricultural products is substantially higher than in non-agricultural products (WTO, 2008). The simple, average, applied m.f.n. tariff in agro-food products was 59% in 2007, 42% in 2008, 46% in 2009 and 50% in 2010. Tariff rates on some dairy and meat products were higher than 100% in 2010. Other products with relatively high tariffs include sugar, cereals, and preparations of vegetables, fruits and nuts. Imports of agricultural products, such as live animals for breeding purposes, are duty free, as are cotton, raw hides and skins. In general, Turkey maintains a restrictive import policy for livestock products. In response to high red meat prices in 2009, the government announced a partial lifting of the import ban for live cattle and beef meat.

In addition to the URAA, as a result of the Customs Union between Turkey and the EU, Turkey began, since 1996, to base its tariff on all industrial products and the industrial components of processed agricultural products (imported from third countries) on the EU Common Customs Tariffs, whose levels are far below the rates bound under the URAA.

Table 9. Applied MFN tariffs on agro-food products by HS2, 2007-10 (%) (simple averages)

Code	Product Description	2007	2009	2010
1	Live animals	46	44	54
2	Meat and edible meat offal	138	137	138
4	Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere specified or included	98	109	119
5	Products of animal origin, not elsewhere specified or included	3	2	3
6	Live trees and other plants; bulbs, roots and the like; cut flowers and ornamental foliage	17	18	18
7	Edible vegetables and certain roots and tubers	21	21	21
8	Edible fruit and nuts; peel of citrus fruit or melons	45	42	44
9	Coffee, tea and spices	38	38	39
10	Cereals	48	52	52
11	Products of the milling industry; malt; starches; insulin; wheat gluten	40	40	40
12	Oil seeds and oleaginous fruits; misc grains, seeds and fruit; industrial or medicinal plants; straw and fodder	17	18	17
13	Lac; gums, resins and other vegetable saps and extracts	4	4	4
14	Vegetable plaiting materials; vegetable products not elsewhere specified or included	0	0	0
15	Animal or vegetable fats and oils and their by products; prepared edible fats; animal or vegetable waxes	22	18	22
16	Preparation of meat, fish, crustaceans, molluscs or other aquatic invertebrates	101	101	118
17	Sugar and sugar-based confectionery	71	78	114
18	Cocoa and cocoa preparations	8	8	67
19	Preparations of cereals, flour, starch or milk; pastry cooks' products	9	10	49
20	Preparations of vegetables, fruit, nuts or other parts of plants	54	55	55
21	Miscellaneous edible preparations	12	12	12
22	Beverages, spirits and vinegar	40	41	41
23	Residues and waste from the food industries; prepared animal fodder	9	9	9
24	Tobacco and manufactured tobacco substitutes	36	24	36
41	Raw hides and skins (other than fur) and leather	2	2	0
5002	Raw silk, wool and flax	0	0	0
51	Wool, fine or coarse animal hair; horsehair yarn and woven fabric	4	4	0
5201	Cotton, not carded or combed	0	0	0
5301, 5302	Raw flax and hemp	0	0	0
	Other WTO-agricultural products	na	6	6
	All WTO agricultural products	59	46	50

Source: Undersecretariat of Foreign Trade, 2010.

Sanitary and phytosanitary measures

Sanitary and phytosanitary (SPS) controls are imposed on live animals, and animal and plant products, whether domestically produced or imported. Existing SPS measures are in accordance with the WTO Agreement on Sanitary and Phytosanitary Measures. The *Production, Consumption and Inspection of Food Law*, which has been in force since 2004, is Turkey's principle law governing food. Its aim is to ensure food safety and the hygienic production of all food products and food packaging materials; to protect public health; to establish the minimum technical and hygienic criteria for food producers; and to set forth the principles for monitoring production and distribution. The harmonisation of Turkish legislation on veterinary, phytosanitary and food safety with EU standards is a key objective.

Under the Law on Agricultural Quarantine, live animals (cattle, sheep, goats, cats and dogs) entering Turkey must put into be quarantine for 21 days at the place of destination, or a quarantine centre. The countries from which imports are allowed are determined on the basis of the World Organisation on Animal Health (OIE) disease notifications, and information provided by Turkish representations in third countries. In this regard, food and non-food agricultural imports require control certificates, issued by MARA.

The list of documents required to prove that imports of agricultural products and foodstuffs comply with food safety conditions, and qualify for control certificates, includes: a *pro forma* invoice; original official veterinary health certificate; sample of a *pro forma* health certificate; certificate of origin; test and analysis results; pedigree certificate.

All documents must be obtained from and/or approved by the relevant authorities in the producer country. Documents must be in the language of the country of origin and a translation into Turkish is required. Control certificates must be presented to customs authorities upon import. The period of validity of control certificates ranges from four to twelve months, depending on the product. The importer will normally receive written approval, along with a “control certificate” from MARA, within one or two weeks.

Turkey has signed co-operation agreements to prevent animal diseases from entering the country through trade in, and transit of, live animals and animal products, veterinary medications, fodder and other products that may have the potential effect on animal health. Moreover, bilateral agreements on a product-by-product basis have been signed with Belgium, France, Germany, Italy, the Netherlands, New Zealand, the United Kingdom and the United States, in relation to the use of sanitary and phytosanitary certificates.

Turkey faced its first avian influenza outbreak in October 2005 and further outbreaks have occurred. In order to prevent the expansion of epidemic diseases, including Bovine Spongiform Encephalopathy (BSE), the Turkish authorities are maintaining since 1996 a temporary import ban on live animals (dairy and beef cattle, sheep, goats and poultry) and on meat (beef, sheep, goat and poultry) (WTO, 2008). Turkey’s BSE regulations had allowed imports of dairy and beef breeding cattle from only three countries, Australia, New Zealand and Uruguay. However, Turkish legislation does not permit importation of live bovine animals, beef meat and derivate products from the countries where BSE has been detected.

Export support measures

Export subsidies have not been a major tool in promoting Turkish agricultural exports. The level of commitments for export subsidies in the URAA was low in 1994 and reduced sharply by 2004. Turkey’s URAA commitments on export subsidies include 44 agricultural product groups. Due to budgetary restraints, Turkey generally gives export refunds to only 16 products/product groups (Table 10). Export subsidies are set at 5-20% of the export values, changing between 14% and 100% of the exports of eligible products.

Table 10. Turkey: Export subsidy rates, 2010

Product	Rate (USD per tonne)	Share of exported quantity eligible for the subsidy (%)
Cut flowers (fresh)	205	37
Vegetables, frozen (excluding potatoes)	79	27
Vegetables (dehydrated)	370	20
Fruits (frozen)	78	41
Preserves, pastes	75	51
Honey	65	32
Homogenized fruit preparations	63	35
Fruit juices (concentrated)	150	15
Olive oil	80	100
Prepared or preserved fish	200	100
Poultry meat (excl. edible offal)	186	14
Eggs	USD 15 per 1000 pieces	65
Preserved poultry meat products	250	40
Chocolate and other food preparations containing chocolate	119	48
Biscuits, waffles	119	18
Macaroni, vermicelli	66	32

Source: Undersecretariat of Foreign Trade, 2010.

5. Future prospects

5.1. Agro-food sector outlook

The agricultural policy reforms have brought about important improvements, but the productivity and efficiency of the agricultural sector in Turkey still remain low. This low productivity and efficiency can be attributed to several factors, such as various structural impediments – including socio-economic weaknesses, for example, the large number of small and subsistence farms, use of old technologies, natural conditions, high demographic pressures on land and excess labour – as well as inappropriate policies.

Despite the recent emergence of more commercial and specialised farms, particularly in the Aegean and Mediterranean regions of Turkey, farm structures are dominated by small-sized, family-owned and highly-fragmented farm holdings, using only elementary technologies. On those farms subsistence or semi-subsistence farming continues to be an important feature of Turkish agriculture. The continuation of informal marketing chains and large post-harvest losses are encouraged by this prevailing farm structures which prevent the agricultural sector from achieving its potential growth.

ARIP and the accession process to the EU have been the major contributors to changes in the legislative framework of the sector. There has been an impressive progress during the last decade and various laws and regulations have been introduced as a result of the government's attempts to restructure the agricultural sector. Notwithstanding the decisive steps that have been taken since the implementation of the 2001 policy reforms to address the structural impediments of the sector, ample scope remains for policies to improve the efficiency and increase the competitiveness and market orientation of the sector.

Targeted policy tools to boost productivity growth are not very well developed. For example, while small-scale production is considered to be one of the most important factors undermining productivity growth and the efficient use of resources, agricultural policy instruments cover all farms in the country, and there is no policy instrument specific to small farms. The Law also does not mention any price policy or trade policy which could contribute to the achievement these objectives. Current policy tools, however, also include support for the use of certified seeds and soil analysis to increase productivity and efficiency in the use of variable inputs (*e.g.* inorganic fertilisers). In addition, measures taken to reduce post-harvest losses, such as the implementation of proper handling of the produce and cold chain management of fruits and vegetables are crucial for enhancing productivity.

The role of public and private research and extension in improving productivity and competitiveness is well established. R&D is one of the three issues which are specifically acknowledged in the Agricultural Law of 2006 and all of the associated legislation places specific emphasis on the need to support and invest in R&D.

The large size of the population working on small farms makes consolidation of the agricultural sector socially difficult and this may be one of the factors that make the pursuit of reforms politically challenging. A key aspect to structural change in agriculture is the extent to which small, semi-subsistence farms can escape the vicious circle of low technical efficiency and the lack of technological and educational advancements. Development of the agricultural sector's human capital has remained stagnant, with the vast majority of farmers (78%) having no more than a primary education (or less) and as many as 15% were illiterate in 2009. Improvements in human capital through specific policies to facilitate farm labour mobility are crucial to raising agricultural performance. Training and advisory services need to be upgraded to assist farmers to adopt new, efficient and environmentally-friendly farming practices. There is also a need to create activities in sectors other than farming in rural areas, which could complement revenue from farming activities and gradually ease the demographic pressure on land, while at the same time maintaining the population in rural areas.

In 1999, Turkey was granted the status of candidate country for membership of the EU. Before full membership can be granted, a number of political, economic and legal obligations have to be met such as increasing production through sustainable agriculture; phasing-out existing support policies and replacing them with a direct income support system targeted to low-income farmers; establishing a land register system; up-grading food inspection and control mechanisms; and establishing a clear strategy for phytosanitary conditions.

An indication of the ability of Turkish farms to compete on the EU market can be obtained by a comparison of their respective prices and levels of labour productivity. Turkey's labour productivity in the agricultural sector is lower than that in these EU countries with relatively large agricultural sectors or similar farm structures. Despite the lower productivity the prices received by Turkish farmers are, in general, higher than in the EU. Persistent price differentials over time can be attributed to several factors, including differences in agricultural support policies, quality, transport costs, marketing inefficiencies and transaction costs.

While in the EU agricultural support is increasingly becoming delinked from commodity production and more targeted to stated objectives, support coupled to commodity production continues to be the main policy instrument in Turkey. Bringing Turkey's agricultural policy into alignment with the CAP is a key element in the accession negotiations. But the enlargement of the scope of crop-specific deficiency payments and elimination of DIS under ARIP manifested a major shift in Turkish agricultural policy away from the EU's CAP.

Notwithstanding the apparent divergence of agricultural policies between Turkey and the EU's CAP, an important issue is whether current agricultural policies can help to improve the competitiveness of the Turkish agricultural sector, and thereby ease the adjustment of the sector in the event of accession to the EU. As noted earlier, the reform programme has paved the way towards the implementation of more market-oriented policies.

The competitiveness issue becomes more apparent in the implementation of agricultural trade policy. Import tariffs for most agricultural products in Turkey are higher than in the EU. As the Customs Union with the EU excludes agricultural commodities, bilateral trade is essentially driven by preferential trade agreements between the EU and Turkey. The preferential trade agreement with the EU has not, as yet, been implemented fully, as import protection for some agricultural products has not been reduced. Full compliance with the preferential trade agreement with the EU will also benefit the sub-sectors that are competitive in EU markets and facilitate further economic integration with EU. The EU is Turkey's major trading partner in agri-food products, more in terms of exports than imports and Turkey's competitiveness in fruits and vegetables has been enlarged as is now concentrating on processed products.

Table 11. SWOT chart for the agro-food sector

Strengths
<ul style="list-style-type: none"> ▪ With its young and growing population, both consumption and production of food and beverage is increasing in Turkey. ▪ The Turkish food industry has important export opportunities due to the diverse agricultural products available in the country. ▪ Being a developing country, the GDP per capita is expected to increase in coming years which will also have an increasing affect on consumer spending. ▪ Agricultural sector lends itself to a thriving export industry and reduces domestic processor dependence on imports. ▪ Turkey enjoys an open and increasingly liberal trade and investment climate. ▪ Large, young and growing population, which is interested in new products, western food and drink products, and cafés. ▪ Turkey benefits from membership in a customs union with the EU, making it a very

<p>attractive platform for export-orientated manufacturers.</p> <ul style="list-style-type: none"> ▪ Sufficient varieties and quantities of agricultural production (as raw materials). ▪ Relatively cheap labour force. ▪ Presence of widespread local communication networks and infrastructures. ▪ Sufficient educated and specialized work force for food industry.
Opportunities
<ul style="list-style-type: none"> ▪ Developing markets close to Turkey. ▪ Perspective for EU accession. ▪ An interested young population is open to trying new brands and products. ▪ Growth in the tourism sector also benefits consumption in the food and beverage industry. ▪ Since the market is still not mature, there are many opportunities for new products to enter Turkey. ▪ Disposable incomes are expected to grow considerably over the coming years, which should strengthen per capita food consumption considerably. ▪ The packaged and processed food industries are set to experience considerable growth owing to an interested youthful population that, with higher disposable incomes, is finding itself increasingly time-poor, particularly as more women enter the workforce. ▪ The government's desire to improve the competitiveness of the agricultural sector makes it an attractive opportunity for both foreign and international investors, who are likely to find liberal and flexible legislation in place. ▪ Much less affected by the global economic slowdown on the consumer side than some other high profile emerging markets, Turkey should continue to attract strong interest from multinational companies.
Weaknesses
<ul style="list-style-type: none"> ▪ Per capita food consumption remains fairly low. ▪ A significant proportion of the population still has low disposable incomes, making them highly price-conscious, and limiting audience size for interested investors. ▪ The economically volatile environment affected by the global economic crisis may hinder consumer spending. ▪ Low level of alcoholic drinks when compared with the European countries due to Islamic traditions and the high Special Consumption Tax on alcoholic drinks.
Threats
<ul style="list-style-type: none"> ▪ Insufficient integration and cooperation between agriculture and agro-industry. ▪ Some quality and safety problems in agriculture. ▪ Need to improve the official food control system in line with the EU legislation. ▪ Rather low investments in research and development. ▪ Some technology and capacity utilization problems of food producing SMEs. ▪ The unstable regulatory environment in agriculture also affects the food industry. ▪ High energy and raw material costs have a negative effect on the food and beverage manufacturers' performance. ▪ Ongoing discontent in the global economy could weigh on foreign investment and the export sector.

5.2. Agro-food policies' evolution outlook

Turkey's agricultural policies are evaluated in relation to the principles and operational criteria of transparency, targeting, tailoring, flexibility and equity, which were agreed by OECD Agricultural Ministers in 1998 for the evaluation of reform efforts in OECD countries.

In Turkey producer support is primarily financed by consumers through border protection. Support is also highly cyclical and more variable than in other OECD countries. The wide fluctuations are due not only to financial crises, such as those experienced in 1994 and 2001, and to exchange rate fluctuations, but also to weather conditions and severe droughts. Moreover, the share of the most production- and trade-distorting forms of producer support constitute the predominant form of producer support over the 1986-2009 period, with market price support being the main component, accounting for as much as 88% of producer support in 2009. In sectors such as milk, beef and veal, sugar, barley and other grains, over one-third of revenue originates from policy transfers.

Over this period, the government heavily intervened in supporting the agricultural sector, primarily through input and output price subsidies. Credit, fertilisers, chemicals and seeds were all provided at subsidised prices. Price support was accorded to almost all output markets, except vegetables and most fruits, through intervention purchases, tariff and non-tariff measures (OECD, 1994). Moreover, payments were coupled to commodity production. The financing of the large number of state-owned and state-controlled enterprises was a burden to the overall budget of the country.

The financial un-sustainability of the agricultural policies then in place became evident in the aftermath of the 1994 economic crisis. The government attempted to control the financial burden entailed by these policies by restricting the number of crops qualifying for intervention payments and beginning to phase-out the fertiliser subsidy. By 2000, the state of agricultural policies, in line with the economic policies overall, was in disarray and the Turkish government adopted an ambitious programme of agricultural policy reform, which aimed at dramatically reducing artificial incentives and government subsidies in order to attain fiscal stabilisation and enhance economic efficiency. This reform programme was underpinned by a World Bank loan agreement – the so-called Agricultural Reform Implementation Project (ARIP), which was a major element in the overall structural adjustment programme of Turkey in response to the macro-economic crisis of 1999-2001.

ARIP played a significant role in the fiscal stabilisation programme and was successful in initiating budgetary discipline. Subsidies for fertiliser and pesticides were abolished in 2001 and 2002, respectively, while the phasing-out of credit subsidies was completed by 2002. The agricultural policy reform programme entailed not only the re-instrumentation of policy and a change of policy delivery systems, but also included drastic measures related to agriculture related State Economic Enterprises (SEEs) and quasi-governmental Agricultural Sales Co-operative and Agricultural Sales Co-operative Unions (ASCUs), and several new pieces of legislations came into effect. SEEs were to be restructured and privatised, and ASCUs were to become financially autonomous member-controlled co-operatives.

The DIS scheme also achieved its objective of mitigating potential negative effects on farm incomes following the withdrawal of government support. The DIS scheme was not intended to compensate producers in full for price cuts, or to relieve rural poverty, but rather as a transitional measure to cushion the immediate impact of reform on farm incomes. It has been estimated that, on average, DIS payments compensated farmers for approximately half of their short-term income loss (World Bank, 2004b). An additional benefit of the DIS scheme was the establishment of the National Registry of Farmers (NRF) throughout the country, which was one of the programme's initial objectives and the cadastral work. The NRF has now become as the basic rural database for Turkey. Agricultural tariffs were reduced only for some commodities (*e.g.* grains) in the early years of the reform and Turkey's tariff profile in agri-food products has fundamentally remained unchanged.

Area-based payments were dominant until 2008, commodity output-based payments dominated budgetary payments in 2009. Diesel and fertiliser support are the only major area payments that remain. The number of crops receiving fully coupled deficiency payments (called "premium payments") was increased. Deficiency payments that had been reserved mostly for net imported crops were extended to cereals and feed crops in 2005 and to pulses in 2008. Payments for cotton, wheat, fodder crops, milk, sunflowers and maize producers are among the top-funded, quantity-based budgetary transfers.

The case of budgetary transfers has been further complicated by the introduction of a “basin-based support programme” – introduced in 2010 – which differentiates the crops that will be eligible for deficiency payments across agricultural basins. By differentiating budgetary crop-specific supports across regions, the government aims to change the crop pattern: to increase the production of imported crops (e.g. oilseeds), while decreasing excess supply in some other crops (MARA, 2010). The boundaries of agricultural basins have been defined through the use of a very comprehensive model that takes the most important aspects of the sector into account.

The share in funding for the new items in the policy agenda, such as the environmental protection schemes, crop insurance support and rural development projects, remained relatively low.

6. Concluding remarks

The outcomes of policy reforms in agricultural sector of Turkey were mixed. Over the last few years, the momentum for a complete overhaul of the support system, started in the late 1990s and increased in pace with the creation of ARIP in 2001, to achieve a more competitive agriculture has slowed down and policy emphasis has shifted towards forms of support which are more production- and trade-distorting. The enlargement of the scope of crop-specific deficiency payments and the ending of DIS scheme manifested a major shift in Turkish agricultural policy away from the reformed CAP. Given rising concerns with commodity price instability and food security it is important that policy measures are well targeted to meet these objectives in a cost-effective way. Efforts should continue to transform the remaining SEEs and ASCUs into truly commercial entities with economic viability under more competitive market conditions and to strengthen the legal and institutional framework concerning food safety. Crop insurance policy framework should ensure that such policies do not provide incentives for moral hazard and rent-seeking behaviour.

Priority should be given to building human capital and upgrading the skills of the agricultural labour force by raising educational attainment and skills. Therefore a social market reform is needed as well as the policy reform. Competitiveness of the whole agro-food chain should be the strategic objective and achievement of skilled labour force must be a part of this objective. Institutional reforms to prevent fragmentation of agricultural land resulting from the inheritance laws will be vital. The technologies appropriate for smallholders need to be identified and disseminated among them via better integrated research and extension services. Phasing-out the small, semi-subsistence and low-productivity farming which prevails in many rural areas with more efficient farm holdings is critical for fostering productivity. Post-harvest losses should be reduced through investment in storage, packaging and transport facilities that eliminate the need for the long-term storage of commodities.

Alleviation of the rural poverty should be addressed as an objective through attainment of greater integration of rural areas into the market economy. In addition, alleviation of the rural poverty should be a part of the developing integrated, multi-sectoral regional development plan. Rural development policy in Turkey was based on sectoral projects aimed at improving basic infrastructure in rural areas, including large-scale investment projects. With ARIP a more strategic sectoral approach to rural development was adopted however, this approach should have a stronger bias towards agriculture.

The agri-environmental monitoring system needs to be considerably improved, to help enhance the quality of information for policy makers to evaluate the environmental effectiveness of newly introduced agri-environmental and environmental policy measures. Apart from establishment of agri-environmental monitoring related to irrigation water use and management, and greenhouse gas emissions in some areas, for most agri-environmental issues, monitoring is weak and quality and reliability are poor. The scope of including environmental concerns in agricultural policies should be increased also. Institutions and property rights for water management in agriculture should be strengthened and especially, knowledge and information deficiencies should be addressed so as to better guide water resource management.

This sizeable rural population, together with the declining share of agricultural employment, generate pressure on urban areas in terms of the rapid migration from rural to urban parts of the country. Agriculture continues to be the main source of rural employment, particularly for women. Development disparities between urban and rural areas still prevail, as rural areas have failed to catch up with the rapid development of the urban areas. As the share of agricultural employment declines, the development of off-farm opportunities in rural areas becomes necessary not only for stimulating economic growth in these areas, but also for moderating the pace of rural-urban migration to a more manageable level.

Better co-ordination between the supply and demand of agricultural R&D activities across a wide range of government institutions and with the private sector is needed to improve the capacity to adopt and effectively use technology in the agricultural sector. The regulations have not been effective in transmitting the needs of farmers to the researchers, and, *vice versa*, in passing the research results back to the farmers (Çakmak and Dudu, 2010a). Extension services should help make farmers more responsive to market needs by diffusing information on the products with higher value-added that attract consumer demand, as well as their production technologies.

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