CHAPTER 5

DIETARY PATTERNS AND TRENDS IN CONSUMPTION*

Mediterraneans, particularly those on the southern shores, are facing the major challenge of having to cope with growing food needs, since population growth is only just beginning to slow down now at the beginning of the 21st century. And there have also been unprecedented changes in their lifestyles in the course of the past few decades, particularly in their food patterns, with both favourable and adverse consequences for human health. We perceive only some of the factors characterising these recent changes through current social debates (on fast food, genetically modified organisms or fears expressed in the event of food crises). Yet it is only by taking a comprehensive view of the situation over the long term that we can appreciate the magnitude of these trends and realise that action is urgently needed if we are to correct the current deviations in Mediterranean eating habits. An in-depth analysis of this nature, conducted from both the quantitative and the qualitative point of view, is necessary in order to determine the preconditions for food security and food safety for the populations in the region.

Food consumption and eating habits in the Mediterranean

Over the centuries, the Mediterranean region has created a diet that is unique in its tremendous diversity, the result of the mosaic of peoples and cultures in the region but also of varying purchasing patterns. Rather than standardising eating habits, the blending that has gradually taken place has in fact helped to broaden dietary and culinary repertoires. There are many factors contributing to this diversity of food and diet, but three are of particular significance:

- the extremely varied geographical environments in the Mediterranean Basin;
- the succession of dominant peoples: the Greeks, the Carthaginians and the Romans, who introduced the vine, olives and the fruit and vegetables of the Near East; the Arabs, the Byzantians and the Ottomans, who brought the vegetables and culinary practices of the Orient; and the Spanish and Portuguese, who introduced vegetables from the Americas;

* - This chapter has been based on documents prepared by Martine Padilla (Ciheam-MAI Montpellier).

- the essential role of the towns and ports, which promoted the intermixture of cultures and thus of food patterns. Barring rare exceptions, urban diversity contrasts with a more homogeneous picture in rural areas, where the diet is generally monotonous and often poor.

Features and trends that vary widely from one region to another

Although this historical heritage explains why diets in the Mediterranean countries vary considerably, there are several fundamental features common to all countries. Frugality is the primary factor: although there is abundant food available (2,700 to 3,500 calories per person per day), the primary energy content of food intake is low (only 20% is composed of animal products compared to 40% in English-speaking countries). The bulk of the meal consists of vegetables; fish – in coastal zones – and meat serve to add flavour or are reserved for festive occasions. And vegetables are also used to accompany cereals such as couscous or pasta or constitute the basic ingredients of sauces enriched with olive oil and condiments. Salads (seasoned with olive oil) and fruit are part of all main meals. Cheeses are frequently combined with vegetable dishes. Fresh milk is used very little, but fresh sheep or goat's milk cheeses, cultured milk (labneh, rayeb, ayran, etc.) and yoghurt are staples in all Mediterranean diets. Culinary herbs and spices are widely used as well as acid flavouring, vinegar or lemon juice. Except in Muslim countries, where alcohol is prohibited, beverages consumed during meals consist of wine (often diluted with water) or drinks that are flavoured with aniseed and accompany side dishes.

And last but not least, the fourth common feature is attitude to food. Meals play an essential social role in the Mediterranean region. Eating patterns are marked by a certain form of sociability centred around the three daily meals, which follow a certain ritual marking respect for food and even a food cult. Sharing a meal is a necessary vector of group cohesion, whether it be 'tapas' in Spain, 'tramessi' in Italy, 'kemya' in Tunisia, 'meze' in Lebanon or 'mezelik' in Turkey. Enjoyment of food is thus a subtle combination of dietary practices and cultural expression.

This diet, which is much praised for its nutritional and organoleptic qualities as well as its social role, has inspired many international and national recommendations and was officially recognised as an international reference by the WHO in 1994 (Willet, 2003); it is referred to by specialists as the Cretan model of the 1970s following the famous international study by A. Keys (1986).[1] For it was in Crete or, more generally, in Greece that the connection between dietary characteristics and the health of the population (lower incidence of cardiovascular disease, lower cancer rates) was established and recognised.

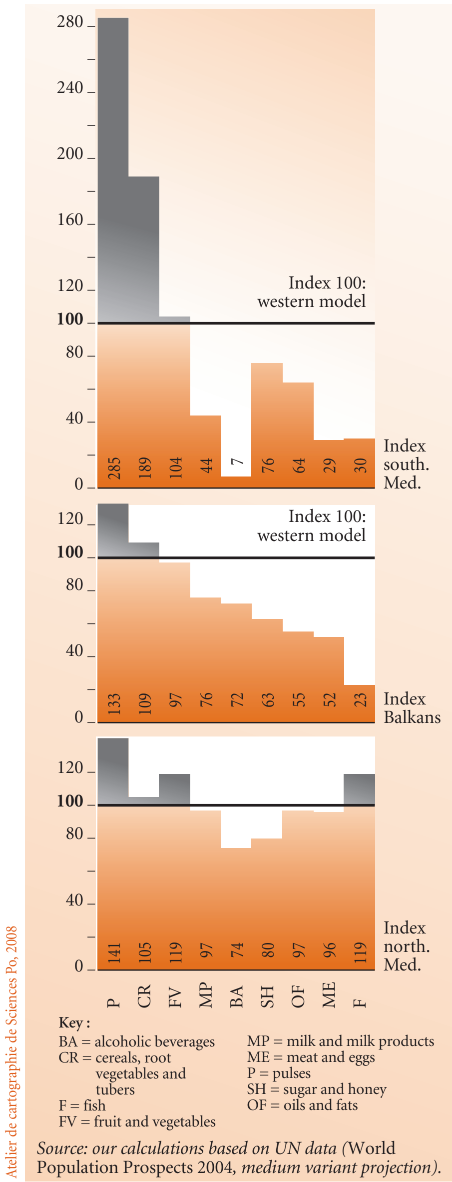
Marked regional contrasts

There is still a contrast in food intake structure between the countries on the northern shores, the Balkan[2] countries, and the southern-shore countries. The diet in the latter countries is mainly vegetarian (10% or less of the calories are of animal origin); cereals are the basic ingredient and are complemented by pulses, which have a high protein

1 -Ancel Keys published the results of his "seven countries" study in 1986, showing a north-south gradient for the connection between the rate of cardiovascular disease and food intake.

2 - It is interesting to draw up a comparison of dietary patterns showing the differences between the Balkans and the northern and southern shores of the Mediterranean.

Chart 1 - North-South-Balkans comparison of Mediterranean diets, 2003



Source: our calculations based on UN data (World Population Prospects 2004, *medium variant projection).*

content. Food intake in the riparian countries in the North has a high animal product content and, expressed in plant equivalent, is twice as extravagant as the southern diet (see Table 1). The structure of this food intake is very close to the western model, the only difference being that it contains more fish and pulses and less carbohydrate. The Balkan countries have an intermediate food intake structure situated between the structures of the North and the South: intake is richer in animal products compared to the South and also contains more cereals and pulses than in the North. The final food intake is lower in the Balkans than in the southern-shore countries, not to mention the European Mediterranean countries (see Chart 1).

Drift of the health model in the North and aggravation of food imbalances in the South

Food patterns in the northern-shore European countries were very close to the Greek model in the 1960s. but this is no longer the case at the beginning of the 21st century: the daily energy intake has increased considerably (in 1960 the dietary energy supply was between 2,500 and 3,000 kilocalories per person per day, whereas in 2003 it was between 3,300 and 3,800 kilocalories). There are three trends which can be identified here:

- a tremendous increase in the consumption of lipids, which is explained by the higher consumption of animal fats (dairy products and meat, consumption increasing as living standards rise), but even more by the consumption of vegetable oils used for cooking and seasoning or included in various industrial foodstuffs;
- an increase in the consumption of simple carbohydrates, connected in particular with the consumption of beverages and foodstuffs with a high carbohydrate content, and a simultaneous decrease in the consumption of starches (bread consumption has dropped by half in the last 50 years in France, and potato consumption has dropped by two-thirds over the same period).

Table 1 - Structures of food intake, 2003

Regions	Intake in final kilocalories	% of animal calories	Intake in plant equivalent*
Northern Mediterranean	3,577	30	9,990
Balkans	2,772	24	6,820
Southern Mediterranean	3,231	10	5,157
OECD countries	3,510	31	9,996

Source: our calculations based on FAO figures.

* Intake in plant equivalent = number of plant calories + (number of animal calories x 7).

The regional structures are as follows for this table:
Northern Mediterranean: Spain, France, Greece, Italy, Portugal.
Southern Mediterranean: Algeria, Egypt, Jordan, Lebanon, Morocco, Syria, Tunisia and Turkey.
Balkans: Albania, Bosnia-Herzegovina, Croatia, FYROM, Serbia, Slovenia.
OECD countries: average excluding the so-called countries of the South (South Korea, Mexico, Turkey).

> There has been little change in the total protein content, but the share of animal proteins is increasing to the detriment of vegetable proteins (dried beans, cereals).

This change in diet is a universal trend, which often goes hand in hand with economic development and the urbanisation of societies. It is the result of the dual phenomenon of the spread/imitation of the dominant dietary model of the English-speaking countries, but also of the globalised economy, in which the traditional Mediterranean sectors have become less competitive, to the advantage of the agro-industrial systems, which are dominated by better-equipped countries. Since the 1980s, the trends in lifestyle and their corollaries (radical change in eating patterns and industrialisation of consumption) have been very closely connected with the Mediterranean countries' integration into the European Union. With the growing number of women on the labour market, family recomposition and the increasing number of people living on their own, processed foods (ready for cooking) or prepared foods (ready for consumption) have become extremely popular. Mediterranean dishes, which require fresh ingredients and preparation, have been abandoned, on the other hand, since they are regarded as incompatible with modern working life.

In the southern Mediterranean countries, the available food supply has increased considerably over the last 40 years with an average increase of 800 kilocalories per person per day. The efforts made have been considerable when one bears in mind the population growth rate over the same period. But the food model of these populations seems to be departing from the Mediterranean model, although one still cannot say that the diet is becoming westernised. Greater emphasis on the major components (cereals and pulses) is in fact observed as well as a comparatively high level of consumption of simple sugars. Food diversity is inversely proportional to the share of cereals in food intake: the higher the cereals intake the lower the amount of energy derived from fruit, vegetables and fish (foods that are highly recommended). The progress made in meat and milk production is often cited in these countries. yet there has been little obvious effect on the increase in animal product consumption in relative terms, since it is still very low: meat consumption amounts to approximately 20 kg per person per year in Egypt, Morocco and Turkey (compared to over 100 kg in France and Spain). Economic conditions have no doubt been inconducive to the dietary development it was hoped these countries would achieve. While more modern culinary practices have been adopted in urban areas, the diet in the South of the Mediterranean Basin is still very traditional.

Comparison of the food situation in the Balkans in 2003 with the situation in 1963 reveals marked deterioration on the whole: all products seem to be less available, with the exception of animal products and fruit and vegetables, as well as foods obtained from domestic production for own consumption. Observation of the trends in the nutritional components of food intake reveals major disparities: whereas nutritional balance in Bosnia, and in particular in Croatia, has deteriorated considerably, Yugoslavia and Slovenia show a relative balance, and there has been slight improvement in Albania and the FYROM – but at levels well below a balance. Even though the Balkan diet seems to be diversifying to some extent and coming closer to the ideal Mediterranean model, there are signs of generalised poverty.

Dietary preferences dictated by a new lifestyle, which is becoming urbanised

Consumers are social beings and their behaviour seems to be influenced to a large extent by their links with the social and economic environment in which they are living. This results in constraints or opportunities and considerably influences the structure of food demand. There are six major variables which can be cited to explain these changes in community environment and thus in dietary patterns:

- *Urbanisation*. There has been considerable redistribution of the population in the past few years with a high migration rate to major urban centres. Since local or imported industrial products are circulated in urban areas, urban consumers are more receptive to Northern consumption patterns.
- *The population in the South is mainly young*. By 2020, 36% of the population in the South will still be under 20 years of age compared to 20% in the North. It is a well-known fact that young people who are going through the phase of a break between generations are more open to media influence and fashion trends and that they cultivate a certain degree of ambiguity between modern food which has a social identity appeal and traditional food.
- *Growing participation of women in economic life*. Mediterranean women, for whom it was traditionally status-enhancing to give of their time and to provide quality food for their families, are now becoming integrated into working life. More and more women are working outside the home (7% in Jordan, 17% in Algeria, 24% in Tunisia, 29% in Morocco, 43% in Turkey), either by choice or by necessity, and the time constraint can become as important as the income constraint in explaining the change in domestic consumption, if not more so. Mediterranean dishes are considered to be incompatible with modern working life and are reserved for special occasions. However, Mediterranean women are still very influenced by the cultures of their patriarchal and hierarchical societies and seek to preserve their image of "nourishing mother", even

in their processed food demands (foods that are ready for cooking or ready for consumption). Although they are using more and more pre-prepared foods with which they can save time, they are reluctant to purchase food that is ready for eating, because it deprives them of their prerogatives and personal "brands" (Padilla, 2000).

- *Fewer household members, fewer generations living together, and desocialisation.* Urbanisation and the fact that people are engaging in several activities, often because they have no other choice if they want to have a decent standard of living, explain why nuclear families are forming. The number of children per family is decreasing as the level of education of women gradually rises. In Tunisia, there were 2 children per woman in 2000, compared to 7 in 1960, and in Egypt, the number of persons per household dropped from 5.2 to 4.3 in the 1990s (Soliman, 2001). As households diminish, modernity spreads and notions of commensality change, with equal purchasing power people are tending to opt for more processed foods and more so-called superior foodstuffs (meat, milk products, fruit and vegetables).

- *Organisation of working time.* In urban areas, the non-stop working day, which is now widespread, and/or the fact that people are engaging in several activities have resulted in the growing use of institutional catering, fast-food or street food. This type of food must not be stigmatised in the countries in the South, however, for it is often still traditional, as is the case with the cosharies in Egypt or the mahlabas in Morocco.

- *The collective environment.* With the spread of compulsory schooling the collective environment is gradually replacing the traditional family group, and this is happening at an increasingly early stage in people's lives. Young people's tastes are now formed essentially outside the family, where food is simplified and industrialised and rarely reflects Mediterranean traditions.

Although this brief description of the major changes that are taking place in the consumer environment might suggest that modernism is now apparent in the South, it is only relative, for the majority of the population is still often living in hardship. Few really have access to the so-called modern distribution chain, and in particular to the large-scale retail trade, which was far removed from daily realities in southern Mediterranean countries for many years – it was not until 1990 that it become established in Morocco, 2001 in Tunisia and 2006 in Algeria. And despite the fact that it is spreading it accounts for less than 10% of the retail trade in the South! On the other hand, trade liberalisation has meant that food products from local industries or imported foodstuffs are now distributed widely in traditional corner shops. One quite frequently sees fizzy drinks served with couscous, for example, even in rural areas.

Overall drop in the consumption of traditional products

While the quantities of traditional products consumed are decreasing on the whole, particularly in urban areas, consumers are nevertheless still attached to them, as is evidenced by continuing consumer confidence. As far as milk products are concerned, for example, almost 90% of urban households in Morocco still buy lben regularly, a moderately priced product that is readily available, 30% buy beldi butter, despite the fact that it is expensive, and in urban areas 60% of the households included in the survey make raib at home (Benjelloun *et al.*, 2006). In Turkey, almost 95% of households buy

The large-scale retail landscape in the Maghreb

There are currently four companies which share the modern food distribution market in Morocco. Marjane Holding, the oldest, is also the most powerful, since it is a subsidiary of Omnium nord-africain (ONA) and (since 2001) of the French group Auchan; it employs almost 4,300 people throughout the country. The first Marjane hypermarket was opened in Rabat in 1990, and the group has since then been covering the territory with no less than 12 chain stores (two in Casablanca and Rabat, one in Agadir, Tangiers, Fez, Mohammedia, Meknes, Marrakech, Tetouan and Ain Sebaa). In addition to these hypermarkets Marjane Holding also controls and operates some 20 supermarkets under the trade name of Acima. Metro Maroc (formerly Makro, taken over by the German company in 1997) ranks second with its six cash-and-carry stores. Label Vie, which belongs to the Moroccan group Hyper SA, is the third leading commercial company with some 10 supermarkets. The fourth and last company is Aswak Assalam, which belongs to Chaabi, the Moroccan group, and has three hypermarkets including one which has been operated under the trade name of Géant in partnership with the French firm Casino since 2004.

In Tunisia, the large-scale retail trade appeared on the scene in April 2001 with the establishment of a Carrefour hypermarket at La Marsa, situated on the well-to-do fringe of the capital. The French group has gone into partnership with Ulysse Trading and Industrial Companies (UTIC), which is owned by Taoufik Chaïbi. This spectacular breakthrough is causing rapid restructuring of the commercial landscape in Tunisia, and in particular of the retail trade dealing predominantly in food products, which is now focused around three main players: the UTIC with its Carrefour hypermarket and further 44 supermarkets (operated under the trade names of Champion and Bonprix), the Mabrouk group with its 39 supermarkets (Monoprix, Touta) and in particular its Géant hypermarket, which opened in September 2005 in partnership with the French group Casino (located north of Tunis on the Tunis-Bizerte motorway), and, finally the state-owned Magasin général (44 supermarkets), which is due to be privatised shortly in order to form a really competitive third pole. And finally, Promogros is a special case, since it operates in the semi-wholesale trade.

In Algeria, Carrefour was thus the first large-scale retailer to become established in the country, opening its first hypermarket there in January 2006. The group seeks to take advantage both of the Algerian economy's recent good health and of the absence of direct competition in the field. When opening this first hypermarket in Algiers the French group opted for a partnership solution with Arcofino, an Algerian group specialising in insurance and the property market. Carrefour then invested in Ardis, a new company which was set up and which is now the distribution branch of the Arcofina holding. The French group, which already operates in Egypt, where it has three hypermarkets, and in Tunisia, now has great expectations for Algeria, the capital and the city of Oran being the main zones targeted, and 16 new commercial structures could be built by 2015. Competition may well arrive earlier than expected, however, given the declared intention of the Algerian groups of Blanky and Cévital to step into the commercial breach in the large-scale food retail trade (Blanky is planning a new Promy Plus supermarket chain, and Cévital is planning a network of cash-and-carry stores).

Source: Padilla and Abis (2007).

feta cheese, 72% buy kashkaval, 82% buy traditional yoghurt and those who do not buy it make it at home; the same applies to ayran, which 95% of households prepare at home (Hassainya *et al.*, 2006). There are numerous other examples. Of all the countries studied, Tunisia is without doubt the country which has entered urban modernity most decisively: while 47% of households buy traditional leben, only 25% continue to buy raib and only 10% buy smen (Khaldi *et al.*, 2001).

It would be an exaggeration to say that people have lost interest in traditional products, but the occasions on which such products are consumed have diminished. These foods are reserved for certain dishes (such as couscous), religious feasts (such as Ramadan) or festive occasions and are less frequently consumed because the opportunities for consuming them in the family are decreasing as urban lifestyles develop and people are obliged to eat outside the home, as is evidenced by the proliferation of traditional eating houses (such as the mahlabas in Morocco) and the fact that young people frequently consume raib as a snack.

The opposite trend is observed in Albania, where the consumption of traditional products is booming. After a long period of shortages, the opening of the country has brought an "invasion" of both imported and local products. The privatisation of collective estates has boosted local supply. Albanian consumers are still persuaded that Albanian products are fresher and made with natural milk (Gjergji, 2000).

Traditional products can also be harmed by a shift in demand (to varieties or types of product that are geared to the international market) or by awareness of the pollution of the water used for producing them. In Egypt, for example, there has been a drastic decrease in the consumption of leaf vegetables, which along with cereals have been the mainstay of the traditional diet and are widely known to contain protective nutrients.

As urban populations grow, non-domestic consumption increases under the dual constraint of time and budget. The fast-food industry has exploited this market niche by responding to the dynamic trend in demand for products that were formerly rare and foreign – high-carbohydrate, high-fat foods, which are palatable and rapidly bring the sensation of satiety (pizza, fried chicken, hamburgers, similar Mexican dishes) (Smil, 2000).

Pleasure aspect still important

Mediterranean consumers are still particularly concerned about product quality. They are very aware of the hygiene aspect and the risks of faulty preservation and sometimes of fraud. But "quality" is not limited to health aspects for Mediterranean consumers; taste, flavour and perfume still influence consumer behaviour to a large extent, since they are the main factors of confidence in products and distribution networks (Padilla *et al.*, 2006). Mediterranean consumers are thus very loyal to the brands and products they know. They have great faith in European brands, a fact which local industrialists have turned to their advantage by imitating brand names and designs. Where there is no brand name, consumers tend to trust local shopkeepers with whom they have neighbourly relations and are on familiar terms. In Egypt, since the cold storage chain has not been adequately complied with, consumers are no longer so trusting, however. Those with higher incomes have turned to the so-called modern distribution chain, although the "bakala" (corner shop) culture is still very widespread in the lower income brackets due to the personal customer-shopkeeper relationship that has been entertained for many years.

Strong cultural identity

Food is an important cultural factor, often fulfilling an economic, social, ceremonial and religious function. Sharing food ensures social cohesion, and both the foodstuffs used and the specific preparation methods are still status symbols and part of cultural and/or religious identity. The communities around the Mediterranean, whether urban or rural, share strong attachment to tradition and ritual, which even the humblest households follow in certain circumstances. While the food industry in northern-shore European countries is responding to a great extent to the demand for traditional products, the supply is very limited in the South, with the exception of Turkey, where these products have found their place in modern food markets (Hassainya *et al.*, 2006).

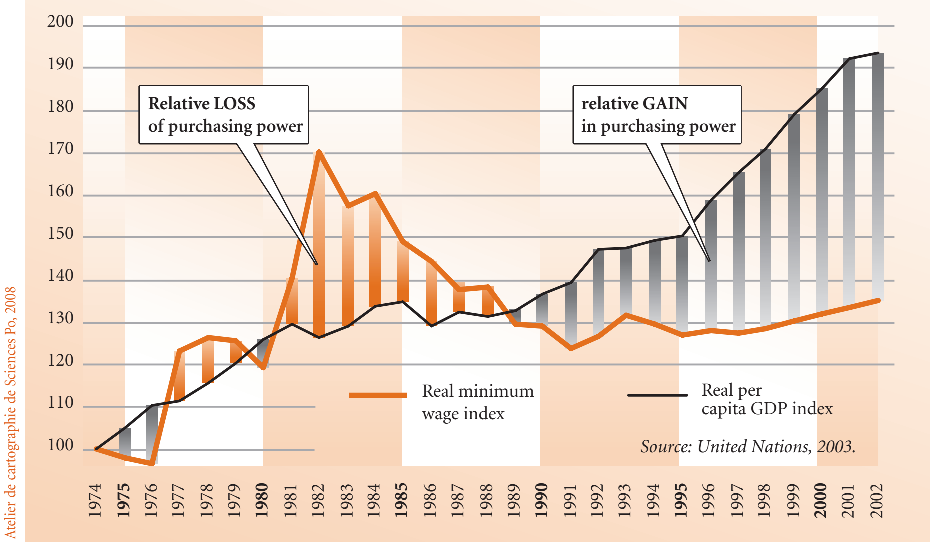
A relative drop in purchasing power and greater disparities

The eradication of poverty and hunger is the first of the eight Millennium Development Goals, an objective which recognises how closely the standard of living and the satisfaction of food needs are connected. According to the classical liberal creed, opening markets should raise living standards both as the result of competition, which boosts productivity, and by the "law of interconnected vessels", i.e. a levelling of developed and less-developed zones. The economic realities of the last 15 years seem to contradict this assumption. The evolution of wealth evaluated as per capita GDP in terms of purchasing power parity shows that the gulf between North and South in the Mediterranean region is still just as wide. Some southern-shore States are richer than they are developed, for poverty has sometimes increased, particularly in rural areas, as the result of structural adjustment plans and the increase in underemployment.

A clear distinction must be made in particular between the average level of wealth per capita and the level of purchasing power. A study conducted by the UN Resident Co-ordinator's Office in Tunisia reveals that purchasing power has dropped even further since 1990, particularly in the case of low wages. The working population has not benefited to the full from the growth that has been registered over the past decade and the general improvement in income levels in the country. As the result of the loss of low-wage purchasing power which followed the adjustment period, wage earners' pay conditions (inter-trade real minimum wage) are lagging far behind the improvement in wealth in the country (real per capita GDP). A similar trend in living conditions and wealth distribution has been observed in all of the countries of the South since the structural adjustment period (see Chart 2).

No accurate study of food purchasing power in the various Mediterranean countries has as yet been conducted, although it is a subject which certainly ought to be analysed. Comparison of real food purchasing power in paid-working-hours equivalent (hours paid at the minimum rate) in France (SMIC) and Algeria (SNMG) (see Table 2) shows that food is systematically more expensive in Algeria, particularly in the case of processed products: milk, olive oil, canned foods, coffee and pasta can be considered luxury goods. Meat is five to ten times as expensive there as it is in France. Even common fresh products such as tomatoes are twice as expensive, and imported apples are unaffordable for the majority of the population. Bread, which is still subsidised in Algeria, is the only product where price levels are comparable to those in France.

Chart 2 - Trends in per capita wealth and purchasing power in Tunisia, 1974-2002



Food security ensured but food quality a weaker point

The southern and eastern Mediterranean countries (SEMCs) are only just overcoming food insecurity or still have pockets where the food situation is precarious, particularly in peripheral rural zones that are situated in enclaves or have been the victims of economic marginalisation. In the south of France it was not until the 1920s that the population no longer sought to economise on food; in Italy or Spain, this was not the case until the 1950s, and in Portugal and Greece the 1960s (Malassis, 2000). In the early 1990s, food consumption in the Maghreb and Mashraq countries barely exceeded what was necessary for covering the estimated nutritional needs, leaving large fringes of the population in difficulty.

Active policies to improve the supply of agricultural commodities and to enhance purchasing power by controlling prices and introducing subsidies for staples in the 1970s and 1980s resulted in a marked increase in average food intake in quantitative terms. So what is the situation now that subsidies have been abolished and internal markets have been opened to products from the rest of the world? Has this actually improved food security for the populations concerned?

Moderate food insecurity in the Mediterranean region

The SEMCs do not belong to the group of countries with high food insecurity such as sub-Saharan Africa (2,260 kilocalories per capita per day). The average food resources for the 2001-2003 period were between 3,000 and 3,400 kilocalories per person per day,

Table 2 - Comparison of purchasing power in minimum-wage-hours equivalent in France and Algeria, 2005

	Unit	Purchasing power	Purchasing power
Bread	250 g	8’	5’ (1)
Pasta	Kg	48’	5’ (1)
Beef and veal	Kg	11h 50’	2h 24’ (1)
Mutton and lamb	Kg	11h 50’	1h 58’ (2)
Canned tuna	200 g	1h 45’	13’ (2)
UHT milk	Litre	1h	5’ (1)
Olive oil	Litre	4h 48’	51’ (1)
Table oil	Litre	1h 22’	13’ (2)
Butter	250 g	30’	12’ (1)
Sugar	Kg	43’	11’ (2)
Coffee	250 g	1h 16’	12’ (1)
Mineral water	Litre	26’	3’ (1)
Tomatoes	Kg	50’	26’ (2)
Lettuce	per unit		10’ (2)
Potatoes	Kg	2h 28’	17’ (2)
Oranges	Kg		16’ (2)

Source: our calculations based on our surveys; TAHINA in the case of Algeria
Our calculations based on INSEE data: (1) = March 2006; (2) = May 2006

In Algeria, the minimum wage (SNMG) = DA 57/hour, July 2005
In France, the minimum wage (SMIC) = € 7,61 in 2005, € 8,03 in 2006; source: INSEE.

except in Jordan, where the average energy intake is much lower. This daily available food supply is still higher in the EU Mediterranean countries, although the difference between the two shores has been reduced compared to the early 1990s. Furthermore, there is no extreme poverty in the SEMCs, and the incidence of major infectious diseases is now very low (see Table 3).

Algeria, Egypt and Morocco present the weakest indicators in the zone with regard to the economy, education (literacy rates of 30% to 40%) and health (the infantile mortality rate is close to 40‰ compared to 20‰-30‰ in the other countries of the South and 4‰-5‰ in Mediterranean Europe), a fact which creates a certain degree of vulnerability regarding food. There is still a real problem of undernourishment in these countries, concerning 3%, 6% and 7% of the population respectively. On the other hand, the rate of stunting amongst children under five years of age, an indicator of major vulnerability, is very high in many countries in the South: 18% in Algeria, 21% in Egypt, 12% in Lebanon, 24% in Morocco, 12% in Tunisia, and 16% in Turkey (SCN, 2004). Whereas undernourishment (quantitative deficit) is less marked in the southern Mediterranean region compared to other zones such as sub-Saharan Africa, the number of malnourished persons (quantitative deficit) is unfortunately rising in absolute values, although only a small proportion of the population is concerned: it is estimated that 4 million people are now suffering from malnutrition compared to 2.9 million in 1990.

Food insecurity is not an exclusive feature of the countries in the South, however. The poverty rate in the northern Mediterranean countries is levelling off above the European average, which has been 15% over the last decade. Taking the European ‘poverty line’

Table 3 - Available food energy (kcal/caput/day)

Country	1990-1992	2001-2003	Average annual growth over the period
Algeria	2,920	3,040	0.37
Egypt	3,200	3,350	0.42
Jordan	2,820	2,680	- 0.46
Lebanon	3,160	3,170	0.03
Morocco	3,030	3,070	0.12
Syria	2,830	3,060	0.71
Tunisia	3,150	3,250	0.28
Turkey	3,490	3,340	- 0.4
Israel	3,410	3,680	0.7
Cyprus	3,100	3,240	0.4
France	3,540	3,640	0.25
Portugal	3,450	3,750	0.76
Italy	3,590	3,670	0.2
Spain	3,300	3,410	0.3
Greece	3,570	3,680	0.28
World	**2,640**	**2,790**	**0.5**
Developing countries	**2,520**	**2,660**	**0.49**
Sub-Saharan Africa	**2,170**	**2,260**	**0.37**
Asia and Pacific	**2,710**	**2,670**	**0.56**

Source: Faostat 2006.

criterion[3] as a basis, all of these countries fare poorly: 34% of the population is deemed poor in Greece, 26% in Spain, 8% in France, 21% in Italy and 40% in Portugal! It is not known what effects this has on food consumption levels; it is only known that the consumption of expensive foods such as fruit and vegetables, meat, and milk products is very low in these socio-economically weak population segments, whereas the consumption levels for cereals, oils and fats and carbohydrates are high (Darmon, Ferguson *et al.*, 2002).

Food security at the price of energy surpluses or deficits in local production

The ability of countries to feed their populations is often assessed in monetary values for lack of concrete information in the form of quantitative data, and this distorts the results to some extent in view of dollar exchange rates. The FAO has recently published

3 - Poverty in Europe is measured in terms of the average per capita income threshold, equivalent to 50% of the European median income (Eurostat, Community Household Panel, 2000)..

very realistic data on per capita production expressed in kilocalories. This data can be compared with domestic food availability in order to evaluate the deficit in kilocalories. Three of the Mediterranean countries – Malta, Libya and Jordan – have very high deficits (over 2000 kilocalories per person per day); three others – Israel, Algeria and Lebanon – have deficits close to 1,500 kilocalories per person per day, and four – France, Spain, Greece and Turkey – are clearly in a position to feed their populations.

There are three comments which should be made here:

- All of the countries without exception – even those which have high surplus production – import large quantities of cereals for seeds and fodder as well as oil products to cover the food industries' intermediate good needs. The volume of these imports is considerable and can by far exceed human food availability in energy terms. The question thus arises of how rational a food system is where one incurs massive debts in order to feed animals, which, when all is said and done, could graze in large natural pastures as they did in the days when pastoralism was customary practice.

- France is an exception in this context, since the country exports almost half of the agricultural energy it produces. Several other countries have also resolutely embarked on an export drive, but to a lesser extent. Cyprus, Spain, Italy and Sicily all have surplus production and export approximately 20% of the calories they produce. Israel and Lebanon do likewise, but have major overall deficits.

- Jordan is the most extreme case: while the country has a per capita deficit of over 2000 kilocalories per day, it exports the equivalent of 161% of its calorie output! Conversely, Jordan imports the equivalent of 6,500 kilocalories per person per day (see Map 1).

Is food safety deteriorating?

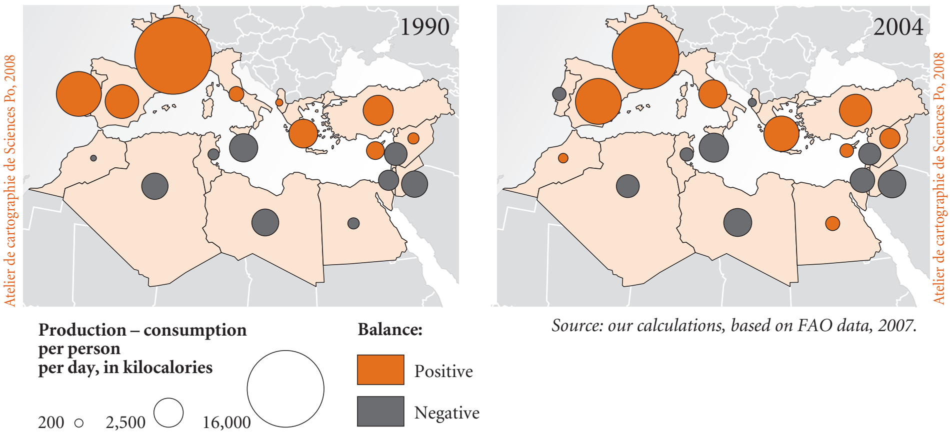
The Mediterranean countries are reputed for their healthy and balanced diet. Although progress has undoubtedly been made as regards the quantity of food available, can the same be said for food quality? In order to answer this question a food quality indicator (FQI) has been constructed, which includes a number of recommendations that have been issued (see Table 4) concerning the daily intake of certain foods or the proportions of nutriments to be respected in daily intake.[4] The FQI is the sum of a series of scores that are attributed according to consumption level per type of foodstuff compared to the quantity recommended. The lowest score indicates the intake that is most beneficial for the health and most preventive.

Using this table of scores we have calculated the FQIs for the Mediterranean countries over the period from 1960 to 2000 (see Chart 3 and Table 5).

The table shows quite clearly that, although the situation in the Mediterranean countries is not disastrous (no FQI below 4), it is worrying, since there is a marked drift in the number of countries with a good or very good FQI in 1960 towards average or even poor FQI levels by 2000. The overall situation is shifting from a wide variety of situations to a more homogenous situation but with lower quality levels. There are two aspects of major concern:

4 - National Research Council of the American Health Association and Joint FAO/WHO Expert Committee (2003).

Map 1 - Per capita food surplus or deficit, 1990-2004



Source: our calculations, based on FAO data, 2007.

- an increase in the consumption of lipids, particularly saturated fats, due essentially to the increase in the consumption of meat, dairy products and industrialised products (in which a large quantity of palm or copra oil is used); in 1960, there were three Mediterranean countries which had a poor score for saturated fats (Albania, France and Malta), but by 2000 there were seven (Albania, Spain, France, Greece, Italy, Malta and Portugal);

- there has been a very marked deterioration in the scores for complex carbohydrates (components of carbohydrates such as those contained in cereals) due to the sharp increase in the consumption of simple carbohydrates, particularly those contained in processed products (beverages, biscuits, desserts, etc.). Whereas there was only one country with a poor score in this field in 1960 (France), there were 9 in 2000 (all of the European Mediterranean countries plus Malta, Tunisia and Lebanon)!

Variety of intake is a further important aspect of food quality. The quality of food is necessarily inversely proportional to the share of cereals in intake. That share is 47% in Turkey, 61% in Morocco and 66% in Egypt (FAO, 2001), which means that there is very little variety in food intake. It is understandable that there should be very little variety in the food intake of the poor segments of the population, which still depend on subsidised products such as bread in Egypt. This explains the incidence of malnutrition, micronutrient deficiencies, and stunting and obesity in children (Wassef et Ahmed, 2005).

These changes in food quality are resulting in a situation of uncertain food safety, which is aggravated by the fact that changes in lifestyle are reducing physical activity both at work and during leisure time.

Limited access to wholesome products

Access to so-called wholesome products is limited, particularly in the case of low-income city dwellers, since these products are not readily available and are expensive. Fruit and vegetables, which are perishable goods, are not always to be found in grocery shops or in the new supermarkets in the countries in the South, due to the lack of cold storage

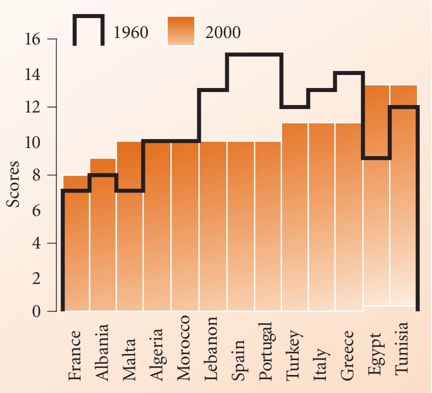
Table 4 - Scores allocated according to consumption levels

	Score		
Variables	**2**	**1**	**0**
Meat - g/day	< 200	200-400	> 400
Olive oil - g/day	> 15	15-5	< 5
Fish - g/day	> 60	60-30	< 30
Cereals - g/day	> 300	300-100	< 100
Fruit and vegetables - g/day	> 700	700-400	< 400
% lipids in intake	< 15	15-30	> 30
% saturated fats in intake	< 10	10-13	> 13
% complex carbohydrates in intake	> 75	55-75	< 55 %
% proteins in intake	> 15	15-10	< 10

Source: M. Padilla based on FAO/WHO, 2003.

Foods rich in saturated fats are butter, cream, cheese, prepared meat products, meat, palm/cotton/copra oil, and margarine. Complex carbohydrates are essentially cereals, pulses, fruit and vegetables.

Chart 3 - Trends in the food quality index in the Mediterranean countries, 1960-2000



Source: our calculations based on Faostat Data, food supply audits and M. Gerber, J. Scali, A. Michaud, M. Durand, C. Astre, J. Dallongeville et al., *« Profiles of a Healthful Diet and its Relationship to Biomarkers in a Population Sample from Mediterranean Southern France »,* Journal of the American Dietetic Association, *100 (10), 2000, p. 1164-1171.*

Atelier de cartographie de Sciences Po, 2008

facilities and the fact that regular supplies are not organised. A further cause of inadequate supplies is the fact that urban planners have failed to maintain fields for horticulture in the rural-urban fringe. High prices are also a factor here, particularly those of fish and olive oil, which have become unaffordable: a worker earning the minimum wage has to work almost 2 hours in Algeria in order to buy a kilo of fresh sardines and approximately the same length of time in order to buy a tin of tuna fish; and he has to work almost 5 hours in order to buy a litre of olive oil.

Lack of time combined with the fact that wages are earned and spent on a daily basis obliges poor citizens in the southern Mediterranean countries to buy food in small quantities on a day-to-day basis in local grocery shops, and, as a result, the food system is fragmented and the unit prices of foodstuffs are higher. Due to the cost of opportunity of time (the time devoted to

Table 5 - Food quality indicators. Number of Mediterranean countries achieving the various food quality indicator scores, 1960-2000

	Scores				
	0 - 4	5 - 6	7 - 9	10 - 12	13 - 18
Year	Very good	Good	Average	Poor	Very poor
1960	3	4	3	3	0
1970	1	3	8	1	0
1980	0	1	10	2	0
1990	0	1	9	3	0
2000	0	2	10	1	0

Source: our calculations.

domestic work is diminishing to the advantage of time devoted to economic and leisure activities) and exposure to burgeoning, but aggressive, publicity, people are consuming more and more processed foods and street foods. Where these products are industrialised, consumers no longer have control over their food intake (hidden fats, sugar and salt already included, ingredients added, etc.). Technological processes can also modify the nutritional value of foods and even produce harmful agents.

Obesity, a reflection of eating habits

If consumption trends continue as forecast, they will accelerate the food transition as well as the epidemiological transition. The Mediterranean countries will very soon find themselves in a situation similar to that of the northern countries in terms of health: there is bound to be a sharp increase in cardiovascular disease, high blood pressure, cancer, diabetes and obesity, with the ensuing consequences concerning the cost of treating these diseases, an increase in mortality and a decrease in human productivity.

Mediterranean populations, which were long protected from these chronic non-transmissible diseases thanks to their diet and to a certain amount of physical activity, are now tending to reach the levels of overweight registered in the most industrialised countries. All age groups are concerned, but obesity is frequently observed amongst pre-school-age children (0-5 years) in North Africa, and the incidence rate is rising steeply: 7.7% in 1995, 11.7% in 2000, 17.4% in 2005 (SCN, 2004). The situation is already serious in the northern Mediterranean countries: 27% of children are overweight in Spain and Greece, and 36% in Italy (Combris, 2005). Furthermore, obesity can coexist with signs of undernourishment (see Chart 4 and 5).

Modern distribution seeking to gain ground on a market where product-specific sales points are the norm

The advent of the large-scale retail trade is often cited as a major upheaval in southern Mediterranean consumer shopping practices. Although Algerians shopped in El-Fellah souks or local Monoprix supermarkets in the past and Moroccans have had Marjane self-service mini-markets since 1991, it is only since 2000 that this form of food distribution has really been established and expanding. Egypt still has only two Carrefour sites (in Cairo and Alexandria), but Algeria, Morocco and Tunisia are gradually opening up to the large-scale retail trade, and new firms are appearing.

While specialists regard the market in these countries as very promising, it will take time, although the major French hypermarket groups have rapidly become the leaders in the large-scale retail trade. Although the modification of commercial structures in the various countries has undoubtedly changed the purchasing habits of a certain category of the population, only 5% to 10% of sales in large and medium-sized supermarkets concern food products, whereas in southern Europe 60% to 80% of supermarket sales are food sales.

Chart 4 - Percentage of overweight and obesity in adults, 2004

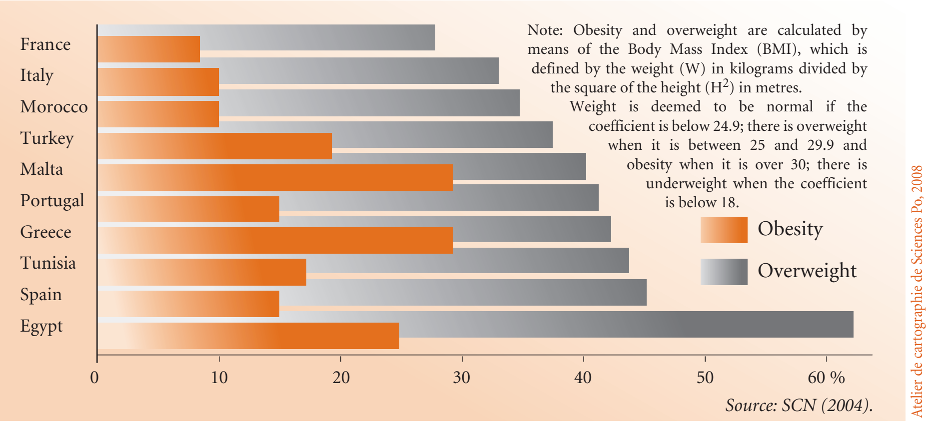
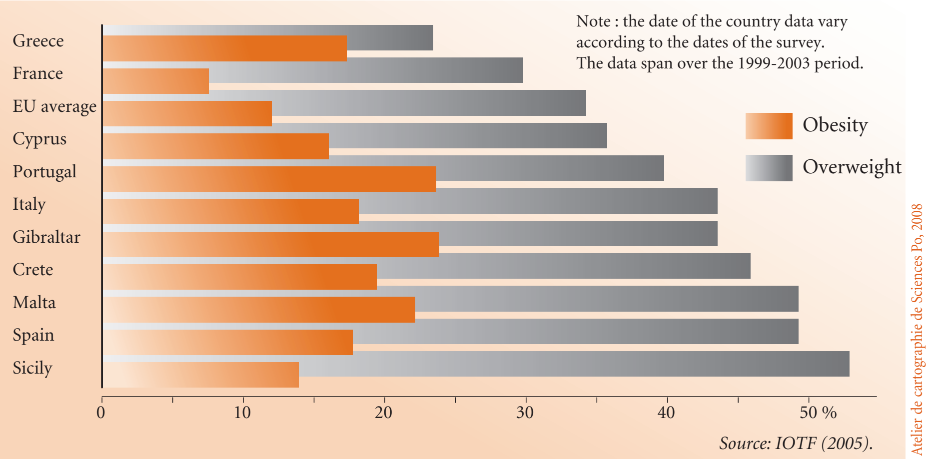


Chart 5 - Percentage of overweight and obesity in young people between 7 and 11 years of age in the northern Mediterranean region



The prospects can be encouraging for the local economy when one considers that each commercial structure can in fact generate several hundred direct jobs. From the point of view of the logistic impact and the impact on society, however, this development of the large-scale retail trade poses two problems (Padilla et Abis, 2007; Hammoudi, 2006):

- The first concerns the ability of local agriculture and industry to meet the expectations of these major distribution groups in countries which are still on the road to development. It is imperative that production methods and corporate organisation be rapidly upgraded at all levels of the supply chains. The new agricultural production or industrial manufacturing practices are more demanding and thus also sometimes more costly; they require higher levels of skills, which means that training is necessary and that more stringent supplier selection procedures need to be applied.

- The second problem comes from the actual fragility of these imported systems. Since consumers are already demanding that Carrefour sell more French Carrefour products or more European products, which they regard as being better quality-wise, the fear that more and more foreign foodstuffs and consumer goods will enter the market at the expense of local products is quite justified.

However, the change in purchasing habits has not been the same for all population groups. Some consumers have taken to the new forms of distribution more rapidly, whereas others keep to the traditional forms, and a third category - the one most frequently observed – patronises the various sales outlets. The choice of shop is in fact very closely linked to purchasing power and to the product sought. In the southern Mediterranean countries, an important factor in choosing the local grocery store for buying most food products is the credit facility the grocer grants to local residents. Furthermore, the local store is also more accessible, since supermarkets are generally situated at some distance from working-class districts, whereas most households do not have a car and bus services are unsuitable.

Perceived importance of quality labels

In many Mediterranean countries foodstuff labels have not yet been fully developed or applied. Not every country has the technical facilities and expertise required for quality control, although this situation may develop rapidly in connection with the commercial agreements signed with the European Union. The inadequacies of the food production system, in which activities are concentrated around urban and tourist centres, and the fact that consumer associations are weak make it necessary for the food industries to label products in order to ensure that a specific quality is readily visible. Traditionally, the origin and authenticity of products have been recognized by experience; there are no quality marks in the countries in the South. Given the assets that are indicated and commented on in the literature in the case of countries such as France, Italy, Portugal and Spain, quality marks seem to be of manifest advantage. These labels indicating quality, origin, local know-how, environmentally sound production methods or methods respecting animal welfare are becoming increasingly important for European consumers. And the fact that consumers are willing to pay more in exchange for a guarantee – an attitude particularly widespread in France and Italy, unlike Portugal – shows just how popular these products are. In the countries in the South, the better-off are beginning to show interest, but there is still little sign of any consumerist mentality.

Food quality - a growing challenge

Mediterranean diets are far from homogeneous; they involve a wealth of products with their own very typical features, and they are extremely varied. It is that diversity which provides a certain level of nutritional and social well-being for the various populations. Now that undernourishment is virtually no longer a problem in the region, Mediterraneans should devote more attention to the quality of their food, overcome their complexes in relation to Western society and highlight their knowledge and know-how in the field. For consumers, the Mediterranean image involves a number of issues which are very closely connected with identity and people's attitude to food – hence the power of the promises which the Mediterranean diet can convey:

- the promise of combining pleasure and wholesomeness, of reviving the concept of nourishing food, of placing much less emphasis on the "health" aspect so prevalent in the food culture in English-speaking countries, of emphasising the sensual aspect, and of easing the dichotomy between what is enjoyable and what is good for the health;
- the promise of highlighting the value of Mediterranean culture with its diverse flavours and colours… and establishing a Mediterranean identity: it is no longer a question of "eating other people's food" but of "providing and eating one's own food";
- the promise of awakening the desire for renewal and "reassurance" by returning to traditional foods; this trend is to be explained by the gap between the production chain and the consumption chain, which causes concern amongst consumers, since they can no longer clearly identify the foods they eat, and results in the demand for authentic regional products, recipes from bygone days and local products;
- Consumers are more and more concerned about health issues, food security and nutritional balance; they are also more aware of environmental problems and pay greater attention to the conditions in which products are produced and processed and to so-called "ethical" businesses.

In English-speaking countries, industrialists and political leaders have astutely sized up these trends in consumer choices; backed by nutritionists and epidemiologists, who have scientifically demonstrated the protective benefits of the Mediterranean diet, they have adopted the concept. This rediscovery is taking place at a time when dietary specificities are disappearing in – both northern and southern – Mediterranean countries as lifestyles develop and trade becomes globalised. Is globalisation liable to permanently compromise the Cretan model? Nothing is less certain, for the world is currently going through a phase where the societies of English-speaking countries are being imitated and, paradoxically, Mediterranean populations seem to be rediscovering their diet in this international dissemination/imitation movement. Although the food industries are rushing into this growth market and are liable to distort the very foundations of the Mediterranean diet, the new considerations of sustainable development, which include preserving nutrients, adopting benign technologies and developing local products, can, fortunately, modify the trend towards industrialisation that is dominated to a very large extent by health considerations.

The new scientific angle on Mediterranean food is helping to create new foods with traditional ingredients and is making the Mediterranean diet part of a movement of reconciliation, in which the ancestral knowledge of the people is acknowledged by the elite. Co-operation between Mediterranean Europe and the southern and eastern Mediterranean countries has everything to gain by following suit.

Bibliography

Benjelloun (S.) *et al.*, "Les produits laitiers dans le comportement alimentaire du consommateur marocain", dans Hassainya (J.), Padilla (M.) et Tozanli (S.) (dir.), *Lait et produits laitiers en Méditerranée. Des filières en pleine restructuration*, Paris, Karthala, 2006, pp. 235-252.

Combris (P.), "Économie et alimentation: peut-on maîtriser l'évolution de la consommation? L'économie fait-elle la loi dans nos assiettes? Déterminants économiques des choix alimentaires", communication, IFN annual colloquium, Paris, 29 September 2005.

Darmon (N.), Ferguson (E. L.) *et al.* "A Cost Constraint Alone Has Adverse Effects on Food Selection and Nutrient Density: An Analysis of Human Diets by Linear Programming", *Journal of Nutrition* 132 (12), 2002, pp. 3764-3771.

European Commission, *First Progress Report on Economic and Social Cohesion*, Brussels, Eurostat, 2002.

FAO, *Nutrition Country Profile*, Rome, 2001.

Gjergji (A.), "Nourritures et traditions alimentaires en Albanie", dans Padilla (M.) (dir.), *Alimentation et nourritures autour de la Méditerranée*, Paris, Karthala, 2000, pp. 151-159.

Hassainya (J.), Padilla (M.) et Tozanlı (S.) (dir.), *Lait et produits laitiers en Méditerranée, des filières en pleine restructuration,* Paris, Karthala, 2006.

Heidues (F.), Atsain (A.), Padilla (M.), Ghersi (G.), Nyangito (H.) et Le Vallée (J.-C.), *Development Strategies and Food and Nutrition Security in Africa: An Assessment*, discussion paper, 38, Washington (D.C.), IFPRI, 2004.

Hervieu (B.) (ed.), *Mediterra 2007. Identity and quality of Mediterranean foodstuffs*, Paris, Presses de Sciences Po, 2007.

International Obesity Task Force, *Obesity in Europe*, EU Platform Briefing Paper, 3, Brussels, March 2005.

Keys (A.), Menotti (A.), Karvonen (M. J.), Aravanis (C.), Blackburn (H.), Buzina (R.) *et al.*, "The Diet and 15-Year Death Rate in the Seven Countries Study", *American Journal of Epidemiology*, 124 (6), 1986, pp. 903-915.

Khaldi (R.) et Naili (R.), "Dynamique de la consommation de lait et de produits laitiers en Tunisie", *Options méditerranéennes, Série B,* 32, 2001, pp. 75-86.

Malassis (L.), *Nourrir les Hommes*, Paris, Flammarion, 2000.

Padilla (M.) (dir.), *Aliments et nourritures autour de la Méditerranée,* Paris, Karthala, 2000.

Padilla (M.) et Abis (S.), "La grande distribution au Maghreb: contextualisation et enjeux", *Afkar/Idées*, 13, spring 2007, pp. 68-71.

Padilla (M.), Aubaile-Sallenave (F.) et Oberti (B.), "Comportements alimentaires et pratiques culinaires en Méditerranée", in *Alimentation méditerranéenne et santé. Actualités et perspectives*, Montrouge, John Libbey, 2000, p 119-137.

Padilla (M.), Benjelloun (S.), Khaldi (R.), Soliman (M.) et Sahin (O.), "Un consommateur partagé entre modernité et tradition", in Bachta (M. S.) et Ghersi (G.), *Agriculture et alimentation en Méditerranée. Les défis de la mondialisation*, Paris, Ciheam-Iresa-Karthala, 2004, pp. 153-172.

Padilla (M.), El Dahr (H.), Hammimaz (R.), Zurayk (R.) et Moubarak (F.), "Le consommateur et la qualité santé et environnementale des produits", in Hamze (M.) and Hervieu (B.) (ed.), *Agri. Med 2006. Agriculture, fisheries, food and sustainable rural development in the Mediterranean region*, Ciheam annual report, Paris, Ciheam 2006, pp. 201-262.

Ruel (M. T.), Garrett (J. L.), Morris (S. S.), Maxwell (D.), Oshaug (A.), Engle (P.), Menon (P.), Slack (A.) and Haddad (L.), *Urban Challenges to Food and Nutrition Security. A Review of Food Security, Health and Care-Giving in the Cities*, IFPRI discussion paper, 51, Washington (D.C.), IFPRI, 1998.

SCN, *5th Report on the World Nutrition Situation: Nutrition for improved development outcomes*, Geneva, 2004.

Smil (V.), *Feeding the World. A Challenge for the Twenty-First Century*, Cambridge (Mass.), The MIT Press, 2000.

Soliman (M.), "Stratégies des acteurs et restructuration des marchés dans la filière lait en Égypte", *Options méditerranéennes*, Série B, 32, 2001, pp. 133-146.

United Nations, *Stratégie de réduction de la pauvreté. Étude du phénomène de la pauvreté en Tunisie*, Office of the Resident Co-ordinator in Tunisia, 2003.

Wassef (H.) and Ahmed (Z.), "Consumption and food security in the Mediterranean region", in Hervieu (B.) (ed.), *Agri. Med 2005. Agriculture, fisheries, food and sustainable development in the Mediterranean region,* Ciheam annual report, Paris, Ciheam, 2005, pp. 237-294.

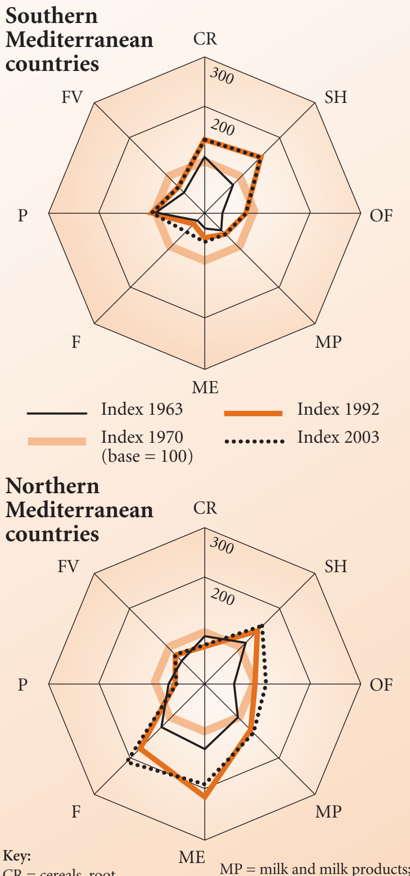
Willett (C. W.), *The American food pyramid*, Washington (D.C.), USDA, 2003. Référence à confirmer.

World Bank, "Poverty In The Middle East And North Africa", sectoral note, Washington (D.C.), August 2005.

World Bank, *World Development Indicators 2006*, Washington (D.C.), 2006.

Annexes

Annex 1 - Consumption trends per product in relation to the Cretan model, 1963-2003



Key:
CR = cereals, root vegetables and tubers
SH = sugar and honey
OF = oils and fats
MP = milk and milk products;
ME = meat and eggs
F = fish
P = pulses
FV = fruit and vegetables

Source: our calculations based on Faostat Data, food supply audits and M. Gerber, J. Scali, A. Michaud, M. Durand, C. Astre, J. Dallongeville et al., *« Profiles of a Healthful Diet and its Relationship to Biomarkers in a Population Sample from Mediterranean Southern France »,* Journal of the American Dietetic Association, *100 (10), 2000, p. 1164-1171.*

Atelier de cartographie de Sciences Po, 2008

2008

MediTERRA

THE FUTURE OF AGRICULTURE AND FOOD IN MEDITERRANEAN COUNTRIES

SciencesPo. Les Presses | CIHEAM

Table OF CONTENTS

2 ACTION PRIORITIES for Mediterranean agriculture and agro-food production in the world of 2020