

## CONSUMERS AND SUSTAINABILITY

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### WHAT IS A SUSTAINABLE FOOD FOR CONSUMERS?

Sustainable development is a social, political and cultural construction in which consumers hold a prominent place. For them sustainability is reflected in relationship to a specific and variable time. Thus, certain traditional practices are considered a guarantee of sustainability, to perpetuate the food heritage for future generations. The relation to the past, present and future, which is eminently cultural, directly impacts daily practices and the integration of the notion of sustainability. Communication, usually based on the protection of resources, should focus on the interest of perpetuating past practices guaranteeing the balance between personal well-being and that of the planet. Environmental sensitivity is also expressed through certain dietary practices that can contribute to the conservation of resources, their diversity, and their quality, connecting the benefits of the individuals to those of the collective. Consumers' understanding of the discourse on sustainability can be culturally dependent and sometimes difficult to translate into daily habits. Those practices constitute a frame of small actions by individuals, which are spread by imitation or custom, and contribute to global action. Beyond the altruistic motives that underpin these approaches, it is important to understand the mechanisms and levers for change.

New consumers are increasingly sensitive to the issue of environmental protection. A new awareness towards sustainable development and the well-being of the population has replaced the traditional price-quality criteria used for choices. They demonstrate their awareness through a demand for organic and local products. Consumers also appreciate the social commitment of the companies concerned and demand fair-play and respect for animal welfare.

Many aspects are related to sustainable food in the consumers' minds. According to a large survey in France<sup>2</sup>, the sustainability of food products has three main dimensions: (I) the origin of the product; origin is seen as an act of environmental protection, and is closely related to the way of producing; it's also linked with organoleptic and nutritional quality of product; thus nearby products are considered more sustainable than others (II) the seasonal production that is related to the naturalness of products; and (III) the organic products: the main motivation of the consumer is not only protecting the environment, but also a set of heterogeneous motivations including health, taste, safety of food, respect for tradition.

Similarly, results show that even if the majority of consumers have a positive attitude towards "sustainable" products, only a quarter of them are ready to adopt new behaviour, mainly explained by the price of sustainable products.

### THE PLACE OF CONSUMERS IN THE FOOD SYSTEM'S SUSTAINABILITY

As a central actor in the food supply chain, consumers play an important role as their consumption patterns can be highly polluting. However, few studies focus on the environmental impact of consumer behavior. Within the existing studies, consumers have been shown to generate 29 percent of greenhouse gas emissions (GHG) of the food system as a whole in Germany, 25 percent in England, and 15 percent in the United States. Considering specific food chains, consumers' impact on GHG emission was 64 percent for fresh carrots, 32 percent for frozen carrots and 5 percent for canned carrots in 2005; 23 percent for kiwi fruits produced in New Zealand and exported to Europe in 2008; and 7 percent for tomato sauce using French paste in 2014.

variations between Arab countries. WHO (2011) has classified Arab countries into four groups with regard to nutrition transition stages and dominant nutrition problems, major risk factors and underlying causes for non-communicable diseases, intervention programs in response to these problems, and enabling environmental factors for improved action. It is worth mentioning that even relatively wealthy

Arab countries are subject to the triple burden where they simultaneously report stunting, overweight and obesity, and micronutrient deficiencies and, as such, are classified in advanced stages of the nutrition transition (Table 1).

An important factor behind the above mentioned nutrition transition in Arab countries is possibly the change in per capita energy consumption

## THE PRACTICES OF CONSUMERS AND SUSTAINABILITY

Although consumers are generally not very sensitive to the effect of the environmental impact of their choices, their sensitivity is expressed through certain dietary practices that can contribute to the conservation of resources. For instance, in 2000, a German family generated in average 4360 CO<sub>2</sub> kg for feeding (material flow attributable to the production till waste), with 78 percent resulting from home consumption and 22 percent from out of home consumption. Production, processing, transport and distribution accounted for just under half the emissions, whereas 52 percent were due to home storage and refrigeration, dishwashing, heating and air-conditioning. Thus, consumers have a significant impact due to their purchasing and cooking practices, storage and the way they manage wastes. The impact is highly variable, according to the distance driven between shops and home, CO<sub>2</sub> emissions ranging from 20 to 53 percent in the whole supply chain. Similarly, a research study in 2011 on coffee indicates that 30 percent of all emissions are due to the preparation by consumers. Moreover, a difference in energy use from 50 to 70 percent can be observed when using a more efficient cooking method.

It was estimated in 2005 (edited in 2011) that in average (5449 interviews) a Finnish household's food maintenance (transportation, preservation and preparation of food) produce 170 kg of CO<sub>2</sub> every year, 50 percent of which come from storage, 27 percent from transport and 23 percent from cooking. For processed products, processing and packaging has the highest contribution in many impact categories whereas for energy use, fridge storage time can have the greatest consequences. The consumer phase is therefore very important, as shopping and storage time account for 13 to 50 percent of energy use and 12 percent of global warming.

The FLONUDEP project demonstrates the complexity of interpreting the results in the case of tomatoes. Results

of fresh tomatoes show that of the four stages identified at consumer level (i.e. purchasing, storage, preparation and end of life), purchasing – driving to the supermarket – has the greatest effect. Results concerning processed tomatoes highlight that other stages (cooking and recycling of packaging) are also important contributors to the whole environmental impact. Human toxicity levels vary significantly between fresh tomato and processed tomatoes because of the recycling of the steel can used. Finally, 1 kg of processed tomatoes generates 0.18 kg equivalent CO<sub>2</sub>, whereas fresh tomatoes generate 0.07 kg. However, if we consider the fact that 6 kg of fresh tomatoes are needed for 1 kg of processed tomatoes, results can be read differently. In this case, the impact of fresh tomatoes is 2.3 times higher than that of processed tomatoes. If we compare fresh tomato sauce with tomato sauce made with processed tomatoes, at consumer level, global warming impact levels are equal.

## Conclusion

We have shown that consumers put different dimensions in correlation to sustainable food. It is important to emphasize the role of awareness in order to stimulate the appropriation of more sustainable practices. The different steps of transmission of knowledge have to be mobilized to promote its dissemination and the sustainable food practices contribute to make the consumer more responsible.

## Note

\* FLONUDEP is a French National Research Agency funded project regarding environmental, social and nutritional sustainability of tomato supply chains. It was coordinated by CIHEAM-Montpellier.

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pattern. The World Health Organization (n.d.) reports a substantial increase in energy consumption in the Near East and North Africa region in recent decades, with levels that have exceeded the global average and that are expected to remain so in the next decade (Table 2).

These regional trends in food consumption patterns again mask significant variation at

the national level. Table 3 shows a gradual and significant increase in daily energy supply<sup>3</sup> across most Arab countries, as well as variations therein, over the past few decades. For example, while per capita energy supply has increased by only 19 percent in Yemen over the period 1965-2011, it has more than doubled in Algeria (102 percent) over the same period. A sharp increase in daily energy supply has been also observed in Egypt