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Food impacts: information for consumers

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Abstract

The starting point for this paper is a literature review on food supply management, ecolabelling and sustainable consumption focusing in the interaction between these three scientific areas. Notions of environmental history are used to enlarge the context of the analysis.

The paper discusses the feasibility of using eco-efficiency indicators, translated into product labels, that would be used by consumers to reduce their daily environmental impacts. Eco-labels cannot be limited to the technological component of food and must be enlarged to incorporate its social and cultural dimensions.

Impact assessors have a role to play in this process because they are used to cope with an apparent contradiction: the importance of local context and of an holistic vision.

Introduction

Consumers have the power to drive major social changes. Transition to a greener economy cannot be pursued against consumer's will. In order to do so, it is necessary to develop specific tools that allow the inclusion of sustainability as a key decision variable of consumer's choices.

The agro-food industry is a sector of significant economic and political importance. As a result of the intensive development in the last century, food production has been continuously increasing the pressure on the environment. Food constitutes an important and indispensable group of consumer items that are produced in a complex system made up of many processes in several supply chains. These processes require the input of scarce natural resources and cause significant environmental impacts. Agri-food systems are complex, combining human and biological elements that link together diverse people, places and processes through multiple product flows and intermediaries.

How can we transfer this information into the mind of consumers? How can consumers use this information in their individual decision making processes?

Food supply chain

The project-based approach to environmental assessment has been an essential part of doing business ever since environmental impact assessment regulations started spreading at the international scale. Assessing impacts from this perspective provides valuable guidance in minimizing waste, using resources efficiently, and reducing emissions to air, water and soil and simultaneously taking into consideration the environmental baseline levels of a specific site. However, a company's impacts extend beyond its four walls to suppliers, customer use of its products, and product disposal at the end of life (Conway, 2009).

Food items are produced in a complex system made up of many processes in several supply chains. The food supply chain can be defined as a complex network of inputs and outputs that starts from primary farm production and everything related to it, goes through different forms and stages of processing and preservation of food, very often associated with long distance travelling, till it reaches the end-of-life phase (SEPA, 1999). To manufacture a cake, for example, various commodities from agriculture are needed, including wheat, sugar beet,

milk and eggs. The food industry processes some of these commodities to produce basic ingredients for cakes: sugar, flour and butter. Using ingredients from different supply chains, bakeries make cakes. Transportation by airplane, boat, train or truck provides the global availability of this product (Gerbens-Leenes et al., 2003). Often, the major part of the environmental problems are generated during the usage phase and consequently it is necessary to consider consumer handling of the cake that, for instance, might include refrigeration and micro-wave use and, on a later stage, the handling of waste (see Figure 1).

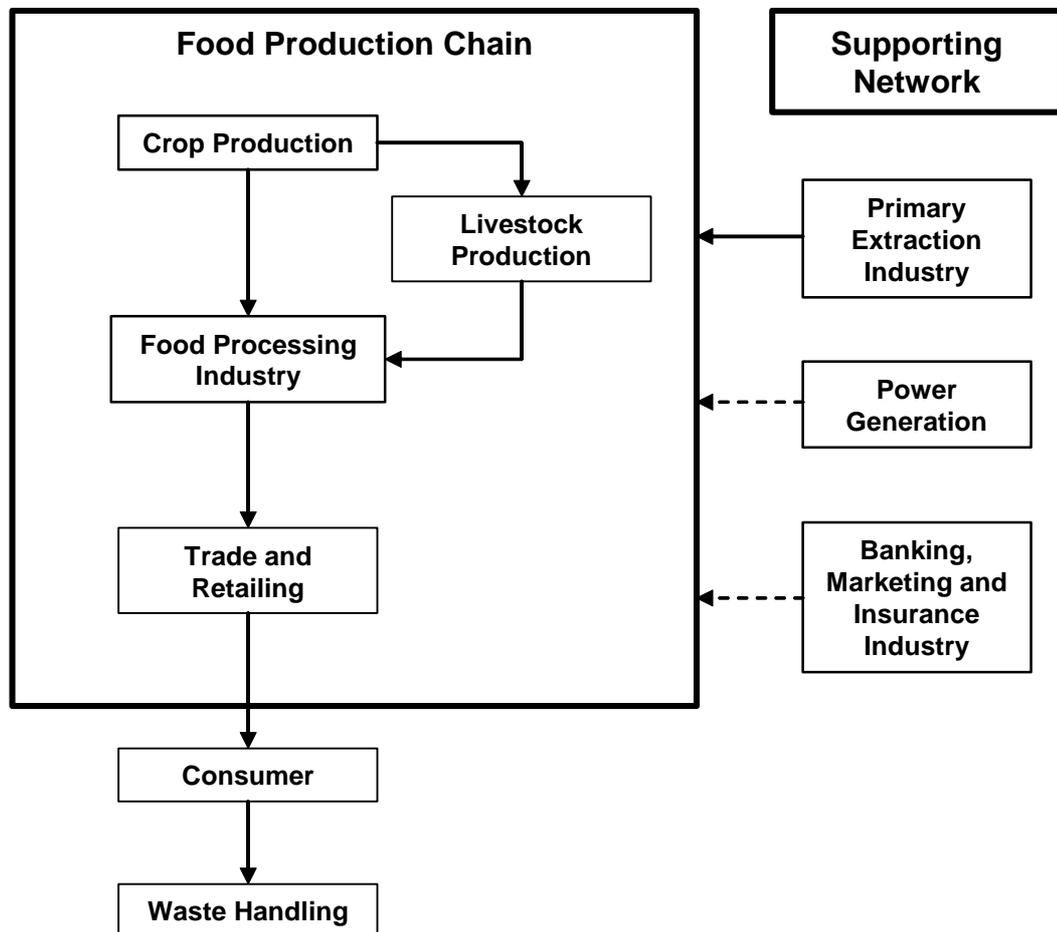


Figure 1 – Overview of the food production system, consumer and waste handling and the network of supporting business sectors (adapted from Gerbens-Leenes et al. (2003)). Closed arrows represent transportation, open arrows represent immaterial flows.

In order to incorporate environmental and/or sustainability concerns in the supply chain management and to respond to the consumer demands each step of the chain cannot be dealt separately. A holistic approach is necessary for the identification and assessment of the environmental aspects in the whole food chain as such. According to Mintcheva (2005) though realizing that supply chain perspective is important, its analysis appears to be a difficult task. This is caused by the great variability of goods that exist which require different supply chains. The actors, who can be involved, can also differ considerably in terms of size of companies, geographical location and type of business they operate.

There is extensive research on the environmental aspects and impacts of the agro-food sector. The key environmental impacts of the agro-food chain are the following:

- Depletion of natural resources;
- Land degradation and land contamination

- Energy use;
- Greenhouse gas generation;
- Water use and waste water production;
- Solid organic residue generation;
- Packaging waste generation.

The interconnection among these categories justify a systemic and integrated approach to the environmental impacts of the supply chain in order to avoid the risk of double counting as well as to be sure that any pollution displacement is identified (Maxime et al., 2006). Life cycle assessment of food supply chain is based on the use of eco-efficiency indicators that condense information and assist with decision making. Maxime et al., (2006) argue that eco-efficiency indicators make it possible to compare typical processes within a sector and over time. Because of inherent differences among all sectors of activity, inter-sectoral comparisons of the indicators are not recommended. These indicators are used to measure the environmental performance of a company or industry sector becoming a criterion for its sustainability and the “green” labels that constitute brand image.

Sustainable consumption

The growing field of sustainable consumption has concluded that food, together with home energy and transportation form a large share of most consumers’ personal impact. Of these three, food represents a unique opportunity for consumers to lower their personal impacts due to its high impact, high degree of personal choice, and a lack of long-term “lock-in” effects which limit consumers’ day –to-day choices (Weber and Matthews, 2008). In the field of climate change research a recent trend shifted the focus from the emission sources to the final users/consumers responsible for these emissions. One of these studies (Hertwich and Peters, 2009) concluded that on the global level, 72% of greenhouse gases (GHG) emissions are related to household consumption, 10% to government consumption and 18% to investments. Nutrition is the most important consumption category, with food accounting for nearly 20% of GHG emissions. These authors included the entire food supply chain and showed the importance of methane and nitrous oxide emissions from agricultural production.

Consumers play a major role in the promotion of environmental best practices and in the quest for sustainability. Environmental supply chain dynamics take place if there is a channel leader, technical competencies and if specific environmental pressure is exerted. Such pressure can be any external factor, either regulatory or non-regulatory, that affects the company’s environmental policy (Hall, 2000). Government measures are usually the primary regulatory pressure and non-regulatory pressure is identified as consumer pressure, customer pressure, environmental pressure groups, disclosure requirements, employees and unions and, last but not least, corporate citizenship. One of the most significant pressures forcing firms into addressing environmental concerns is the increasingly importance of green consumerism.

Between 21 and 25 April 2009, over 26,500 randomly-selected citizens were interviewed in the 27 European Union Member States and Croatia. The aim of this survey was to examine EU citizens’ knowledge and levels of concern about sustainable consumption and production (Gallup Organization, 2009). Among the main findings of this survey some are very relevant for the purpose of this paper:

- More than 8 in 10 EU citizens felt that a product’s impact on the environment is an important element when deciding which products to buy;
- Almost 6 in 10 interviewees rated environmental impact as more important than a product’s brand name. Nevertheless, only a minority rated environmental impact as more important than a product’s quality or price;
- Almost half of EU citizens said that ecolabelling plays an important role in their purchasing decisions;

- Support for introducing a mandatory label indicating a product's carbon footprint reached 72% of the respondents.

Hall (2000) comments that these types of surveys may not reflect what consumers actually feel, but rather what they believe is the “politically correct” answer. Nevertheless the survey points out the need of providing adequate environmental information to consumers. Otherwise consumer influence is susceptible to “cosmetically green” products that may be heavily promoted but are not supported with reliable information.

Ecolabelling

Ecolabelling schemes provide consumers with the information about the environmental quality of individual products, at the point of purchase, in order to enable them to choose products that are acceptable from an environmental point of view (Thøgersen et al., 2010). Ecolabels promote sustainability without compromising consumer freedom of choice and they reduce consumers' information search costs, which makes it more likely that the provided information will actually be used. Thøgersen et al. (2010) states that in order to reap the full benefit of ecolabelling, for society and for individual stakeholders, there is an urgent need for research clarifying why and when consumers adopt ecolabels. It is also necessary to guaranty that the information transposed by the ecolabel is trustable and that the selection of the labeled product corresponds to a valid sustainability option.

A new ecolabel scheme must compete for consumer attention with the plethora of existing ones causing the risk of “information overload” (Jacoby, 1984). The “information overload” problem implies that the fact that there are already many food labels in the implementation context may hamper the adoption of a new one.

As such, to amplify the success of ecolabelling, labeled products must be publicized using the entire range of marketing strategies. A decade ago, the associated conditions and prevailing ideologies of consumption did not sit together with the objectives of environmentalism and sustainability (Fitchett and Exeter, 1999). There is a growing awareness that a “greener consumer society” need not be one of joylessness and abstention and need not be in total opposition to the current system of production and marketing (Solomon et al., 2006). Nowadays, green consumerism must be fun and cannot be shown as grim anymore.

The role of impact assessors

There are significant limitations on the use of eco-labels based on eco-efficiency indicators. Maxime et al. (2006) mention that these indicators will not directly account for environmental effects outside the boundaries of the supply chain, resource availability and that they are strongly dependent from the availability and quality of the data required for calculations. This is particularly important in the case of food.

Moreover, food is an essential component of any human culture and probably the most tastable and easy to experience. Food is accorded purpose and meaning beyond the basic nutritional function of eating. Food is packed with social, culture and symbolic meanings (Bell and Valentine, 1997). In immigrant families, old grandma recipes are the oldest link to the geographically distant past.

Agriculture is in the beginning of the food supply chain but is also the basis for rituals and traditions that cast most national identities. Farm land surrounds cities. Like cities, farm land is an artificial creation of human culture (Hughes, 2001) and both shaped the landscapes we identify with. In most of the planet, landscapes are no natural entities in the narrow sense; they have been formed by thousand years of land use (Penker, 2006) over the original and local biodiversity. To enclose the circle (see Figure 2), it is necessary to understand that in

many human communities food is the outcome of generations' long processes of adaptation of local biodiversity.

Agri-food systems comprise complex social, ecological and technological connections that require integrated research approaches (Lowe et al., 2008). Consumers are increasingly aware of this complexity, linking notions of food quality to notions of nature, cultural landscapes or terroir. Transition to a green economy requires the creation and adoption of standardized schemes that translate this complexity into simplified labels that help consumers' decision making.

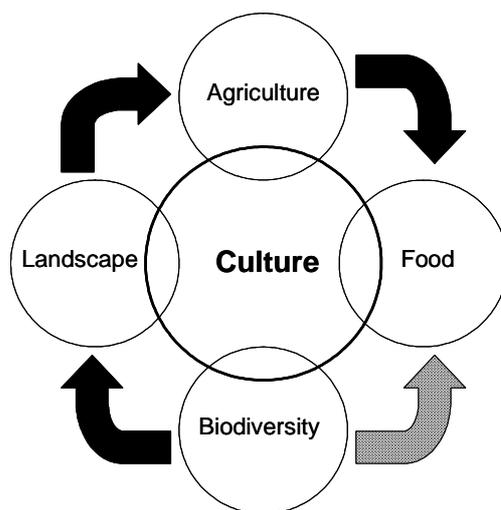


Figure 2 – The cultural dimension of food, agriculture, landscape and biodiversity.

Impact assessment practitioners have an experience and a capital of knowledge that can be useful for the development of appropriate methodologies, adequate sustainability indicators and final ecolabels. Impact assessors are used to cope with:

- Consideration of local context: impact assessment practitioners know that the implementation of the same project in different sites results in different impacts which magnitude and significance depend on the local conditions and baseline levels. The same applies to ecolabels specially if we want to include the social and cultural components of food. Under this assumption, sustainability of a food product should not be the same in Portugal or Poland, in Pakistan or Paraguay. Search for sustainability cannot end up with a global uniformization of food;
- Holistic vision: a good food ecolabel must integrate social and cultural visions and not be limited to a technological environmental assessment of the food supply chain. This requires skills on the integration of environmental, economic, social and cultural data and to react to the existing trade-offs between the different components of the problem.

To guarantee success it is necessary to create projects where impact practitioners are able to work together with life cycle assessment specialists, nutrition experts and consumer behavioural scientists and involve businesses companies that are one of the major stakeholders of the food sector.

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