

# Global Food Governance

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## Acknowledgements

Transforming an NGO programme officer into an academic can be considered a case of ‘extreme makeover’ in professional sense. When, I joined the Environmental Policy Group at Wageningen University in 2000, after working for fifteen years in the field of international development co-operation, I was flattered but also worried. How could I make this transition successfully? Finalising a PhD-thesis is generally considered an indicator and thus after more than four years of reading, empirical research and reflection, the results are put to paper. It is up to the reader to judge to what extent the makeover has been a success.

The subject of this thesis fits rather well in current public and political debates in the Dutch society as well as in the wider European society. Concerns about food, particularly its safety and environmental impact, figure almost daily in the newspapers. Choosing the subject of food-related concerns for this thesis greatly facilitated the empirical research because it enabled linking the study to concrete events. At the same time, the repeated emergence of new food crises made it more difficult to develop and maintain a clear focus during the four years of study. The conceptual framework developed over time, however contributed to growing coherence in the work. The end result thus intends to provide a coherent scientific reflection on one of the most challenging questions in contemporary societies: ‘how to organise the provisioning of safe food in a sustainable manner’.

Strangely enough, finalising a PhD-thesis is considered to prove the academic qualifications of a particular individual person. However, everyone knows that the contributions by many others are indispensable to make any research project, including this one, into a success. Therefore, I would like to express my gratitude to all those who contributed to this thesis research. To Gert Spaargaren, a friend since the early days of studying sociology in Wageningen and Tuur Mol, whom I got to know and respect during my PhD-research at the Environmental Policy Group. As supervisors they continuously supported the process and provided suggestions and comments during the whole project. To all permanent and temporary colleagues from the Environmental Policy Group, who supported my work, provided comments and offered a very pleasant working environment. Thanks to the many specialists, whose names are listed in the annex, who accepted to be interviewed and to answer my sometimes difficult questions contributing to the empirical foundation of this thesis

The ‘Giddens-circle’ deserves a special word of thanks. This reading circle was initiated by Rien Munters in the 1970s and has survived until this very day. Although its composition has changed over the years, this group remained for me a permanent and stimulating environment for reflection on the work of contemporary social scientists. Without the intensive discussions on social theory in this group, I would never have been able to bridge the gap between 1982 and 2000, the years when I was not actively engaged in academic work.

Finalising a thesis and preparing its publications also includes many practical tasks. These have been accomplished, thanks to the concrete support of Corry Rothuizen (practical assistance on many occasions), Susan Parren (English language correction of Chapters 1, 2 and 8), Hans Weggen (lay-out) and Suzanne van der Schenk (front-page).

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# Introduction



## Chapter 1. Introduction

*'Two apples a penny! Two for a penny!*

*His gaze passed over the glaze apples serried on her stand. Australians they must be this time of year. Shiny peels: polishes them up with a rag or a handkerchief.'*

(James Joyce, (2000) *Ulysses*. London, Penguin Books: 192)

*'Yes, we have fair trade bananas'*

*'Growing up, I often rode shotgun with my father on grocery runs, which often included scouring Toronto's supermarkets for the cheapest bananas.*

*Born before the Depression, my father knew "the value of a dollar" and delighted in finding the best buy. (...) This was in the good old days, before recycling, before the hole in the ozone layer and before fair trade bananas Now, the most socially conscious Canadian consumers demand to know where what they eat comes from, how it was grown and whose hands helped to bring it to the table. (...) Wholesale, there's a floor price on fair trade bananas, as well as a premium of \$1.75 (U.S.) a crate, which goes toward grass roots social programs, such as education, health care and housing, in the banana producing countries. Regular bananas have a bruised background by comparison. (...) Fair trade bananas "with their social justice flavour" appeal to people who are eager to be good global citizens, not just find a good price. Many fleece-clad Vancouverites fit this bill. (...) And just how much are these customers prepared to pay for the black and white sticker on their breakfast snack? The current price is \$1.55 a pound.*

*My father would be aghast.'*

(Austin MacDonald: *The Globe and Mail*, June 5, 2004)

### 1.1 Introduction

The production and consumption of food seems to have changed dramatically over the last thirty years or so, as more and more food is coming from all over the globe. What about the environmental impact and the health consequences of such globalised food provisioning? Can conventional nation-state based regulation of food still adequately deal with the environmental and food safety risks in these changing circumstances? Are new tools required to address previously unknown food risks, such as BSE, dioxins and GM-food, that seem to develop in an increasingly faster rate? Are consumer worries about food a concern for psychologists or does responding to them require drastic changes in modern society's organisation of food supply? How would such regulatory tools look like and in what way should different groups in society get involved?

These challenging questions make up the topic of this study. This thesis will look at the ways in which, particularly environmental and health, problems associated with the organisation of contemporary food production and consumption are conceptualised and regulated with the involvement of different social actors. Before presenting the research questions and a theoretical overview, this chapter will provide some background and present the context for these questions. In the following section I will elaborate the globalisation of food production and consumption and subsequently give a brief overview of the related environmental and health concerns. The challenges posed by these environmental and safety problems to nation-states, private actors and consumers will be reviewed in section four. The concrete research questions for this study will be presented in section five and the last section will provide an outline of the structure of the remainder of this thesis and introduce the different chapters.

## 1.2 Globalisation of food production and consumption

Many observers view ‘food’ as something special, as it should not be considered as just another group of products similar to many others. It is in particular its organic character that makes food special, clearly expressed in the ‘necessary presence of the “natural” at both the beginning and the end of the systems of food provision—both in agriculture and in palatability’ (Fine, 1998: 8). The organic or biological nature of food has implications throughout the entire food system in terms of quality, value and risk. ‘Food is a liminal substance (...) bridging (...) nature and culture, the human and the natural, the outside and the inside’ (Atkinson, 1983: 11).<sup>1</sup> Already in the past, this organic character, exemplified in the different agricultural seasons, the natural (soil, climate, etc.) conditions for food production and the physical need of every human being to consume food, has created the basis for, sometimes long distance, trade in food. Therefore, food trade exists since the first *agricultural* practices and has altered continuously over the years. Recently the magnitude of international food trade as well as its structure has again changed fundamentally. Over the last decades, the growth in the volume of the world trade in agricultural products (including foods) has been impressive and despite a consistent downward trend in the world market prices for most agricultural commodities, the total value of trade has expanded as well, except for the most recent years.<sup>2</sup> (See table 1.1.)

**Table 1.1 World exports in agricultural products (index: 1990 = 100)**

| Agricultural products   | 1992 | 1994 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
|-------------------------|------|------|------|------|------|------|------|------|
| Volume world production | 103  | 106  | 113  | 116  | 117  | 121  | 122  | 123  |
| Volume world export     | 110  | 120  | 130  | 137  | 140  | 141  | 147  | 149  |
| Unit value              | 99   | 100  | 112  | 104  | 97   | 93   | 89   | 88   |
| Value world exports     | 108  | 119  | 145  | 143  | 136  | 131  | 132  | 131  |

Source: WTO, 2002, table A1: 167.

The total value of global food exports in 2000 was estimated by the World Trade Organisation (WTO) at 442.3 billion US\$, representing 9 per cent of world merchandise trade and 40.7 per cent of world exports in primary products (WTO, 2001).<sup>3</sup> Despite these impressive figures and despite the global character of food trade in general, in fact only a few countries dominate the world trade in food products. The US, France and several other, mostly developed, countries are responsible for about 60 per cent of both global food exports and imports. (See table 1.2.)



**Table 1.2 Top 15 food exporting and importing countries (2000)**

| Exporters   | Value (\$bn) | Share in world (%) | Importers        | Value (\$bn) | Share in world (%) |
|-------------|--------------|--------------------|------------------|--------------|--------------------|
| USA         | 70.87        | 12.7               | USA              | 66.69        | 11.0               |
| France      | 36.52        | 6.5                | Japan            | 62.19        | 10.3               |
| Canada      | 34.79        | 6.2                | Germany          | 41.54        | 6.9                |
| Netherlands | 34.14        | 6.1                | UK               | 32.49        | 5.4                |
| Germany     | 27.76        | 5.0                | France           | 30.39        | 5.0                |
| Belgium     | 19.86        | 3.6                | Italy            | 29.39        | 4.9                |
| Spain       | 16.88        | 3.0                | Netherlands      | 20.90        | 3.5                |
| UK          | 16.67        | 3.0                | China            | 19.54        | 3.2                |
| China       | 16.38        | 2.9                | Belgium          | 18.52        | 3.1                |
| Australia   | 16.37        | 2.9                | Spain            | 16.98        | 2.8                |
| Italy       | 16.09        | 2.9                | Canada           | 15.27        | 2.5                |
| Brazil      | 15.47        | 2.8                | Korea, Rep. Of   | 12.99        | 2.1                |
| Thailand    | 13.28        | 2.4                | Hong Kong, China | 11.73        | 1.9                |
| Argentina   | 11.97        | 2.2                | Mexico           | 11.06        | 1.8                |
| Denmark     | 10.94        | 2.0                | Russia           | 9.87         | 1.6                |

Source: WTO, 2001, table IV 7, includes intra-EU trade

Notwithstanding the rapid growth in global food trade most food is still consumed domestically, in the country where it was originally produced, with the exception of a limited number of tropical crops like coffee, cocoa and palm oil. (See table 1.3.)<sup>4</sup>

**Table 1.3 Share of world production traded across borders (approximately)**

| Product     | Production share traded internationally (%) |
|-------------|---|
| Coffee      | 80  |
| Tea         | 40  |
| Soybeans    | 30  |
| Sugar       | 30  |
| Bananas     | 20  |
| Wheat       | 17  |
| Food grains | 11  |
| Rice        | 6   |

Source: Einarsson (2001) based on USDA, FAO and World Bank sources.

Some of the agricultural products that contribute enormously to global trade are only exported for a minor part. For example in the case of wheat, which is the world's largest export crop among the cereals, only 17 per cent of the world's production is exported while the remaining 83 per cent is consumed in the producing countries themselves. The US, Australia and Canada have 2/3 of total exports between them and almost 80 per cent of the exported wheat goes to developing countries. In the case of rice only 6 per cent of the global production is exported, but this trade is, interestingly, not dominated by developed countries but by Thailand, Vietnam and

China, while 90 per cent of the rice is also imported by other developing countries such as Indonesia, the Philippines, Bangladesh, Iran and Brazil. Coffee, a tropical crop which has been traded internationally already for a long time, is today mainly produced in Brazil, Vietnam and Colombia, while the US and the EU are the principal importing countries. The trade in soybeans is particularly fascinating because it occupies the middle ground between coffee and cereals, with an export share of around 30 per cent. The US produces well over half of the soybeans exported and Brazil, Argentina and Paraguay practically the rest. The EU buys almost half of the world soybeans trade and Japan, Korea and Taiwan the rest.<sup>5</sup> Meat is exported in growing quantities, facilitated by global cooling chains, which allow long distance trading. Nevertheless, meat exports still represent only less than 10 per cent of the total world production. The export is mostly in the hands of a rather small group of developed countries, split differently according to the particular meat product concerned: beef (US, Canada, EU, Australia, New Zealand, Argentina, Brazil and Uruguay); pork (EU, US and Canada); lamb (Australia and New Zealand), and poultry (US and EU). The larger importing countries are Japan, Russia and China, also depending on the type of meat concerned (Einarsson, 2000: 10-12). Fish is heavily traded as well, reaching to around 33 per cent of the total world fish production in 2000 with a value of US\$ 55.2 billion. And it is still increasing. Thailand was the leading exporter (US\$ 4.4 billion) in 2000, while Japan was the main importer (US\$ 12.8 billion). In terms of volume, the international fisheries trade is dominated by only a few fish products: shrimp (both cultured and wild), tuna, fish meal and fish oil. In contrast to most other food products, the prices of fresh and frozen fish have shown a long-term increase in real terms, since World War II.

A recent interesting change is that the 2001-2002 trade in processed foods outstripped for the first time the trade in unprocessed agricultural products. This is consistent with a well-known trend in world trade—a shift to an increasing share of manufactured at the expense of primary products (UNCTAD, 2004). Thus, despite the sometimes limited share of food produced that is traded globally, this share will most likely rise in the near future, particularly through the rapid growth in the trade of further processed food products, and become more important in the daily lives of producers and consumers, throughout the food supply chain (Clay, 2004).

The (relative) quantities of food and food products traded globally are growing, but simultaneously the organisation of this trade is also changing. In particular, the increasingly central role of retailers, global brands and consumers at the expense of local food producers and food processors is striking (Lang, 2003). It is no longer very meaningful to approach global food trade as if it only concerns the export of agricultural products from one country to another country. Global food trade becomes more and more an element of globalised food supply chains whereby raw materials produced by agriculture are used as inputs for the food processing industry and transported to supermarkets. Consumers choose food in the supermarkets on the basis of price, quality, quantity and trust.<sup>6</sup> They have to make their choices among 12,000 (mostly food) products in an average American supermarket, while new products are added everyday (Busch, 1997). Many food products are transformed technically but also socially and culturally during this process of globalisation. For example, the tortilla started as the staple food of the Mayan and Aztec people and became a fast food component of the diets of 21<sup>st</sup> century Americans and Europeans (Lind and Barham, 2004).

So the quantities of food products that are traded globally are growing. At the same time, the organisation of this trade is changing as well resulting in global food supply chains. These fundamental transformations over the last decades have had radical impacts in different domains.

### 1.3 Environmental and food safety impacts of globalising food production and consumption

Concerns about environmental, social and food safety issues seem to have become increasingly important in everyday life of consumers, political authorities, NGOs and private firms. For this reason food and the related concerns has become of special interest for the social sciences as well. Although the origin of these concerns may be very different, today they are mostly associated with the process of globalisation. In particular environmental problems and food safety concerns have contributed to public debates about the global provisioning of food and are used to justify proposals for drastically reforming food related policies and practices.

Very different kinds of environmental problems have raised public concerns during the last 30-40 years and have repeatedly resulted in changing food production and consumption practices. Some of these concerns are directly related to primary food production itself (Kirchmann and Thorvaldsson, 2000; Horrigan et al., 2002)<sup>7</sup>, such as, soil erosion, the widespread use of pesticides and fertiliser, the declining attractiveness of the countryside, reduction of biodiversity and the unethical treatment of farm animals. Other public concerns, such as the large quantities of waste produced and the energy necessary for food transports over long distances (so called 'food miles'), are more closely related to contemporary food consumption practices (OECD, 2001/2002).<sup>8</sup> Critical environmental concerns related to food-processing industries are: air and water pollution and the large quantities of solid (often organic) waste produced and energy used (Oosterveer, 2004).<sup>9</sup>

Globalising food supply chains are often considered the cause of threats for the safety of food as well.<sup>10</sup> For example, the growth in international food trade has meant that pathogens that were once confined to a particular region can now travel around the world on aeroplanes in a matter of hours (c.f. the examples of bird flu in Asia in 2004 and foot-and-mouth disease in the UK in 2003). In addition, mistakes in the production or processing stages of food can have large-scale consequences, like dioxins in chicken (1999) and medroxyprogesterone-acetate (MPA) in pigs (2002). The centralised nature of the food distribution system thus exposes far greater numbers of people over wider geographical areas to contaminated products (Woteki et al., 2001), which may have a considerable economic impact. The discovery of a first case of BSE in the US in 2003 and the following trade restrictions by Japan, resulted for example into an immediate 18 per cent decline in beef exports from the US to Japan (Leuck et al., 2004). Larger industrial food processors are furthermore using food safety issues as a tool to increase their market share using means of private governance, shifting responsibilities from food products to the producer (Busch, 1997). A global competition between large industrial food processors and food retailers may furthermore reduce the room for manoeuvre for national food safety politics.<sup>11</sup> At the very same time, concerns about the environmental and safety impacts of food create a pressure to introduce more effective forms of governance.<sup>12</sup> Governments currently often try to respond to these global transformation processes with rapid exchange of information and strengthened international co-ordination to better control contagious animal diseases and food risks.<sup>13</sup> Despite general agreement about the need for regulatory-policy change, however, opinions differ very much on the content and on the ways to establish such new regulatory regimes (Tickell and Peck, 1995). The cases of Bovine Spongiform Encephalopathy (BSE), or 'mad cow disease' and genetically modified food as particular examples of the changing and global character of food risks will be reviewed in chapter 4 and 5 of this study. Whether these food safety risks resulting from globalisation actually lead to more casualties remains very hard to determine because it proves difficult to establish the exact number of victims from contaminated food (Nestle, 2003).<sup>14</sup> Yet, food safety issues seem to have a serious bearing on consumers and thereby inevitably also on governing food production and trade (Frewer, 2004).<sup>15</sup>

#### 1.4 Governing environmental and food safety risks

Existing regulatory mechanisms are confronted with a growing public pressure to develop alternative ways to deal more effectively with the changing food safety and environmental problems. The conventional nation-state based regulation of food risks seems no longer able to adequately deal with these concerns. Until recently natural science provided a rather undisputed basis for this standard risk politics, but it looks like public trust in science and experts is diminishing as food risks appear to change. Well-known food safety problems, such as Salmonella and E. coli, seem to intensify, while new food safety risks, for example BSE and genetically modified food, seem to emerge and spread more rapidly over the globe. Environmental concerns, such as the use of pesticides in food production, the large number of food miles involved in its distribution and the welfare of animals at farms and in processing plants, all seem to become more intense in the context of global food trade and challenge the existing regulations of food production and consumption. Not only new problems and concerns about food, but also new social actors are putting pressure on existing regulatory systems. More and more (groups of) consumers, producers and retailers are expressing concerns about environmental and food safety risks and take initiatives to actively intervene in the governance of food. The growing consumer demand for organically grown food and fair trade commodities forms a clear indication for the increase in consumer concerns about food.<sup>16</sup>

The consequence of these changing risks and the involvement of other actors in regulating food is a proliferation of regulatory responses.<sup>17</sup> Traditionally, environmental and food safety regulation was the responsibility of nation-states, sometimes supplemented with international agreements. National laws and regulations were introduced and implemented in combination with institutions for supervision and control. Globalisation puts this regulatory regime under severe pressure because harmonisation of different national regulations seems a necessity to facilitate global trade. At the same time, this nation-state based regulatory response is confronted with many other market-based and privately initiated forms of governance dealing with these concerns in a different manner (Henson and Caswell, 1999). The declining public trust in the standard science-based risk politics further complicates conventional regulation. The result of these trends is the emergence of several competing regulatory regimes which differ in dimensions such as the scale (local, national, regional, global), the concerns included (safety, environmental, ethical, etc.), whether they are market or legal-based, public or privately organised and to what extent they involve consumers. The existence of different regulatory regimes forms a challenge for social science researchers.

#### 1.5 Central research questions

Innovative regulatory arrangements in-the-making, are meant to supplement or replace the existing ones. But many aspects of such arrangements remain unclear, conceptually as well as empirically. How to understand governance outside the conventional nation-state based arrangements? And if conventional nation-state based governance mechanisms are no longer capable of adequately dealing with food concerns, should they be completely replaced by other forms of governance? Or can they still perform when they are supplemented by innovative mechanisms? What will be the role of scientific arguments, public interest and citizen participation in decision-making in new regulatory arrangements? And, can different concerns (environmental, health, ethical and social) be combined in some form of governance and if so, in what way? How could innovative forms of governance of food production and consumption deal with the con-

tinuous interaction between local and global level dynamics is included? How would such innovative regulatory arrangements function in practice, in particular in relation to the conventional nation-state based arrangements? These are all key questions with regard to current developments in governing food and require further study through empirical and conceptual reflection. *Therefore the central objective of this research is to identify new, innovative regulatory arrangements on food and to review in what way they deal more effectively with existing, changing and new environmental and food safety concerns compared to the conventional nation-state based arrangements.*

The central research questions in this thesis are therefore:

1. What new, innovative governance arrangements dealing with environmental and safety concerns regarding food are currently being developed, in particular in Europe?
2. How do innovative arrangements relate to global (multinational companies, international treaties, global trade) and local (agricultural production, local ecology, consumption) level dynamics and interests?
3. Which actors and networks play key roles in developing and implementing these regulatory arrangements?

Answering these questions requires an intricate combination of theoretical conceptualisation and empirical research. The remainder of this study will aim at formulating replies to these questions and at improving the scientific and societal comprehension of this social dynamics that impact the everyday lives of many people in contemporary society. In addition, this study may provide an orientation for future social science research in this rapidly evolving social phenomenon. This study is not intended to formulate and test generalisable conclusions and has mainly an exploratory character.

## **1.6 Outline of the thesis**

This study is divided in two parts. The first part, chapters two and three, provides the theoretical and conceptual background. Social science literature on globalisation, food risks and food consumption is reviewed in chapter 2 in order to position this study and to identify the key challenges facing conventional nation-state based regulation of food production and consumption in the context of global modernity. This chapter identifies the key challenges facing conventional nation-state based regulation of food in the changing context of globalising food supply chains. Understanding the dynamics of contemporary food governance and analysing innovative regulatory arrangements require the use of new conceptual schemes. This will be attempted in chapter 3, where I will try to build on recent innovative thinking in social theory. In particular Manuel Castells' concept of the global network society and John Urry's notion of global complexity seem qualified to grasp some of the new phenomena relevant for studying the research questions.

Separated by an intermezzo on the research methods applied in this study, the second part, chapters four to seven, will present the results of four case studies. These cases were selected for empirical research to provide concrete insights into the transition towards new regulatory arrangements and the social dynamics involved. The first case-study in chapter 4, deals with the ways in which BSE (or 'mad cow disease') has been publicly debated between 1985 and 2000 in the United Kingdom, France, Germany and the Netherlands and how this particular food crisis has changed (thinking about as well as practices in) food risk politics. The BSE-crisis has

become a model case of the changing food safety risks in contemporary western societies and is often referred to when new food risks and the need for innovative forms of food governance are discussed. Chapter 5 reviews another food safety and environmental issue that has had deep impacts on discussions about food governance, namely the production of genetically modified food (GM-food). Since the mid-1990's, GM-food has been at the centre of many public manifestations and intense political debates, as well as the topic of extensive scientific research. The objective of this chapter is to compare the public debate and the official regulation of GM-food in the United States with the situation in Europe. This comparison will provide particular insights into the tensions between a demand for national and the need for global governance of food. After these two case studies that basically review public worries about food risks and the challenges facing political decision-making on food regulation, the other two chapters will identify and examine innovative regulatory practices. Chapter 6 looks at aquaculture because this rapidly developing way of producing fish for the global market has given rise to serious public concerns about its environmental and food safety impact. Controversies surrounding current aquacultural practices are debated by looking into salmon raising in general and also into shrimp farming particularly in Thailand. Different initiatives from producer organisations and nation-states to deal with these concerns are reviewed and particular attention will be given to the extent in which they involve consumers. The last case study on the labelling of food forms the topic of chapter 7, as it seems to have become the most attractive tool in the eyes of NGOs and other private organisations to regulate the social and environmental impacts of global food supply. More and more food products are provided with information about the production process and production circumstances involved, such as environmentally friendly produced or produced by farmers and workers under socially improved circumstances. The concrete labels studied in this chapter are the Marine Stewardship Council (MSC) for fish and the Fair Trade label for coffee and they will be compared with more conventional regulatory mechanisms.

Chapter 8 answers and discusses the research questions. This chapter will conclude with some reflections about future prospects for the governance of the production and consumption of food in global modernity.

## Notes

- <sup>1</sup> The organic character of food is often used as an explanation for developments in the sector. For example, Boyd and Watts (1997) suggest that the specific nature of 'just-in-time' practices in the US broiler industry derives in particular from the organic qualities of the product.
- <sup>2</sup> The quantity of food exported increased fourfold between 1961 and 1999 from 190 million metric tonnes to 774 million tonnes. By 2000 more than 1 out of 10 food products was exported, representing a total value of US\$ 256 billion (Millstone and Lang, 2003: 60).
- <sup>3</sup> Among the agricultural products traded globally, the total value of trade in more luxury food products, like fresh fruits and vegetables in particular, has shown a very marked increase over the last years (FAO, statistics database (<http://apps.fao.org/>)).
- <sup>4</sup> McMichael (2000) for example claims that roughly ninety per cent of the world's food consumption occurs in the country where it is produced. Sixty per cent of the food is consumed by the rural population that produces it, whereas urbanites largely (90 per cent) depend on the market. Only about one-fifth of the world's almost six billion people participate in the cash economy.
- <sup>5</sup> Recently soybean production and processing is shifting away from mature markets, such as the US, to emerging markets, such as Brazil and Argentina. Since the early 1990s, the US share of world soybean production has declined steadily from about 50 per cent to less than 40 per cent, while Brazil's share

## Introduction

increased to 25 per cent and Argentina's to 15 per cent (<http://www.foodnavigator.com/news> (accessed 11 December 2003)).

- <sup>6</sup> An example of globalised food chains is the production of concentrated animal feed in Western Europe. The composition of this food is based on some general indicators (proteins, energy, etc.) while the exact composition (what products from which country of origin are actually put into the feed) may differ from day to day depending on availability and relative prices.
- <sup>7</sup> The environmental impact of food production should not be approached in a simplistic way as for example IFPRI (2002: 23) observes that 'it is commonly thought that intensification of agricultural production usually leads to environmental degradation. (However), in most developing countries too little intensification is a major cause of natural resource degradation, as desperately poor farmers mine soil fertility and climb the hillsides in an effort to survive. (...) Agricultural development, poverty reduction, and environmental sustainability are likely to go hand in hand when agricultural development is broad-based, market-driven, participatory and decentralised, and driven by appropriate technological change that enhances productivity.'
- <sup>8</sup> Large retailing firms are often held responsible for these environmental problems because of their decisions about packaging food in supermarkets and about transporting food products from all over the globe. Nevertheless they can also become a potential leverage for changes in agri-food chains. Konefal et al. (2003) observe contradictory tendencies in the food retail sector, where on the one hand concentration tendencies led to a global oligopoly in the sector, and on the other hand increased consumer pressure has resulted in incentives for food retailers to incorporate social and ecological attributes into production practices.
- <sup>9</sup> The analysis of the environmental effects of agro-industrialisation by Barrett et al. (2001) goes beyond the consequences generally associated with this process. They conclude that 'vertical co-ordination through contracting or organisational integration permits downstream interests to exert unprecedented influence over farming practices in which they are not directly engaged' (ibid.: 423). This influence may have negative environmental effects, for example when aesthetic requirements stimulate increases in pesticide use. Vertical co-ordination in agro-food chains may, on the other hand, also induce environmentally friendly practices in order to get premium prices. The resulting net-effect of this influence from agro-industries remains an object of empirical verification. Interestingly, larger corporations seem to be more inclined to voluntary compliance than smaller firms because they are more susceptible to official monitoring and to public scrutiny endangering their brand image.
- <sup>10</sup> For example: 'The pollution of ecosystems, the growth of genetic engineering of food products and the absorption of chemicals into the bodies of producers and consumers of food mean that there are ethical connectivities between actors at one location in the chain and those at other sites' (Leslie and Reimer, 1999: 408).
- <sup>11</sup> The fact that developing countries are allowed until the year 2015 to phase out methyl bromide use led US farmers to raise trade concerns. Rodger Wasson, president of the California Strawberry Commission, complains that 'the 50-acre grower in California may be competing with a multinational corporation based in China who gets to use the product 10 years longer' (Environment News Service, 23 March 2004).
- <sup>12</sup> For example in the year 2002 the Dutch food safety agency analysed 345 samples of lettuce and 61 samples of fresh spinach on nitrate (Keuringsdienst van Waren, 2003). These numbers are infinitesimal in comparison to the total quantities of these produces that are traded and consumed annually.
- <sup>13</sup> See Maxwell and Slater (2003) for an insightful and detailed comparison between 'old' and 'new' food policy.
- <sup>14</sup> The Toronto Globe and Mail reports on 15 October 2002: 'About 20 per cent of the food we eat is contaminated with trace amounts of pesticides, even though most of them have been banned for decades (...), such as DDT and dieldrin.'
- <sup>15</sup> However, despite the global character of food safety concerns, consumer trust may differ considerably per

country without being directly correlated to food safety problems. For example, in Europe consumers in the UK express high levels of trust in the safety of food although the country has known several serious problems in this domain (Poppe and Kjaernes, 2003).

<sup>16</sup> Market analyst Mintel reports a 75 per cent increase in spending in the UK on ethically produced food, rising to 1.75 billion UK pound in 2003 (Novis, press report, 23 April 2004).

<sup>17</sup> Some observers consider these latest institutional innovations from private firms as aimed at further disciplining producers, suppliers, workers and consumers when agro-food networks become ever more transnationally dispersed. These standards not only define product attributes but also production practices, handling requirements and distribution guidelines (Konefal et al., 2003).



## PART I

Introducing the challenges facing the  
governance of food production and  
consumption in the context of global modernity



## Chapter 2. Current debates in global food governance

### 2.1. Introduction

Governing food production and consumption at the start of the twenty-first century is different than in the past because contemporary societies have changed fundamentally. This reflects on the social sciences. Societies in the so-called second modernity can no longer be analysed with the help of sociological concepts developed during the first, or simple, modernity (Beck, 2004). These conceptualisations fail to deal adequately with the drastic social changes at the end of the twentieth century. First, or simple, modernity was predominantly conceptualised as a logic of structures, where a society fully coincided with the boundaries of the nation-state and where society and nature could be clearly distinguished. In this perspective, progress was defined as technical rationality, presuming that more and deeper knowledge would enable more and more phenomena to be controlled. Second, or global modernity has undermined this image. In particular, the assumption is no longer valid that further rationalisation combined with a nation-state-based governance system can guarantee progressive reduction of risks. This transition from a first – towards a second modernity questions several basic elements in the conceptualisation of simple modern food regulation. Therefore, understanding contemporary food governance requires conceptual tools that better fit the changes of globalising food production and consumption, the emergence of new food risks and the shifting role of nation-states in governing international trade. The new conceptual model that is needed will be developed in chapter three. This chapter 2, will review the main challenges facing the conventional nation-state-based, or simple modern, regulation of food production and consumption in global modernity, notably:

- the changing position of the nation-state in the context of globalisation,
- the disappearance of the clear separation between public and private spheres,
- the inadequacy of standard science-based risk politics in dealing with food risks and with different consumer concerns related to food,
- the growing involvement of non-state social actors in food governance, in particular consumers and NGOs.

Section two will first summarise the key characteristics of conventional, nation-state-based regulation. In the following four sections the main societal changes that put pressure on this traditional form of regulation will be reviewed. Section three examines globalisation because, as the first chapter has already clearly shown, the rapid transition towards globalised food provisioning puts pressure on existing nation-state-based regulatory practices. Section four will then review the literature on forms of governance relevant to our understanding of governing global food. New and changing food risks, the topic of section five, form a key challenge for contemporary regulatory practices. The standard, science-based risk politics, no longer seem able to deal adequately with food risks, which further complicates the regulation of food. The structural aspects of risks in a global risk society makes the involvement of the social sciences in (the generation of) innovative governance mechanisms indispensable. Other social actors, in particular consumers, are taking up particular roles in governing food production and consumption (section six). The different dynamics and changes confronting governance of food in contemporary society that are reviewed in this chapter encourage the search for innovative regulatory arrangements, which will be our task in the remaining chapters of this study.

## 2.2. Conventional food governance

Conventional, or simple modern, regulation of food is based on the assignment of specific tasks to the government and to science. This model is furthermore based on a clear distinction between nature and society and between public and private responsibilities. Although such conventional regulatory practices have expanded tremendously over the years, this approach to food governance no longer seems adequate at the beginning of the twenty-first century.

Food risks make up a very sensitive category of risks in every human society because food is intimately associated with everyday life and the physical survival of every human being (Fine, 1998). Regulation of food production and consumption has therefore been the responsibility of sovereign nation-states since the early nineteenth century. The first government measures at that moment constituted a response to public unrest about the then common adulteration of foodstuffs, like adding water to milk or skimming off the cream. Since that time, concerns about the safety of food have given rise to a growing body of official regulations (Atkins and Bowler, 2001; Buuren et al., 2004; Braithwaite and Drahos, 2000).<sup>18</sup> Governments in Western countries defined the legally acceptable composition of foods, while different local and national authorities were empowered to detect fraud. In the course of the twentieth century, national legislation as well as nationally organised inspection services expanded drastically.<sup>19</sup> Food regulation was based on a strict division between public and private responsibilities. The national state was charged with the overall protection of its citizens against dangers involved in producing and consuming food, while private firms meanwhile competed amongst themselves on the price and quality of food. Nation-state-based, public regulation focussed primarily on the safety of food and was shaped into mandatory measures. Continued innovations in science and technology resulted in growing capacities to regulate food safety and in increasing speed translating scientific knowledge into food governance. As a consequence, the number and complexity of food laws and guidelines increased tremendously during the 1980s and the 1990s, contrary to the general trend towards political de-regulation in other domains. Nation-state-based food regulation traditionally focussed on risks associated with particular food products and it applied standard risk politics to deal with them. Standard risk politics is guided by actuarial approaches (Bernstein, 1996) and is based on a strict division into three separate phases (FAO/WHO, 1997; Stonehouse and Mumford, 1994; Krimsly and Plough, 1988):

- I *Risk assessment*: a risk associated with a particular hazard is determined by scientific experts. After an evaluation of the relationship between dose and effect and after judging the exposure rate, the risk is characterised.
- II *Risk management*: using information from the previous phase the political institutions compare different options using cost – benefit calculations and take the optimal decision via rational decision-making procedures.
- III *Risk communication*: the general public is informed about this decision and in addition legal and communicative instruments can be used to influence public behaviour to reduce the risk.

Standard risk politics assigns separate roles to different scientific disciplines. Natural sciences have to examine the relationships between causes and effects and predict possible health and environmental consequences. Social sciences are charged with guiding decision-making processes and risk-communication and with analysing the distribution of (the impacts of) risks and their regulations. Usually these social sciences take an objectivist approach, giving a central role to economics (cost – benefit analysis) and psychology (individual perception) (Renn, 1992; Slovic, 2000).<sup>20</sup>

Until recently the governance of food production and consumption remained the responsi-

bility of sovereign nation-states. Consequently, thinking about (inter)national regulatory politics was dominated by theories that conceptualise national states and societies as the central units of analysis (Ostrom, 1990). Global governance was approached from the perspective of nation-states, whereby rational actor theories were applied to understand the way nation-states operate at the global level.<sup>21</sup> According to this view, the lack of well-defined institutions outside the national states forces them to collaborate pragmatically at the transnational level to solve those problems that go beyond individual national states. Some observers even claim that international regimes have an epiphenomenal character, because nation-states are only pursuing their own self-interest through them (Lake, 1999).<sup>22</sup> The creation of effective international institutions may nevertheless result in the development and implementation of a persistent and connected set of rules and practices prescribing behavioural roles, constraining activity, and shaping expectations (Haas, Keohane and Levy, 1993). Such international institutions, or international regimes, became established because states were viewed as rational actors, who were pragmatically willing to exchange some of their own legal freedom of action for some influence on the actions of other states (Keohane and Nye, 2002). Sometimes international regimes get institutionalised to deal effectively with a limited number of concrete transnational (environmental or other) problems. However, this process of institutionalisation is, in political science literature, generally not perceived as changing the role of nation-states fundamentally (Young, 1997; Cutler, 2002).<sup>23</sup> For example, Keohane and Nye (2002), claim that the prime democratic legitimacy remains at the domestic level, and Karkkainen (2004: 72) states that 'sovereign states are presumed to be the natural locus of decision-making, although their behaviour may be influenced horizontally by inter-sovereign best practice standards, or constrained vertically by supra-sovereign rules and norms.'

These conventional models for analysing, understanding and designing environmental governance and food safety regulations based on nation-states and international regimes are, however, increasingly being challenged (Litfin, 1998).<sup>24</sup> In the era of globalisation, nation-states seem to continue with their conventional regulatory food politics while more and more alternative regulatory mechanisms are developed by regional and global institutions as well as private companies.<sup>25</sup> Moreover, 'many non-governmental organisations (NGO's), businesses, and communities are playing important roles in the emergence of global environmental governance as we know it' (Speth, 2002: 13). A limited focus on formal institutions to judge global regulation therefore fails to grasp the complex and dynamic involvement of other social actors in the changing practices of international governance. As will be shown in the following sections, the conventional nation-state-based regulation of food production and consumption is less and less able to deal effectively with the challenges raised in the context of global modernity.

### **2.3. Different views on globalisation**

Globalisation in food production and consumption is one of the main reasons why conventional nation-state-based regulation is no longer adequate. Comprehending the process of globalisation in general and understanding its consequences has become the topic of intensive debates within social sciences. Several social scientists regard globalisation as an economic transition in which the needs of global capital are imposing a neo-liberal economic discipline on societies all over the world. In their analysis large transnational corporations are becoming footloose and are beginning to impose their mode of production on a world scale, while their power goes virtually unchallenged. This view is categorised by Held et al. (1999) as 'hyperglobalist', and globalisation is considered the near culmination of capitalism. Capitalist production

relations are expected to replace all that remained of pre-capitalist modes of production around the globe and to unify the world into one single mode of production and one single global economic system (Robinson, 2001). These views are challenged by 'transformationalists', who consider globalisation to be a much more differentiated phenomenon involving diverse fields of activity and interaction, such as the political, military, economic, cultural, migratory and environmental domains.<sup>26</sup> Transformationalists moreover do not view globalisation as a continuous and inevitable process towards global homogeneity.

Hyperglobalist views of the globalisation of food production and consumption focus on the increasing subordination of food-producing regions to global food supply chains in which production relations are controlled by transnational food companies. This capitalist penetration goes hand in hand with replacing and substituting natural processes with industrial processes, facilitating the transportation of food products over longer distances, and creating conditions for the expansion and lengthening of food chains (Bonanno et al., 1994).<sup>27</sup> This conceptualisation of the globalisation of food is further elaborated through using the 'commodity chain' concept (Janvry, 1981; Friedland et al., 1981; Murdoch, 2000; Le Heron, 1993; Friedland, 2001). In turn, this commodity chain concept can be broken down into several theoretical perspectives, such as the 'global commodity chain' (Gibbon, 2001; Dicken et al., 2001), the 'system of provision' (Fine, 1998) and 'commodity circuits' (Leslie and Reimer, 1999).<sup>28</sup>

Changes in the organisation of food production and consumption since the middle of the nineteenth century are described by hyperglobalists as the succession of three different, but in themselves relatively stable, stages. Each stage is regulated by internal market mechanisms, by state interventions and by relatively stable pressure from different social forces. But the inherent contradictions of capitalist production ultimately and inevitably result in a process of re-structuring and in the transition from one stable system of relations of production to another. This results in a reorganisation both of agricultural production practices and structures and of fundamental changes in the regions affected. The first of these three stages, periods, or food-regimes (Le Heron, 1993; McKenna et al., 2001), roughly covering the period between 1870 and 1914, was, at the global level, characterised by colonial trade relationships, i.e. the unequal exchange of agrarian raw materials from the colonies for finished goods from the respective mother countries (Ilbery, 2001).<sup>29</sup> Mixed farming dominated agriculture in western countries.

In the second stage, rapid urbanisation and industrialisation led to a growing spatial separation between food producers and food consumers, a process facilitated by innovations in production technologies, improved storage and faster transport. Consequently, during the second food regime (fordism) and particularly after 1945, an intensive system of accumulation developed around the mass production of standardised brand products. Agriculture became dominated by larger-scale and technology-intensive practices, replacing the traditional, extensive ways of farming. The daily menu was increasingly based on the consumption of standardised cheap food products (bought in supermarkets), produced within agro-industrial complexes using grain-fed livestock production and fats/durable food. A remarkable development of this period was the continuously increasing distance between food production and food consumption, in space as well as in time (Dickens, 1992).

In the transition towards a third food regime (post-fordism) since the 1980s, global food trade is expanding more rapidly than global food production. At the same time the state is withdrawing from agrarian markets through deregulation and liberalisation. International corporations, particularly retailers, aim at flexible sourcing of food products from different regions around the globe, which may change over time depending on the specific local production circumstances and market demand.<sup>30</sup> As new mass markets for standardised processed foodstuffs are appearing in many developing countries, consumer demand in industrialised countries

seems increasingly differentiated. This makes (the definition of) quality an essential element in the marketing of food.<sup>31</sup> This 'consumerist- and quality-turn' requires a more flexible organisation of food production, replacing the mass production of the fordist-era. (See Box 2.I, for the case of tropical crops.)

#### Box 2.I

##### *The production and trade of tropical food crops between 1930 and 1990*

Between 1930 and 1980 the production of tropical food crops like coffee and cocoa was mostly in the hands of smallholders producing largely undifferentiated crops. The national state played the role of valorising peasant production through credit-based input schemes, extension services, national systems of quality control and pan-territorial pricing. International trade was dominated by a small number of big trading companies based in the US and Europe (Morgan, 1980). Market relations between these transnational corporations (TNC's) and suppliers dominated over forms of direct control. The major mechanism linking suppliers with these international traders took the form of simple, inclusive quality conventions combining price with certain crude physical crop properties chosen with the involvement of producers or their governments. A concrete example of this kind of agreements is that set by the International Coffee Organisation.

Around 1980 this structure began to change, and by 1990 the world of producing and trading tropical food crops was definitely reshaped. The organisation of the producer-trader-networks displayed a far greater diversity than before. International producer cartels had collapsed and public intervention and regulation at the national level in developing countries were greatly reduced because of the implementation of structural adjustment programmes imposed by the International Monetary Fund. Private contracts between producers, traders and industrial consumers began to dominate international trade in tropical food crops. Market co-ordination was reduced and therefore secularly falling prices were accompanied by increasing price instability, both in international and domestic markets. Reduced market predictability was translated in falling margins and increased risks for traders, leading to stronger bargaining positions for processors and retailers. These transitions were combined with a growing differentiation in consumer tastes. At the same time, vertical co-ordination by international traders persists and has become more important, but it is accompanied by a proliferation of more direct forms of co-ordination (contracts, certification, etc). The simple matrix linking crop quality and price has disappeared. Currently, commodities are increasingly sold in undifferentiated forms as inputs for processing industries, while consumer-driven quality conventions are proliferating. These conventions distinguish between products on the basis of origin, production process or certain quality characteristics and are privately negotiated. They insist on ex-ante rather than ex-post forms of quality monitoring. This proliferation of quality demands makes monitoring increasingly costly and buyers of tropical food crops are trying to transfer many of these costs to the producers (Gibbon, 2001).

Contrary to this model of successive food regimes developed within this hyperglobalist view, transformationalists consider globalisation to be a contingent and multidimensional phenomenon involving many different domains. They oppose views that merge globalisation with the development of global capitalism (Held et al., 1999). Globalisation should, according to them, be conceptualised as a set of (long-term) historical processes replete with contradictions embodying transformations in the spatial organisation of social relations and transactions. These global transformations can be interpreted as the generation of transcontinental or interregional flows and networks of activity, interaction and power (Giddens, 1990; Castells, 1997).<sup>32</sup> Social

relationships are no longer primarily based on local face-to-face interactions but become increasingly disembodied and re-embedded again across time and space. Globalisation does not necessarily result in homogenisation because this transition may also evolve towards de-localisation of the production of goods and services (Mol, 2001). Globalisation may also create heterogenisation and hybridisation in different spheres, such as finances (Hoogvelt, 1997), information and communication (Lash and Urry, 1994) or management (Gilmore and Pine, 1999).<sup>33</sup> Even when strong global economic, political and cultural forces operate similarly all over the world, these forces may have different local effects depending on the specific local contexts (McMichael, 1994/1996). Transformationalists therefore conceptualise globalisation of food production and consumption as changes in (agri-food) networks involving different social actors (McMichael, 2000; Marsden, 2000; Lockie and Kitto, 2000). It is through such networks that social actors at diverse and sometimes long-distant localities (re-)construct food in different ways and almost on a daily basis (Arce and Marsden, 1993).

Despite their different views on globalisation in general and on the changing organisation of food production and consumption in particular, both hyperglobalists and transformationalists challenge the central position of the sovereign nation-state. Hyperglobalists underline the growing dominance of private firms in the organisation of food supply. Transformationalists point to the flexibility and heterogeneity in recent transitions and at the importance of combining local and global dynamics in the conceptualisation of globalisation and food.

#### 2.4. Global food governance

As Mol (2001) observed, globalisation processes may indeed have real and significant detrimental environmental side-effects. But at the same time, innovative and interesting contemporary social transformations are also linked to this transition. Through globalisation, the governance of environmental and food safety problems seems to enter a fundamentally different phase. While in the past the problem of international environmental governance could be formulated in terms of a discrepancy between a globally organised ecosystem and a nation-state-based system of governance, this no longer seems adequate (Weale, 1992; Young, 1994/1997).<sup>34</sup> The networks of interdependence between states are intensifying through increasing trade, the growing numbers of people (refugees and tourists) travelling between different countries and the increasing awareness of common problems, such as climate change and terrorism. These trends reduce the possibilities for nation-states to deal with particular problems autonomously because internal dynamics are to an increasing extent determined by external processes (Held, 2004).<sup>35</sup> So, traditional demarcations between domestic and foreign policies and between territorial and non-territorial responsibilities are called into question. Increasingly 'nation-states and national political actors are embedded in broader frameworks of governance and politics, consisting of multiple layers, from local to global, and multiple actors from private firms to non-governmental interest groups' (Mol, 2001: 219). Thus the standard nation-state-based regulatory model seems ill-fitted to deal with the specific contemporary challenges facing the governance of food. Increasingly, this conventional regulation of food seems to lag behind the growing cross-boundary flows of trade, finance capital, technology and know-how (Griffin, 2003). Consequently, the resulting changes in the interaction patterns between different states and between different state and non-state actors lead to a variety of innovative forms of governance involving diverse social groups at different spatial and sectoral scales. This is generally referred to as 'multi-sector and multi-level governance' (Picciotto, 2002; Held, 2004) or 'network-based governance'.<sup>36</sup>



A thickening web of multilateral agreements, institutions, international regimes, civil society-based schemes and private forms of governance is evolving, making global governance a significant arena in which struggles over wealth, power and knowledge are taking place (McGinnis, 1999; Karkkainen, 2004).<sup>37</sup> Innovative forms of global governance have been proposed to solve contemporary problems that can be state-based, non-state-based or hybrids. Suggested state-based models for global governance mostly imply some form of a global state, copying the example of the traditional nation-state. With regard to food, networks of international governance have been established, most of which aim at limiting authority to nation-state bodies (Young, 1997; Paterson, 1999; Griffin, 2003). Examples of such supra-national institutions are the European Food Safety Authority and the WTO. (See Box 2.II.)

### Box 2.II

#### *The World Trade Organisation and food regulation*

The World Trade Organisation (WTO) co-ordinates the regulation of global trade in general and since 1995 the regulation of food trade as well. The WTO is a membership organisation where sovereign nation-states meet to develop rules for global trade. These rules are the result of extensive processes of deliberation between the member-states, whereby decisions are normally reached without voting but through unanimous agreement between all members.

WTO-regulations are generally based on economic considerations alone, but in the case of food, safety is also included. According to the WTO, global food safety regulations should be based on negotiations among the members of the Codex Alimentarius Commission and should then be translated into global food safety standards. Such agreed-upon global standards define the criteria for the presence of specific substances in food products. Regulation of international food trade on the basis of the production process ('non-product related production and process methods') is not acceptable if it does not change the product itself. WTO-members are therefore not allowed to distinguish food produced with special care for social and environmental consequences from food produced without those concerns. These principles are further detailed in the Technical Barriers to Trade (TBT) and the Sanitary and Phytosanitary (SPS) agreements. (See also chapters 3 and 7.)

Nevertheless, the presence of such international institutions dealing with the governance of global food trade substantially limits the sovereignty of individual national states to effectively control this trade for particular environmental or food safety interests. Nation-states are compelled to comply with global regulatory arrangements not necessarily by force 'but because they will be excluded from global capitalist commodity chains if they do not and, today, this means 'economic marginalisation and ruin' (Schaeffer, 1995: 266).<sup>38</sup> However, despite its decreasing power, the nation-state continues to be held responsible by the general public for dealing with food production and consumption concerns and crises. Moreover, it seems as though the nation-states is not only accountable to domestic constituencies but more and more to transnational citizenry as well (Haas, 1999). At the same time, food safety concerns are increasingly joined to economic, environmental and social concerns. The mutual and overlapping influences between environment, trade, and security make it less and less feasible to consider them as separate policy domains. It thus becomes increasingly difficult to solve problems via specialised international policy regimes.<sup>39</sup> In addition, since no mechanisms exist to deal effectively with conflicts between different regimes, the various institutions and processes in global moder-

nity remain disarticulated and fragmented and are thus short of success and legitimacy (Lip-schutz and Fogel, 2002; Keohane, 2002).

This combination of conventional nation-state-based food regulation and global institution-based governance of international food trade seems insufficiently able to deal with the problems facing contemporary food supply chains. Such state-based models of global food governance are thus increasingly supplemented in the international arena by innovative non-state forms of governance. Large multinational firms seem to control increasingly larger parts of global food production. Many observers claim that existing international structures, such as the United Nations, are lagging behind this rapidly developing 'process of corporate-led globalisation'. They suggest that the global power of TNCs can be controlled only with the help of global, democratic political institutions, state-based or non-state-based (Camilleri, 2002; Robinson, 2001; Sklair, 1999; McMichael, 1994/1996/2001).<sup>40</sup> In addition, social movements are opposing the establishment of 'global regimes of food production and trade' because they claim that food has not just economic aspects, an item of consumption, but embodies the links between nature, human survival and death, and culture and livelihood (McMichael, 2000: 32). The growing public concerns about the social and environmental impacts of food production processes themselves are not covered by product-oriented regulations (see chapters 4 and 5 for the concrete examples of BSE and GM-food). Building on these concerns, social movements may exercise public pressure, which can be highly effective (Dicken et al., 2001; Lang, 2004). The rising efficacy of a multitude of resistance movements contributes to the permanent reformulation of objectives and practices of global governance (McMichael, 2001; Speth, 2002). Global civil society is 'constantly active—with ambivalent results—in redirecting global economic processes into less harmful directions' (Mol, 2001: 116) and has become an important political actor engaged 'in global governance by mobilising means of governance that operate independently of the state system' (Wapner, 1997: 81).

Certification and labelling schemes form an interesting example of non-state-based governance involving different social actors, such as NGOs, consumers, farmers, processors and retailers. Since the 1990s, alternative food supply chains and private certification and labelling schemes have proliferated, as can be observed in the growth of organic labelled food, the certification of fish through the MSC label, and the HACCP-labelling of complete food supply chains.<sup>41</sup> As these 'non-state and market-driven' instruments are not based on formal state-based decision-making procedures, the allocation of authority and power within them is not clear. Responsibilities within non-state-based innovative forms of governance are mostly distributed among producers, consumers and civil society organisations. Nevertheless, 'they often convey and/or appear to have been accorded some form of legitimate authority' (Hall and Biersteker, 2002: 4) that seems to be based on public opinion or the result of concrete effectiveness in changing market behaviour. Ecolabels, for example, heavily rely on the moral persuasion of customers and on strategic moves by producers and retailers trying to profit from price premiums, market access or market niches. Such a diffuse basis of authority might not be truly problematic unless different certification and labelling schemes compete with one another (Gulbrandsen, 2004).

Despite the growing importance of non-state-based innovative forms of global food governance, the continuing importance of the nation-state should not be overlooked. The national state provides the context for and is often interacting with non-state actors, which may result in different forms of hybrid governance. Hybrid forms of governance are blurring previously clearly distinctive categories, such as the separation between national and global and between public and private forms of governance (Karkkainen, 2004).<sup>42</sup> 'World politics is being transformed into a "polycentric" or "multinucleated" global political system operating within the same geogra-

phical sphere (and/or overlapping spaces)' (Cerny, 1999: 190).<sup>43</sup> This trend may generate a form of globalised functional differentiation with specialised international institutions, in which civil society associations may fulfil multiple roles (Lipschutz and Fogel, 2002).

This transition towards different forms of global governance results in a diversification of regulatory mechanisms and changing roles of different social actors. The multitude of mechanisms, roles and actors in food governance also creates tensions in the way in which national governments have approached food risks, which was quite undisputed until recently.

## 2.5. Questioning conventional food risk politics

The conventional ways in which nation-states are dealing with food risks in global modernity is nowadays becoming the centre of serious debates. Standard risk politics (see section 2.2) has been criticised for its inability to conceptualise risks as social phenomena (Douglas and Wildavsky, 1983; Perrow, 1984; Adams, 1995).<sup>44</sup> Human risk behaviour cannot be understood by analysing individual attitudes alone but has to be comprehended as integrated into wider social practices (family and community relations, institutional decision making processes, etc.).<sup>45</sup> Social constructivists even go a step further when they challenge the epistemological assumption underlying standard risk politics that risks can be defined in an unproblematic and neutral way by using scientific knowledge (Hagendijk, 1996).<sup>46</sup> They claim that risks are socially constructed through the beliefs, interpretations and rationalities of the various societal actors involved (Wynne, 1996).<sup>47</sup> According to this view, different types of (context-related) rationalities exist, and therefore actual risk politics result from a constant struggle by all actors to put their particular risk interpretation on the public agenda and to impose their definition on other actors ('whose reality counts?').<sup>48</sup> More scientific research alone can therefore not resolve conflicts about risks, because this struggle involves (at least partly) different (frames or) meanings of risk (Luhmann, 1991/1997).<sup>49</sup> So, our understanding of today's risks and risk politics cannot gain from further elaborated natural sciences or cost-benefit analyses alone. It requires profound social science analysis of the social dynamics involved in (the definition of) risks and risk politics.

The changing characteristics of risks in globalising modern societies contribute further to the challenges facing standard risk politics just mentioned (Beck, 1992/1996/1997; Beck and Willms, 2004).<sup>50</sup> Continuous scientific and technological progress may result in new risks, thereby transforming what were previously considered side-effects of progress in science and technology into challenges for the basis of society itself (Lash et al., 1996). Modern Western societies can effectively be called 'risk societies' (Beck, 1992; Giddens, 1990) because they cannot escape from modern risks. At the same time, the central institutions of contemporary Western societies (modern science and technology, and the welfare state) are increasingly incapable of dealing with them.<sup>51</sup> Nevertheless, modern science and technology remain the prime sources of information for politicians and the general public about the potential impacts of these risks and their possible solutions.<sup>52</sup> This dependency is problematic because expert views on specific risks may differ, while revisions are permanent. This dilemma forces lay people to evaluate and modify their daily behaviour in the light of a continuous flow of information stemming from scientific experts, but also from politicians, media and NGO's. Thus, when confronted with risks in modern society, lay people can do little more than choose which (scientific) expert they trust the most (Beck, 1992; Giddens, 1991).<sup>53</sup>

Increasing global interdependencies and the changing position of the nation-state put standard risk politics even further under pressure (Beck, 1999).<sup>54</sup> The impact of globalisation on

risks, and consequently on risk politics, should be understood as changes in both the objective and the subjective distribution of risks (Giddens, 1990: 124/5, italics in original):

'Objective distribution of risks:

- 1) *Globalisation of risk* in the sense of *intensity*.
- 2) *Globalisation of risk* in the sense of the *expanding number of contingent events* which affect everyone or at least large numbers of people on the planet.
- 3) Risks stemming from the *created environment*, or *socialised nature*: the infusion of human knowledge into the material environment.
- 4) The development of *institutionalised risk environments* affecting the life-chances of millions.

The subjective perception of perceived risks:

- 1) *Awareness of risk as risk*: the "knowledge gaps" in risks cannot be converted into "certainties" by religious or magical knowledge.
- 2) The *well-distributed awareness of risk*: many of the dangers we face collectively are known to a wide public.
- 3) *Awareness of the limitations of expertise*: no expert system can be wholly expert in terms of the consequences of the adoption of expert principles.'

Conventional nation-state based standard risks politics are confronted with both the changing objective characteristics of risks in global modernity and their subjective perception. At the same time, the capacities of nation-states to handle risks are being reduced. Food risks are model cases for these changes because they used to have a local and natural character when seasons, climate, weather and location imposed 'natural' limits on the production and preservation of food. Today this situation has evolved drastically into a globalised provisioning of food. And food safety is 'difficult to establish in a context of time-distantiation and time lags, that is, where damage and harm are being produced out of sight, below the surface, for often unknown periods of time and where the symptoms do not necessarily allow for a backwards reconstruction to originating sources and causes' (Adam, 1999: 232). Thus, the stretching of food-supply chains has changed the previously local and natural character of food risks because the effects of particular risks may be felt over much larger distances in space as well as in time, while the increased use of technology is changing the definition of 'natural' itself (Adam, 1999). The human senses are in many cases no longer capable of adequately determining food safety risks and therefore people necessarily have to rely more on science and other forms of institutional knowledge. Globalised food supply chains have an increased potential for health hazards and a decreased potential for tracing their sources because of the mobility of the contamination and the time-space distantiation between cause and effect. (See Box 2.III for an example.)

Food risks are not only changing in their objective characteristics in the context of global modernity, but their subjective characteristics are evolving as well, accelerating a drive towards alternative forms of risk politics. Science and technology have decontextualised the bulk of today's food production and consumption (Tickell and Peck, 1995).<sup>55</sup> The resulting growing distance in time and space between food production and consumption precludes the conventional face-to-face building of trust and makes it indispensable to build trust through impersonal mechanisms such as abstract expert-systems.<sup>56</sup> And although this trust in abstract systems related to food provisioning is usually taken for granted in everyday life, in times of a (food) crisis, people are compelled to actively re-examine and eventually reconstitute their trust.<sup>57</sup> Trust stemming from abstract systems is mostly built on scientific expertise, but as already mentioned before, public trust in science has an ambiguous character. In particular with regard to food that impacts on everyday life, people have to choose which information from which expert they believe. So on the one hand consumers are conscious of the involvement of abstract expert-

**Box 2.III***The global flow of MPA, risking human health*

In July 2002, the growth hormone MPA (medroxyprogesterone-acetate) turned up in waste water from a pharmaceutical factory in Ireland which was owned by the US drug-maker Wyeth. MPA is a growth hormone approved for use in the US, Australia and New Zealand, but banned in the EU where scientists believe it might cause infertility in humans.

Waste water containing MPA was wrongly labelled as harmless and shipped by Cara Environmental Technology Ltd, an Irish waste recovery company, to the Belgian reprocessing plant Bioland which mixed it into glucose syrup and then sold it to Dutch animal feed makers. These firms processed it further into raw material inputs for cow and pig feed and re-sold it throughout Europe. Shipments of glucose syrup and molasses laced with MPA were traced to at least 74 feed producers. Animal feed containing traces of MPA were later found on farms in 11 EU countries, whereby the Netherlands, Germany and Belgium were hit hardest. For example, about 2,100 German farms received emergency closure orders preventing them from selling their produce until their animals had been tested for the presence of MPA. Damages for Dutch farmers are estimated between 70 and 100 million Euros, mostly for the destruction of up to 55,000 pigs. Belgium's health food safety agency also found traces of MPA in materials Bioland supplied to two soft drinks firms.

(Source: Reuters News Service, different editions between 15 and 26 July 2002.)

systems in the creation of food risks, while on the other hand they remain dependent on information from experts to make daily decisions. Trust in the abstract systems becomes more of an individual choice than in the past and therefore requires justification towards others. Thus, uncertainty has become a central feature of modern everyday food consumption practices.<sup>58</sup> This need to regularly review and re-establish trust marks the end of the hope that social and natural environments will increasingly be subjected to rational ordering and signals a transition towards 'reflexive' modernisation (Beck, 1992/1996; Beck et al., 1994; Beck and Willms, 2004; Giddens, 1990). In reflexive modernity, social practices have to be constantly re-examined and reshaped in the light of incoming information about (the consequences of) those very practices (Giddens, 1990/1991/1994; Mol, 2001).<sup>59</sup> So, consumers who are confronted with new food risks in global modernity can no longer automatically trust conventional nation-state-based standard risk regulation (Cardello, 1995).<sup>60</sup>

New ways of (re-)constituting consumer trust are needed and they demand active consumer involvement in setting up alternative mechanisms or in re-establishing trust in conventional mechanisms (Rowe and Frewer, 2000; Rowe et al., 2004). Analysing these innovations requires a better understanding of the social position and role of the consumers of food.

## **2.6. Consumers and the consumption of food**

Food consumption has mostly been conceived as a physical need and an economic activity similar to consumption in general. As a consequence, none of the social sciences other than economics has paid serious attention to food consumers and when they did study them they mostly conceptualised consumers as passive subjects, or 'captive consumers'. These views are currently changing and, since the 1990s consumers have been increasingly viewed as social

actors, actively engaged in essential social practices. These innovative conceptualisations mark the more general changes in consumer behaviour in the context of global modernity, and the transformations in the consumption of food deserve our particular attention.

The image of consumers as passive subjects is described expressively by Ritzer (1996). In his McDonaldisation-thesis, he sees consumers as caught in the iron cage of mass consumption: multinational corporations producing identical products in the largest possible volumes try to sell these products all over the globe, using media and advertisements to impose their brand (Klein, 2000). Bourdieu allows somewhat more room for agency, yet he also underlines the importance of structural variables, notably social class. He regards consumption practices as the result of individual agency (an individual's 'habitus' in combination with his/her (cultural, social, etc.) capital) and the structure (the 'field' in which the individual agents find themselves), whereby both agency and field may contain important variations (Bourdieu, 1979; Ritzer, 2001; Warde, 1997). However, in contemporary, (post-)modern societies, consumption has developed into a significant means for cultural expression and lifestyle and constitutes an issue of considerable psychological and emotional importance. So consumers should today be considered as active social agents (Warde, 1997; Bauman, 1993/2000).<sup>61</sup> Consumption can no longer be seen as the simple fulfilment of existing needs through buying and consuming specific products, but as a collection of evolving social practices whereby people can display different kinds of consumer-behaviour at different times (Gabriel and Lang, 1995). 'Consumption is the result of a series of acts that are located in different sites and (...) actual purchase is often only a small part of these acts' (Jackson and Thrift, 1995: 211). Thus, consumption should be studied as a contextual social activity in which people use products and services as mediating materials to relate to other people (Spaargaren, 2000).

Therefore the consumption of food should also be conceptualised as a social activity in which eating is embedded in wider social practices. Nevertheless, most observers continue to see food consumption as structurally subordinate to the production of food (Mennell, 1996; Ritzer, 1996; Allen and Kovach, 2000). Even in more recent agro-commodity studies, 'the consumer emerges only to disappear again into a production-centred framework' (Goodman and DuPuis, 2002: 7; see also Lockie and Kitto, 2000).<sup>62</sup> However, conceptualising food consumption as a social practise means analysing shopping, cooking and consuming food in combination with other issues like the living conditions, cooking preferences and cooking capabilities, family circumstances, relationships between man and wife and eating routines (Dixon, 2002). For example, contemporary food consumption practices in Western countries may be characterised by daily routines, but still consumers have to make numerous choices (products, cultures and styles) often resulting in cultural mixing. 'There is no essential, one-to-one, correspondence between particular commodities and particular identities: the same commodity can have radically different meanings for different individuals and for the same individual over time' (Jackson and Thrift, 1995: 227). The transition towards globalised food production and consumption thus changes everyday food consumption practices in Western countries.<sup>63</sup> Stretching the distances in time and space between food production and consumption modifies the position of consumers as food supply networks become more complex, involving many more actors and allowing much more choice (Jackson and Thrift, 1995).<sup>64</sup> The production and processing of food is changing as well through the increased interference of science and technology with nature, which contributes to convenience and widens consumer choice. Foreign and previously only seasonally available food products have become common everyday reality (Warde, 1997) and more and more pre-sliced and pre-cooked foods are replacing raw food products (Eberle et al., 2004).

The transition towards global modernity is also changing the ways in which consumers deal

with food quality. Food consumption involves an intimate and complex relationship between man and nature, making food particularly sensitive. Consumers' handling of food quality is socially and culturally broader than the cognitive rationality assumed in scientific expert knowledge and administrative procedures on food safety. It also includes religious, ethical, social and other considerations. How consumers handle food quality is furthermore characterised by ambivalence—multiple meanings, dilemmas and negotiations whereby people take part in creating and reproducing meaning in daily life by 'attempting to knit together the different experiences and roles of life' (Halkier, 2001: 802). So stretching the distances in time and space between food production and consumption and the intensifying interference of science and technology with food give rise to new consumer concerns. Although the impact of these changes on the food products themselves may not always be directly visible for consumers, they contribute to the already existing ambivalence. According to contemporary consumers, defining food quality goes beyond simply detecting characteristics of food products and has to include increasingly (in-)direct environmental, animal welfare and social impacts. These widening consumer concerns, combined with the increasing dependency on global dynamics create challenges for conventional nation-state-based regulatory practices. As nation-states seem decreasingly able to take action, more and more consumers themselves engage actively in voluntary regulatory practices (Giddens, 1991; Bauman, 1993/2000; Beck, 1992).

New forms of politics through markets and market behaviour are developing despite the existence of stereotypical views considering consumption as inherently unsustainable social practices (Horrigan et al., 2002) and the problems in defining sustainable consumption practices (Spaargaren, 1997/2000; Dagevos, 2004; Beckers et al., 2000).<sup>65</sup> The concept of 'political consumerism' seems to capture this phenomenon adequately (Micheletti, 2003). Although political consumerism may not necessarily fully replace more traditional forms of political participation, it does represent an enlargement of the modern political repertoire. Via political consumerism, critical citizens practice alternative forms of action in the sub-political sphere (Beck, 1999) by making conscious everyday choices in the market. Following the principle of autonomy, according to which every citizen is allowed to exert a relatively autonomous influence on his or her own living conditions, critical consumers may attempt to influence institutional or market practices by the use of their shopping-bag power (Halkier, 1999). Consumer power, then, is used in its constructive and transformative capacity (Held, 1987). (See Box 2.IV for an example.)

### Box 2.IV

#### *Political consumerism: adopting chickens*

After the birth flu crisis in the Netherlands in early 2003, several environmental NGOs developed the initiative known as 'adopt a chicken'. Just one year later, over 25,000 chickens had been adopted.

'Adopt a chicken' wants to show that organic chickens have a much nicer life than other chickens and that organic agriculture is in all respects an optimal agricultural practice which needs a robust impulse. Consumers adopting a chicken pay 29.50 Euro for one year. In return, they get a certificate, access to a webcam to look at their and other chickens at the farm and coupons to collect a box of 6 eggs at an organic food shop every month. These adoptive consumers were even prepared to pay more than twice as much for these eggs in comparison with organic eggs normally bought in supermarkets. One year after the introduction of this campaign, the organisers claim that it has had a remarkable impact, much wider than the direct number of 'parents' adopting a chicken. While the turnover in regular eggs in the Netherlands has decreased, the sales of organic eggs in regular supermarkets have increased by one-third.

(Source: <http://www.adopteereenkip.nl/>)

Political consumers may thus engage in politics through boycotts and buycotts, opening up new arenas for politics outside the nation-state (and traditional politics in general) and linking everyday life with global politics. A critical issue is that unless some form of institutionalisation takes place through NGOs, labelling and certification schemes or through political institutions, the scattered and unorganised consumer activities will remain invisible to the mass-mediated public sphere and to the political sphere as well (Halkier, 1999). If such institutionalisation takes place, the structured engagement of political consumerism can help to change current practices in food production and consumption and to revise related policies, although its transformative capacity should not be overestimated.

So conventional nation-state-based regulatory practices of food production and consumption which are based on 'passive' consumers, are being challenged in global modernity. The changing practices in contemporary food production and consumption and the novel roles taken up by consumers lead to pressure to respond to different considerations about food.

## 2.7. Conclusion

Globalisation is fundamentally changing the organisation of food production and consumption, not necessarily in a homogeneous but in a heterogeneous manner, thus resembling the globalisation process in general. This contingent and multidimensional character is embodied in the transformed roles of the nation-state, of science and of the social actors concerned. Simply enlarging the state to a structure at the global level in order to replace the traditional nation-state will not provide an adequate response to these contemporary challenges. Food-related concerns are evolving as new questions emerge, and these concerns are related more to production practices than to easily identifiable properties of the food products themselves. The conventional, simple modernist model of food governance is unable to fulfil its tasks in the context of global modernity. Complex relationships in space and time between the causes and effects of food risks are emerging. The concepts generally applied to analyse the governance of food risks seem unable to grasp these new dynamics.

Therefore, before innovative regulatory arrangements to deal effectively with food produc-



tion and consumption can be studied, chapter 3 will be devoted to developing improved conceptual and analytical tools. The concepts should provide a better understanding of the changes taking place in the transition towards global modernity and in the regulatory practices of globalising food production and consumption.

## Notes

- <sup>18</sup> In addition, the Greeks in classical Athens already nominated an inspector to monitor the quality of wine, while consistent food-quality regulation really developed during the Middle Ages when cities and different guilds formulated prescriptions and installed inspectors.
- <sup>19</sup> Atkins and Bowler, (2001: 215) observe that around 3,800 additives are used in our daily food to make products look more attractive to the senses, to prolong the product's shelf life, and finally to assist in the manufacturing process. 'About 380 of these additives had officially been approved by the EU by 1987.'
- <sup>20</sup> Recent psychological research, however, has concluded that risk is inherently subjective: although dangers are real, there is no such thing as real risk. Risk is based on subjective and assumption-laden psychological models (Slovic, 2000). Individuals respond according to their perception of risks and not according to an 'objective' risk. Although there may be some consistent patterns in these individual responses, the aggregation of individual preferences into common denominations proves to be very difficult (Renn, 1992).
- <sup>21</sup> A rather unpolished version of this theory is that all actors are opportunistic, seeking to manipulate the terms of any relationship to their advantage, abandoning, entrapping, or exploiting their partners whenever possible. The cost to an actor of opportunistic behaviour by its partner is determined by the extent of its relationally specific assets (Lake, 1999). Keohane (2002) approaches it more subtly as a governance dilemma: although institutions are essential for human life they are also dangerous because they go against the natural human inclination towards self-regarding actions. 'People require institutional protection both from self-serving elites and from their worst impulses' (ibid.: 247). Human actions are, however, not only guided by egoist-rationality, but also 'by expectations of how others will behave and, therefore, by underlying values and beliefs' (ibid.: 257). This rational behaviour gets translated to international institutions, which, from a democratic standpoint, should provide accountability, participation and persuasion and change people's choices independently of their calculations about the strategies of other players.
- <sup>22</sup> Whether the sovereignty of nation-states is declining (Castells, 1997; Held, 1995/1999) or not (Hoogvelt, 2001) is heavily debated. It seems as though the sovereignty of the nation-state is affected by globalisation without resulting in a complete withering away of the nation-state itself. Nation-states still remain the central locus of political debate, but at the same time they are being redefined and transformed in their relationship with global political institutions, structures and actors. The fast increasing number of multilateral agreements limiting the room for manoeuvre for nation-states is the most but not the only sign of this process.
- <sup>23</sup> Studies on private and transnational regimes have paid particular attention to the formation, change and maintenance, as well as to the effectiveness, of political institutions (Schram Stokke, 1997). Treating international institutions or 'regimes' as tools for the reduction of transactions costs is not convincing, according to Sandholz (1999), because there is no competition between countries as there is between firms. Markets in general are social constructs depending for their existence on deep and dense networks of shared understandings and rules. Thus the social rules that define roles, rights and responsibilities are logically prior to the cost-benefit calculations of specific agents.
- <sup>24</sup> Scott (1998) shows the disastrous effects of several state interventions, although they were developed with the best intentions.
- <sup>25</sup> Multilateral environmental agreements (MEAs) contribute to the emergence of a relatively independent

environmental realm in global politics. Nevertheless, regional economic institutions like the EU are of greater relevance. These strong political institutions and arrangements, originally intended to further economic integration, increasingly include environmental protection (Mol, 2001).

- <sup>26</sup> Held also distinguishes a third group of theorists 'the sceptics', who do not consider globalisation a significantly different phenomenon requiring specific theoretical reflection, but their views seem less relevant in the context of food production and consumption.
- <sup>27</sup> Through these global chains of food production and consumption, not only do economic relationships stretch out over time and space, but the time and distance between the origins of environmental neglect and the actual environmental consequences in specific localities increase as well (Mol, 2001).
- <sup>28</sup> Related concepts are 'value-chains' and 'supply chains' (Raikes et al., 2000).
- <sup>29</sup> The years, mentioned here are indicative only because such processes have no fixed moment for start and finish, whereas there are also many differences between different parts of the world.
- <sup>30</sup> More and more global agro-food networks are being created, mostly under the influence of a few large retailers (Konefal et al., 2003). The flexibility thus created allows for 'Just In Time' – delivery (Dixon, 2002). One interesting example of these changes is 'relational contracting': contracts that are based on interactive, flexible and stable supply networks. While the day-to-day orders may vary and are conceptualised as flexible, the contracts are valid for a number of years, thus creating stability in the network.
- <sup>31</sup> In 1998, 11,037 new food products were introduced in supermarkets, compared to fewer than 6,000 annually in the mid-1980s. Since 1990, 116,000 different packaged foods and beverages have been developed, all competing for the limited available space on the supermarket shelves (Nestle, 2002: 25). See McKenna et al. (2001) for the example of the introduction of (sustainable) integrated fruit production programmes in New Zealand's apple production under the pressure of European consumer demand.
- <sup>32</sup> McMichael (1996; 38) points to the remarkable fact that 'the reach of economic globalisation itself is so limited in terms of the populations it includes, and yet its impact is so extensive.'
- <sup>33</sup> Ritzer (1996) claims that a global culture subordinated to global economic interests is being created (McDonaldisation). However, a global culture can not have a uniform character because expressions of global culture are always intermingled with other cultural expressions and operate in a specific local cultural context. The cultural dynamics of globalisation should therefore be conceptualised as based on diversity and variety rather than on uniformity and homogeneity. Moreover, these dynamics do not always take the form of a top-down process because local (counter-)culture can contribute to global culture as well (Mol, 2001; Franklin et al., 2000). Technological innovations greatly contribute to cultural interaction by facilitating exchanges of information and experiences.
- <sup>34</sup> Weale (1992) also shows how the environment is becoming a separate domain of articulated and institutionalised practices under the conditions and via the processes and dynamics of globalisation. Multilateral environmental agreements, world summits, global environmental NGOs and internationally recognised private labels (ISO 14000) are all examples of attempts to globalise environmental management.
- <sup>35</sup> Sassen (2002) claims that through partially denationalising what had historically been constructed as national and facilitating the creation of private regimes with powerful transnational corporations, the nation state is actively engaged in its own evaporation process. (See also Tehranian, 2002). Beck (2004) comments on this thesis when he contends that the absence of a well established global governance system is also a problem for global corporations because they are confronted with the lack of a clear legal framework and are thus open to all kinds of claims from consumers, NGOs etc.
- <sup>36</sup> The European Union is often hailed as an innovative example of multilevel governance, 'developing a framework of international institutions while respecting national sovereignty as the bedrock of the international legal order' (Maher, 2002: 113). See Skjaerseth and Wettstad (2002) for further analysis of the EU's environmental policy with the help of the governance and regime concepts.
- <sup>37</sup> The concept of 'governance' is introduced to cover emerging new forms of official and non-official regulation and, although the exact definitions vary, it always involves interactions between public and

private actors in a mix of formal and informal practices (Hajer et al., 2004). Government can subsequently be conceptualised as a subset of governance acting with legal authority and creating formal obligations (Keohane and Nye, 2002).

- <sup>38</sup> See, McMichael (2000) who claims that transnational food companies reduce the room for autonomous national food regulations via the institutionalisation of a global, WTO-controlled, trade regime. See also Young (2004) for an analysis of the impact of this situation on food security and Paterson (1999) for an overview of state and corporate actors.
- <sup>39</sup> Von Moltke (1997) observes that the goals of the economic and environmental regimes overlap without being congruent, creating difficulties in the case of regulating international food trade.
- <sup>40</sup> More popularised versions of this thesis can be found in Klein (2000) and Hertz (2001).
- <sup>41</sup> MSC is the abbreviation for Marine Stewardship Council and HACCP for Hazard Accident Critical Control Point. (See chapter 7 for further details.)
- <sup>42</sup> Such arrangements involve a heterogeneous array of agents, consisting of 'a set of practices for governance that improve co-ordination and create safety valves for political and social pressures' (Keohane and Nye, 2002: 204). They require these arrangements to be 'consistent with the maintenance of nation-states as the fundamental form of political organisation'.
- <sup>43</sup> In many international arrangements the quasi-judicial capabilities and 'soft legislation' (soft law), have moved ahead much faster than 'hard legislation' or executive capabilities (Keohane and Nye, 2002).
- <sup>44</sup> This standard model of risk politics is nevertheless fiercely defended by several corporations and scientists especially from the US, while they criticise the European Union for ignoring 'sound science' for protectionist reasons (NFTC, 2003/2004).
- <sup>45</sup> The social sciences' analysis of risk often considers risks a separate category of social behaviour and tries to understand it on the basis of general cultural traits (Douglas and Wildavsky, 1983). In this way risk behaviour becomes a particular category isolated from other social practices. But it seems rather naïve to equate the way in which (a certain category of) consumers deal with food risks with the way they deal with traffic risks.
- <sup>46</sup> Constructivist approaches can be further distinguished in moderate and radical versions. Moderate constructivists consider the development and acceptance of scientific knowledge as context-dependent, but accept that reality and knowledge are ultimately two different realms. Radical constructivism does not accept this distinction and regards both scientific knowledge itself and its use (including the distinction between 'facts' and 'context' as such) as the result of social interaction. However, if damage to the environment can only exist by constructed human knowledge, it becomes impossible to qualify different frames of meaning, leaving only taste or mere power (Hogenboom et al., 2000; Macnaghten and Urry, 1998; Jones, 2002).
- <sup>47</sup> For example, the lay public's rationality is predominantly 'relational' in character, contrary to the rational-calculative models of science (Szerszynski, 1999)
- <sup>48</sup> The range of possible social constructs of reality is limited by the need to compromise between self-interest and the obligation to construct a socially meaningful reality (Renn, 1992).
- <sup>49</sup> Luhmann concludes that each subsystem in society uses its own internal binary code and symbols, making communication between different social subsystems impossible. This severely limits the options for society to deal with risk. (Arnoldi, 2001; Miller, 1994). According to Dryzek (1987), a transcending environmental rationality would enable bridging different rationalities in different social sub-systems, although demanding an institutional re-orientation. Such an ecological rationality has a natural science base which can be studied objectively to inform social decision making processes. Other authors claim that communication between different subsystems, i.e. between social actors using different frames of meaning, is not excluded by definition (Giddens, 1976; Papadakis, 2002). Signifying frames are not necessarily completely consistent (self-referential) nor inevitably free from outside norms or interests. Each frame of meaning is developed in reference to other frames and mediated by them. So it must be

possible to establish mutual links, thereby solving the hermeneutic problem of how to understand other social realities and practices through one particular frame of meaning. Unfortunately, this observation does not solve the problem of determining the 'truth', as there is no observation without theory and no neutral, objective language. This is particularly problematic for social sciences because they are confronted with a double hermeneutics (Giddens, 1987).

- <sup>50</sup> See also Perrow (1984) explaining the incidence of accidents as a normal feature when living together with high-risk technologies.
- <sup>51</sup> During the early 1980s in a number of industrialised countries, the state came under pressure for its inability and ineffectiveness to regulate and control sources of ecological deterioration. Global economic, political, and cultural processes all contributed to the (perception of) failure of the state to act effectively in protecting its territory from environmental deterioration and made it more difficult for states to legitimise their actions (Hogenboom et al., 2000). This challenge is exacerbated through the higher levels of education, better access to information and improving living standards resulting in a growing unwillingness by the general public to accept (environmental and food safety) risks and to trust scientific and political institutions in managing these risks.
- <sup>52</sup> If scientific experts want to engage in political debates and generate consensus, they have to neglect the considerable uncertainties embedded in the layered assumptions of their models. They also have to exclude ethical and moral issues, because 'formal risk assessment is deemed to be a delimited, technical exercise, one where inputs from objective science are seen to be crucial' (Scoones, 2001; 19). Politicians, on the other hand, have to include such issues in many decision-making processes because the general public considers them essential (Marsden, 1997).
- <sup>53</sup> Considerations applied by the public in their choices include the independence of scientific experts, their historical experiences and assessments about the correspondence between the underlying assumptions of scientific research and the daily reality of lay people.
- <sup>54</sup> For example, Boselie and Buurma (2003) observe that food safety requirements of private buyers of food in Thailand have increased rapidly and often surpass public safety standards.
- <sup>55</sup> Decontextualisation, refers to freedom from context—that is, from time and place—which is considered one of the great achievements of science and industrialisation as the emancipation from the cycles of want and plenty (Adam, 1999).
- <sup>56</sup> Systems of professional and technical expertise (expert-systems) increasingly organise large areas of the material and social environments in which we live today. When these systems are not personalised but stretched over time and space, they can be called 'abstract systems (Giddens, 1990).
- <sup>57</sup> Giddens, (1990) concludes that trust and risk permeate all aspects of day-to-day life. Pragmatic acceptance can be sustained towards most of the abstract systems that impinge on individuals' lives, but by its very nature such an attitude cannot be carried on all the while and in respect to all areas of activity.
- <sup>58</sup> See Bauman (2000) on the (potentially) profound social and individual consequences of the increased uncertainty and anxiety in globalising societies.
- <sup>59</sup> Within environmental thinking, reflexive modernisation fits in the conceptual frameworks of 'sustainable development', (WECD, 1987; Adams, 1990; Carter, 2001) and ecological modernisation (Mol, 1995; Spaargaren, 1997). Sustainable development does not define an ideal situation but argues that environmental reform involves a process-approach through the interplay between economics and markets-actors on the one hand and (organised) citizen-consumers and political institutions seeking to condition them on the other. The concept of sustainable development was made concrete in Agenda 21 during the Rio de Janeiro UNCED meeting in 1992 (WSSD Plan of Implementation). Evolving thinking about sustainable development has also resulted in a continued search for sustainability indicators in all fields. A specific example is the concept of the environmental footprint (Wackernagel and Rees, 1996). See with regard to indicators for sustainable agriculture: Zhen and Routray (2003) and Dragun and Tisdell (1999).

- <sup>60</sup> This perspective allows understanding the challenges facing the nation-state when its capacity to deal with food risks seems to diminish and public confidence in its role as caretaker is reduced, while still many consumers and non-state actors continue to look to the state to reduce these risks (Grove-White, 1997).
- <sup>61</sup> People have to choose more often from more options and, because they have become disembedded from the protective shield of a habitus, these choices are associated with uncertainty and anxiety. In reaction to this, people may create 'imagined communities' offering a sense of belonging. The identity of an imagined community may vary considerably: ethnic, local or temporary 'style groups'. One specific version is the proliferation of 'neo-tribes': 'elective groupings, exhibiting high levels of temporary commitment, whose boundaries are identifiable through the shared lifestyles of members' (Warde, 1997: 16).
- <sup>62</sup> According to this approach, producers react to changing consumer demands initiated by their increased income and increased awareness. So consumer agency is limited to the consumers' capacities to change their (economically defined) demand on the food market. Commodity chain analysis and actor-network theories do not take consumers sufficiently into account because the first disarms consumers and the other disarms politics (Goodman and Dupuis, 2002).
- <sup>63</sup> Our understanding of the consumption of food in modern society confronts conundrums, apparent contradictions, contrasts, and polarities of a kind because of the changes that result from market forces that penetrate social relationships at the level of everyday life. According to Mintz, 2002: 24) 'it never seems to turn out to be quite as simple as we might think'.
- <sup>64</sup> Like any other product, food products also contain hidden geographies and social relations of production that lay embedded within the relations of contemporary consumption until they are uncovered (traced back and revealed) by experts or other social actors.
- <sup>65</sup> Maybe this lack of serious understanding of the relationship between food consumption and the environment can also explain why specific policies on sustainable food consumption are lacking in many countries although food consumption has been included in more general plans and in specific health policies (OECD, 2002).



## Chapter 3. Developing a conceptual framework to study the governance of flows of food in the global network society

### 3.1. Introduction

The organisation of food production and consumption is increasingly taking place on a global scale (see chapter 1) as larger quantities of food, processed into more different food products, get traded internationally.<sup>66</sup> The distance between food producers and consumers is growing while the social, environmental and safety impacts of food supply are also increasing, with potentially large-scale and radical impacts. Moreover, conventional nation-state-based regulatory practices can no longer adequately deal with these problems (see chapter 2). The role of the nation-state is changing and other levels of governance and other actors such as consumers and NGOs are beginning to assume new responsibilities. These transitions have blurred the traditionally clear divisions between public and private responsibilities and between nation-state structures and international co-ordination. Traditional concerns about the safety of food are now accompanied by environmental, ethical and social considerations, making strictly science-based regulatory arrangements today even more inadequate than they were already considered before. Consequently, innovative regulatory practices are needed to deal with contemporary considerations regarding food production and consumption in order to complement and replace existing practices. Identifying and analysing such alternative regulatory mechanisms, which is the overall objective of this study, requires, however, a more profound understanding of the transformations that food production and consumption and their governance are undergoing in the context of global modernity. So before the results of the empirical research are presented (chapter 4 to 7), this chapter will identify some key concepts that will make the identification and study of such mechanisms possible.

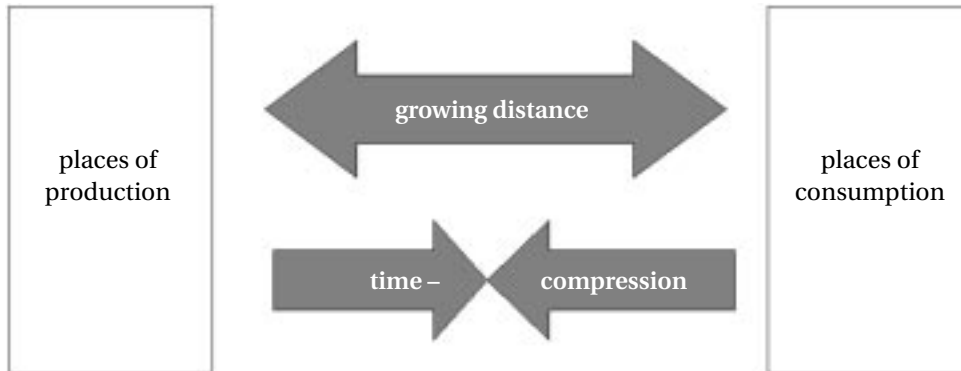
Section two of this chapter will conceptualise the principal changes in the contemporary organisation of food production and consumption, in particular the increasing distance between food producers and consumers which has fundamentally influenced both practices. In order to grasp this situation, new concepts are needed that are able to deal with social phenomena that go beyond traditional nation-state container societies. Therefore in section three, several key concepts elaborated by Manuel Castells and John Urry will be reviewed to judge their applicability in the context of globalised food production and consumption. These concepts should facilitate an understanding of the different ways in which time and space are organised in global modernity. This evolving structuration of time and space demands and simultaneously enables innovative regulatory arrangements that will be reviewed in section four. The challenges facing such new tools for global food governance will be summarised in section five. This chapter concludes with section six in which the research questions of this study will be re-examined in light of the analytical framework elaborated in this chapter.

### 3.2. Food production and consumption in global modernity

In pre-modern societies food production was intimately related to food consumption, mainly through self-provisioning whereby people consumed the food they produced themselves. This situation changed radically in the course of the nineteenth century when the industrial revolution resulted in rapid urbanisation and industrialisation. As a result of this process of (first or simple) modernisation, people were forced to buy their food, transforming them into consu-

mers (Fernández-Armesto, 2001). Since then food trade has become an essential and large-scale activity, although food has also been traded long before this. Nevertheless, even during this era of modernisation most food production and consumption remained quite closely connected to specific geographical locations and particular times or seasons. It is especially since the transition towards global (second or post-)modernity beginning in the 1970s that food production and consumption have become increasingly uncoupled in Western societies. For the first time in human history, the specific place and time of the production of food has become more or less irrelevant for the specific place and time of food consumption. Figure 3.1 provides a schematic representation of this transition.

**Figure 3.1: globalised food**



Agricultural seasons are of increasingly less importance in guiding consumer choices in Western countries and as a consequence consumers expect to find food products all year round on the supermarket shelves, thus encouraging food producers and processors to prolong the seasons and to re-arrange supply chains for this purpose.<sup>67</sup> For example, fresh tropical fruits are available everyday in supermarkets in Western Europe and the US. One day avocados may come from Thailand and another day from Ivory Coast while the average consumer does not notice any difference. And, whereas in the Netherlands fresh green beans could be consumed until recently only in summertime, today they can be bought all year round. In summer, green beans are produced locally, in spring and autumn they are imported from Spain and in winter they are flown in from Africa. So the availability of fresh green beans in the local supermarket is today no longer indicative for summer in the Netherlands.

The uncoupling of time and space is intimately linked to a progressive industrialisation of food (replacing and substituting natural processes with industrial processes), allowing food products to be transported over longer distances at lower costs, all this facilitated by improved communication and by storage and preservation technologies.<sup>68</sup> (See Box 3.I for an example.)

Extending food supply chains means stretching the relations between food producers and consumers in time and space. Time-space distantiating means linking places, sometimes at large distances, and requiring the synchronisation of time between different actors involved in the production and consumption of food.<sup>69</sup> Complex, perpetually changing and differentiating agri-food networks are emerging, involving many social actors, displaying a whole variety of social, technical, economic and natural components, and being reproduced through



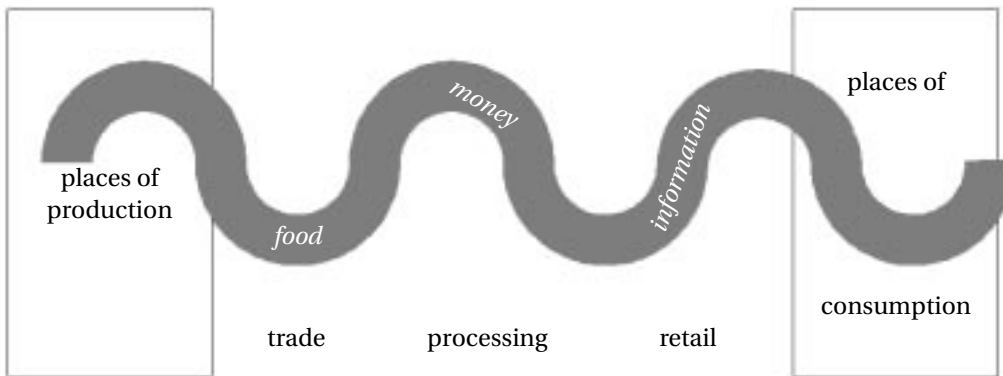
**Box 3.I***The making of chocolate*

From a luxury beverage in the seventeenth and eighteenth century, chocolate became a solid food with a mass market by the end of the nineteenth century. The technology came from continental Europe – from Spain and Italy, where cocoa presses were first mechanised; from Holland where Conrad van Houten created cocoa powder; from Switzerland, where the Caillier and Nestlé families combined in business to make milk chocolate. But it was the English Quaker manufacturers of cocoa who did most to revolutionise tastes. The first true chocolate bars were marketed in 1847 by Fry's. They were made of Van Houten's powder, mixed with sugar and cocoa butter. The new product was particularly suited to mass production and its further transformations over the next 150 years proved infinite.

(Source: Davidson, 1999; Fernández-Armesto, 2001.)

contextualised social practices (Murdoch, 2000; Marsden, 2000; Giddens, 1979; Van der Meulen, 2000; Dicken et al., 2001; Goodman, 2004).<sup>70</sup> These actors and practices are closely connected through a continuous flow of food products, information and money. (See figure 3.2.)

**Figure 3.2: agri-food flows**



The formation of complex and flexible agri-food networks in global modernity changes not only the social relationships between food producers and consumers but also the linkages between man and nature. Globalisation is stretching the distance in space and time between the food consumers and the biological processes involved in producing the foods. As a consequence, environmental impacts may be occurring more and more on a larger scale and at a longer distance in time and place from the consumer.<sup>71</sup> Moreover, the introduction of technological innovations in agriculture such as genetic modification makes more radical interference with biological processes in plants and animals possible than do conventional agricultural technologies, resulting in 'socialised nature' (Giddens, 1990). This growing human interference with 'natural processes' is often referred to as the main reason for declining consumer trust in food.

These fundamental social and social-environmental changes in the organisation of food production and consumption make conventional modes of governance increasingly less adequate. Regulating environmental, social, ethical and safety aspects related to food production and consumption requires accommodating the changing global dynamics and the associated radical local impacts, while their mutual relationships also change over time.<sup>72</sup> Identifying regulatory

mechanisms that fit into these dynamic processes requires the use of concepts that can better grasp both the stretching of food production and consumption over time and space and its impacts.

### 3.3. Flows and place in the global network society

According to Urry, studying the changes in the organisation of food production and consumption in global modernity remains difficult when the conventional sociological conceptual repertoire is used. Standard sociological concepts are based on the idea that a society is essentially the same as an independent nation-state. Nation-states, however, have shifted away from governing a relatively fixed and clear-cut national population resident within its territory, constituting a clear and relatively unchanging community. Societies interpreted as national states should, therefore, no longer be put at the centre of sociological analysis because globalisation has made an end to the possibilities of considering societies as containers which can be analysed in isolation.<sup>73</sup> Castells' interpretation of globalisation as the coming about of the network society and Urry's notion of global complexity may provide the sociological conceptual tools needed to deal with this social dynamics.

Global modernity can be understood as the formation of a global network society, organising space and time in different ways than before. The global network society is a new spatial process reintegrating the functional unity of different elements at distant locations made possible by modern transport, information and communication technology (Castells, 1996). In this process the traditional material foundations of society are being fundamentally transformed. Until recently people spent most of their lives in concrete physical places and perceived their space as place-based on which they could build their identity, while biological time remained their prime rhythmic organising principle. However, in the global network society, space and time are organised differently. Connections between people, objects and technologies across multiple and distant times and spaces may be tightly coupled, complex, enduring and predictable, but also more heterogeneous and loose. These connections spread across time and space with different reaches and can be typified through scapes and flows. Scapes (a generalised notion of "landscapes", (Leydesdorff, 2002)) are the networks of machines, technologies, organisations, texts and actors that constitute various interconnected nodes along which flows can be relayed, reconfiguring time and space. Flows of capital, information, or images, etc. between physically disjointed positions are created because exchanges and social interactions are increasingly taking place without face-to-face contact. When these flows gain some permanence, it becomes possible to speak about the 'space of flows'.<sup>74</sup> A space of flows may have a largely virtual character, as in the case of information or financial flows. They may, however, also have more material specificity when they concern movements of matter and energy as well as of wastes, etc., and then the origins, destinations, and socio-spatial structures of such flows become more important. Flows may be organised within and across different societies and travel along different 'scapes', but they remain unpredictable and lack any finalised 'order' because of the very large number of elements which interact physically and because of the de-materialising transformations over multiple time-spaces. Many effects may be distanced in time and space from where they originate with positive as well as negative feedback mechanisms, which means that order and chaos are always intertwined. As unpredictable and yet irreversible patterns of path-dependence exist, the linear metaphor of scales, from micro to macro level, or from life world to system world, should be replaced by the metaphor of connections. Such connections are to be viewed as more or less mobile, more or less intense, more or less social, and more or less 'at

a distance'.<sup>75</sup> Iteration, recurrent human actions, may produce non-equilibrium and non-linearity and, if the parameters change dramatically, even unintended complex social change may take place (Urry, 2003). Not only is the spatial dimension of social life changing in global modernity, but its time dimension is changing as well since time and space are no longer closely bound (Adam, 2000). Biological time that was the prime rhythmic organising principle during most of human existence was changed to clock time in the industrial age, but we now live in the age of 'timeless time' (Castells, 1996). In this 'timeless time', the normal sequencing of events starts to disappear. Instantaneous financial transactions and the integrated electronic media communication are examples of the mixing of tenses, whereby time seems to have become self-maintaining, random and incursive, thus breaking down rhythmicity.<sup>76</sup>

The formation of a space of flows with its timeless time may then shift the location and institutional structuring of power, which is exemplified in transformations of the state. A nation-state no longer has its traditional meaning as 'a sovereign state, whose hierarchically imposed commands are binding on all parties subject to its jurisdiction, while at the international level decisions are taken by sovereign states acting unilaterally or through formal or informal modes of inter-sovereign co-operation' (Karkkainen, 2004: 76). The 'gardening state' (Bauman 1987) of simple modernity that was chiefly concerned with patterning, regularity, ordering and control is increasingly unable to control social processes fully and can only regulate (the conditions for) mobility. The numerous global flows cause serious difficulties for these states who can no longer remain in control of the space surrounding them (Urry, 2000b). Any single society finds diverse self-organising networks, fluids and 'policies' seeking to striate its internal space and to transform the space beyond them. National states and international regimes struggle to regulate legal, economic and social aspects of the de-territorialised and de-centred mobilities of the global network society. The rise of the network society has, according to Castells (1996), led to economic networks transcending existing political structures. Thus, in a countervailing fashion, nation-states are transferring selected powers to supra-national agencies and institutions such as the European Union (EU) and the World Trade Organisation (WTO).<sup>77</sup> However, despite these initiatives and the presence of exceptional levels of global interdependence, no unified global state is replacing the national ones to deal with contemporary transboundary phenomena. The state in the age of globalisation necessarily has to be a network-state, a state made out of a complex web of power-sharing and negotiated decision-making between international, multinational, national, regional, local, and non-governmental political institutions and private actors (Castells, 2000).

Yet, although networks and flows change over time, this is not a one-dimensional process of transference of power from local and national levels to global corporate interests but a process with contradictory tendencies of which the outcome is not already known (Mol, 2001). The 'space of flows' with its timeless time and its reduced relevance of physical space may increasingly replace the 'space of places', but most people still live in the space of places with its time discipline, face-to-face interaction and socially determined sequencing. The 'contrasting logic between timelessness, structured by the space of flows, and multiple, subordinated temporalities, associated with the space of places' (Castells, 1996: 468) creates a tension in contemporary society between the global and the local levels. Although most people still live in concrete places and perceive their space as place-based on which they build their identity, their world is becoming dominated by the space of flows and timeless time, forcing them to orient their lives simultaneously to global processes devoid of specific place- or time-characteristics.

Globalising food supply chains are typical examples of complex global flows, travelling along different scapes and expressing de-territorialisation and de-centred mobilities. Applying these concepts developed by Castells and Urry will facilitate an analysis of the impact of the growing

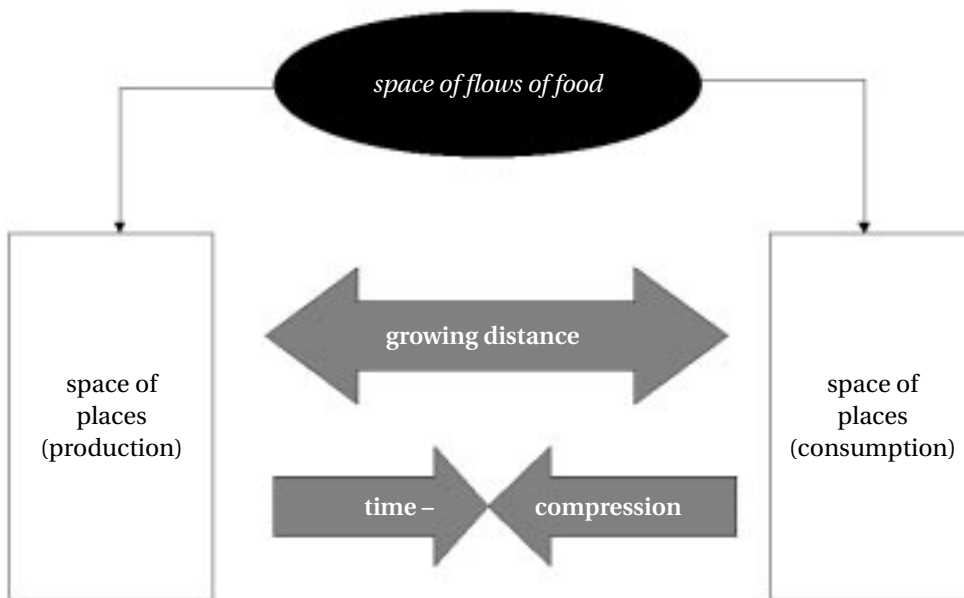
distance between food production and consumption. In particular, the need for innovative forms of governance stemming from this transition can be conceptualised as follows:

- 1) The flows of food grow increasingly structured beyond the reach of conventional regulatory institutions, in particular the nation-state.
- 2) Next to the nation-state and international governmental bodies, other competing structures emerge in governing food.
- 3) New concerns about food surface and demand an active restoring of trust in (the quality of) food.
- 4) The global character of challenges related to food flows gives rise to questions about participation in governance and about equity in the consequences.

### 3.4. Governing global flows of food

Conceptualising food production and consumption in global modernity in terms of being organised as global flows of food in a network society allows for a better understanding of both the transformations in the organisation of agri-food networks and the changes in the lives of both producers and consumers (Beardsworth and Keil, 1997). However, the organic character of food so far rules out the possibility of renouncing particular places and time, or the space of places, altogether. Distinguishing between the organisation of food in the space of places of production and consumption in contrast to the space of flows highlights the particular problems facing contemporary food governance. (See figure 3.3. for a schematic representation.)

**Figure 3.3: Governing global flows of food**



When regulating food in the global network society, one is confronted with different dynamics at the same time. Difficulties emerge when regulations concentrate on one particular dynamics only. Most conventional ways of governing food were built on the concepts of the space of places, interpreted within the domain of the nation-state (see section 2.2). On the other hand,

the formation of global food supply chains pushes the establishment of some form of food governance into the space of flows.

*Governance in the space of places*

A frequently suggested response to the difficult challenges facing conventional nation-state-based regulation of food production and consumption today is the creation of locally organised food supply chains. Such local, often community-based, food supply chains 'tend to be place-based, drawing on the unique attributes of a particular bioregion and its population to define and support themselves' (Feenstra, 2002: 100).

This model opposes the inevitability of a continued trend towards the further globalisation of agro-food production and trade practices (Green et al., 2003; Halweil, 2002; O'Hara and Stagl, 2001; Hines, 2003). Empirical research has made clear that farmers' practices in Europe are already much more varied than generally thought (Van der Ploeg et al., 2000a/2000b; Oostindie et al., 2000; Renting et al., 2003). Furthermore, this local diversity cannot be considered a relic of the past because it can also be observed in previously highly specialised farms. These and other examples show that the traditional closed paradigm of simple modernisation is opening up towards a multi-level, multi-actor and multi-faceted nature of rural development. Van der Ploeg et al. (2000a: 399) consider the emergence of new food supply chains as 'maybe the most evident example of the reconfiguration of resources and networks in rural development.' A concrete example of the recent appearance of new food supply chains is the farmers' market, see Box 3.II.

**Box 3.II**

*Farmers markets in the UK*

Since their inception in the 1990s, farmers markets have captured the imagination of policy makers, the media, producers and consumers in several European countries and the US. The number of farmers markets in the US has, for example, grown from nearly 300 in the mid-1970s to more than 3,100 in 2000. Farmers markets are considered a positive response to some of the problems associated with the conventional food supply system. These alternative food supply chains are based on two guiding principles: firstly that the produce for sale is of a localised origin (in the UK, for example, between 30 and 75 km.), and secondly that the market vendor should have been directly involved in the food production process.

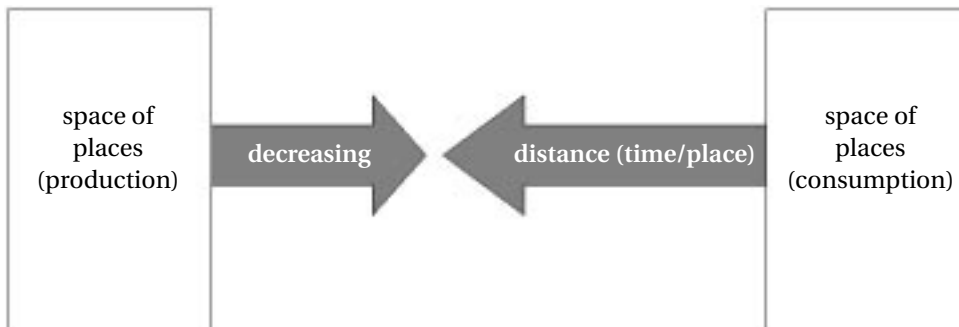
The price and quality (freshness) of the food products remain important but are not the only reasons for consumers to buy food at farmers markets. The local and social embeddedness of the exchange at farmers' markets is essential and is maximised when consumers can relate directly to the actual producers selling their own produce which has been processed selectively.

(Source: Hinrichs, 2000; Halweil, 2002; Kirwan, 2004).

Using this example of the farmers' market, other observers regard local food supply chains as the only real alternative to globalised food production. Globalised food supply chains are considered to be fundamentally incapable of dealing with contemporary consumer concerns about the environmental, health and social impacts of food production and consumption. These concerns are interpreted as the diminishing quality of modern food, which has become less 'natural', less 'organic' and more 'processed'. The 'natural' character of the products and production methods used in local food supply networks are considered the best guarantee for the health of humans, farm animals and the eco-system as a whole (Green et al., 2003).<sup>78</sup> Princen (1997: 250/1) argues this as follows: 'Market expansion and factor mobility increase distance on

many dimensions, rendering ecologically informed and ethically responsible decisions impossible. Thus sustainable production requires effective feedback from all decisions in a production chain. When distance approaches zero in, say, a household or a self-sufficient community, that feedback is likely to exist. But as distance increases, feedback diminishes and the need for accountability and governance increases, possibly exponentially.' Thus, de-globalisation through the creation of small-scale local food supply chains enables the necessary checks and balances for sustainable resource use through direct interaction between food producers and consumers. (See figure 3.4.)

**Figure 3.4: regulation of food in the space of places**



Active consumer participation has become an essential characteristic of the regulation in the space of places through modern, local food supply chains. Consumer involvement makes it possible to establish consumer trust in the quality and safety of food on the basis of personalised face-to-face contacts and not only on abstract expert-based systems, as in globalised food supply chains.<sup>79</sup>

As responsibilities in local food supply chains are taken up by the producers and consumers themselves, direct involvement by the nation-state would only unnecessarily interfere with these small-scale and face-to-face interactions. States should therefore basically protect small-scale farms against global corporate domination and its harmful effects and, in general, support the principles of a localised agro-ecology to ensure food security and the vitality of robust rural economies.

'De-globalising' food production and consumption and creating localised systems of food provisioning may provide interesting opportunities for innovative forms of governance, but at the same time this model has been criticised by several scholars. Firstly, being physically close does not necessarily result in less market orientation and instrumentalism in the relationships between producers and consumers. As Hinrichs (2000) has shown, consumers pay as much attention to freshness and the price of food at local farmers' markets as at any other market and they consider the local provenance of the produce as far less important. It is therefore not correct to assume that when economic practices are locally bounded and involve face-to-face interactions, they will automatically demonstrate all the putative benefits of social embeddedness. This assumption, unjustifiably, conflates spatial relations with social relations. The feedback mechanisms necessary for sustainable food production can also be organised in many other ways.<sup>80</sup> Secondly, environmental degradation cannot by definition be excluded in small-scale agriculture, because it is not the scale but dimensions such as time, local power structures and specific social practices that determine the environmental sustainability of food production and consumption (Scoones and Toulmin, 1999; Keeley and Scoones, 2003). Moreover, the

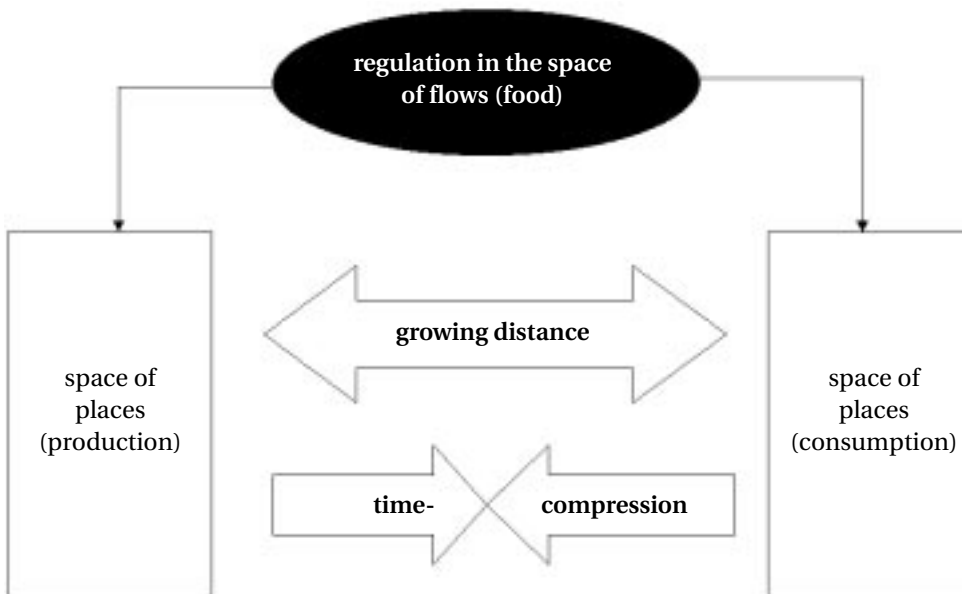
required technical, financial and human resources needed to deal with particular environmental problems may be absent at the local level. Even in small-scale agriculture, those who are responsible for environmental destruction are not necessarily the same as those who fall victim to it, in particular when the effects only surface after some time. Thirdly, de-globalisation of food production via locally organised food supply chains would not automatically solve the problems of poverty and environmental degradation in developing countries. As Kevin Watkins from Oxfam explained: ‘to exclude poor countries from rich country markets in the interest of ‘self-reliance’ is a prescription for mass poverty and inequality. If trade is to work for the poor, we need to challenge the power relations and vested interests that make markets work for the rich. That means putting land redistribution, workers’ rights, environmental sustainability and the curtailment of corporate power at the heart of the agenda’ (Kevin Watkins, 2002).<sup>81</sup>

Thus, despite the popularity of locally organised food supply chains as the definitive solution for the challenges facing the governance of food production and consumption today, this option has several drawbacks as well. A process of de-globalisation therefore does not necessarily provide the only alternative to conventional nation-state-based forms of regulation. In particular when globalisation is understood as a heterogeneous and complex process, other forms of innovative governance of global food provisioning may also provide possible answers.

*Governance in the space of flows*

Attempting to organise governance of food in the space of flows requires governance to be global and abstract, as well as devoid of the specific characteristics of place and time. Such a form of governance should then be based as much as possible on product characteristics alone, which would signify that if a food product is considered safe at one place, the same product should also be seen as safe at another place.<sup>82</sup> (See figure 3.5) Several regulatory models have been developed to fit into these global flows of food, in particular within the framework of the World Trade Organisation (WTO), but also in other private initiatives such as ISO and HACCP.

**Figure 3.5: regulation in the global flows of food**



Regulating food in the space of flows requires trade regulation at a supra-national level, a domain currently dominated by the WTO. (See chapter 7 for further details.) WTO-based regulations of food are essentially based on general economic considerations, but supplemented in the case of food with health and safety concerns (Josling et al., 2004). International food trade should be checked only for the presence of specific dangerous substances in food products and only when this check is based on sound scientific evidence of the dangers involved. Regulations should therefore be restricted to characteristics of food products themselves and only cover the production process as well if that would result in consequences for the product itself ('product-related production and process methods'). Thus, governments should not distinguish between food produced *with* special care for social and environmental impacts and food produced *without* those concerns when this difference can not be observed in the product itself.

These governmental regulations are being supplemented by instruments initially developed by private firms, for example certification schemes such as ISO 14001 and HACCP. (See chapter 7 for further details.) ISO 14001 is a certification scheme which was not specifically developed for food or food products but nevertheless seems to have become a global standard for the environmental performance of food producing companies. HACCP (Hazard Analysis of Critical Control Points), introduced as a certification scheme in the late 1960s to support firms in their efforts to reduce food risks, became officially recognised and widely endorsed in the 1980s and the 1990s. Production processes can be certified, and the final product can be certified when all production processes involved have received certification as well. Although initially developed as a voluntary instrument for private firms, HACCP certification is recognised by several governments as a fulfilment of their legal obligations to ensure food safety (Unnevehr and Jensen, 1999).

Besides these official regulations and private certification schemes in governing food trade, NGO-based labelling arrangements have also been recently introduced. Multiple NGO-initiated labelling schemes (organics, MSC, free-range eggs, fair trade, and many others) distinguish food products on the basis of their production process. Many consumers are concerned about the practices applied in food production, but these practices cannot simply be detected in the final product itself and require additional information. NGO-initiated labelling schemes seem rather well qualified to respond to this growing need for reliable information about food production practices. For example, whether fish is produced through sustainable fisheries is only detectable for consumers through a label indicating the production circumstances, and several NGOs have developed different instruments for this purpose.

### 3.5 Challenges in governing flows of food

These attempts by the WTO, by private firms and by NGOs can be considered different kinds of attempts to establish food governance within the space of flows. They all try, although in different ways, to facilitate global food trade, but the question is how they deal with some of the challenges identified in chapter 2. Consequently, several, empirical questions arise. To what extent and how do existing and innovative regulatory arrangements combine food governance in the space of flows with governance in the space of places (production and consumption of food)? In addition, how do these arrangements deal with food risks and the creation of trust among consumers, the position of small producers in developing countries, the response to different and shifting food concerns and the role of non-state actors?

- i) The globalised organisation of food provisioning has changed the characteristics of food risks. WTO- and government-based regulations rely on scientific expertise as well as private



certification schemes like ISO 14001 and HACCP. In order to acquire consumer trust, private initiatives also refer to the global character of their standards, and the independence of the certifying bodies (Unnevehr and Jensen, 1999). However, the ambivalence in consumer confidence in science and technology (see section 2.5) and the multidimensional and shifting character of concerns about food are further intensified in the global risk society, while the general weaknesses of abstract institutions in creating trust become even more distinct. The distance between global regulatory institutions, like the Codex Alimentarius, and consumers is much larger than nation-state-based regulatory institutions, involving national ministries and parliaments. Personalising abstract institutions and thereby creating trust through some form of direct personal interaction becomes nearly impossible in global food supply chains. Can abstract institutions such as science and nation-state institutions create consumer trust in the safety and quality of food? And, if so, how can they achieve this?

- ii) Strict food safety norms may create serious difficulties for smaller farmers and food-processing firms in general and for those in developing countries in particular (Otsuki, Wilson and Sewadeh, 2001; O'Hara and Stagl, 2001). The necessary infrastructure and technical knowledge needed to fulfil specific requirements may be lacking, while the costs of certification may also constitute insurmountable problems. As a consequence, these farmers and food-processing firms are forced to refrain from exporting food or to depend on multinational firms for providing the necessary funds and control systems to ensure food safety throughout the chain (Unnevehr and Jensen, 1999). So, in what way do different approaches to food governance deal with this problem and prevent global environmental and food safety standards from functioning as (green) barriers to trade (Neumayer, 2001)? In this regard, it is, however, important to acknowledge that divisions in global modernity are not necessarily the ones between different countries but may involve a mixture of divisions in scales, areas, and product characteristics.
- iii) How do different approaches to food governance combine concrete food concerns that are similar at the global level with concerns that have a more diverse and place-bound character in their instruments? The diverse and evolving character of food-related concerns among consumers and citizens is a daily reality and it is unlikely that this will just simply disappear through the homogenising tendencies of globalisation. Diversity among considerations with regard to food may be the result of different local and national food traditions, of different socio-economic features and of differences in public trust in state institutions (Lang and Haesman, 2004: in particular chapter 5). Moreover, these different dynamics may also result in continuous shifts among the particular food concerns.
- iv) How can these WTO- and government-based regulations deal with the novel responsibilities taken up by non-state actors such as consumers, NGOs and private businesses? The regulatory arrangements initiated by NGOs are introduced in a context where national and global governance based arrangements already exist. Since these labelling schemes and other innovative regulatory arrangements will not fully replace state-based regulations, several questions may be asked. How do these innovative and conventional regulatory arrangements interact? How can these innovative arrangements be democratically controlled, comparable to state-based regulations? The WTO may have particular problems in integrating non-state initiatives because officially only governments can participate in its decision-making procedures. Contrary to other multilateral institutions like the Convention on Biodiversity, civil society has no recognised position within the WTO. A particular question with regard to private certification schemes is how they can contribute effectively to real environmental and food safety improvements? These schemes focus mainly on internal management procedures and do not define clear environmental and food safety standards for the products

and processes (Krut and Gleckman, 1998).<sup>83</sup> On the other hand, these certification schemes are much more oriented to consumers than most government-based regulations are.

These questions show the complex issues involved in studying the use of existing regulatory mechanisms and the introduction of alternative kinds of governance arrangements to deal with food in the context of global modernity. In this situation, a particular challenge is to identify forms of food governance that can bridge the gap between the organisation of time and space in the space of flows of global network society and in the local space of places where most food producers and consumers still spend most of their daily lives.

### 3.6. Conclusion

The regulatory practices of simple modernity are no longer adequate to deal with contemporary concerns. In the global network society, complex material flows and networks increasingly escape conventional regulatory mechanisms which are still largely based on nation-state arrangements. While several global flows, for example of finances and cars, are becoming more and more 'footloose', it is doubtful whether this also applies to food. At least for the moment, food seems to be different because of its material (organic) character which is intimately linked to day-to-day human survival. Therefore the question is to what extent forms of food governance within the space of places alone will solve the environmental and safety problems related to global flows of food, whether governance within the space of flows alone can provide a solution, or whether a combination of both is needed.

Globalising complex agri-food networks are based on the space of flows of information, money and food products, and simultaneously involve specific localised practices of production, processing, trade and consumption. These localised practices have concrete material and social impacts and therefore the organisation of time and space in the space of flows versus the space of places creates a tension within agri-food chains. Regulating these chains, in particular with regard to the (existing and emerging) environmental and food safety concerns, requires innovative approaches. Solving the tension more adequately probably means developing practices that combine both forms of organising time and space. Such practices for food governance will have to cover different dimensions, different scales and different actors. Existing nation-state-based regulatory practices may continue to be useful in this changing context, although they will be transformed to function in the changing time-space arrangements. Nevertheless, alternative tools will have to be introduced to supplement these existing ones.

Future governance of food production and consumption will have to acknowledge the reality of the following fundamental transition processes:

- i) The role and position of the nation-state is changing, whereby local, regional and international levels of governance are assuming important tasks. Moreover, the strict separation between public and private responsibilities, which traditionally formed the foundation of nation-state-based regulations of food, is dissolving. The (potential) impacts of food production and consumption, which are contingent and display a multidimensional character, take on different dimensions, depending on place, time and scale. Consequently, to deal with these impacts, different local and global social networks of state and non-state actors will probably have to be established.
- ii) The use of science and technology in food production, transport and processing is growing, enabling more radical human interference with nature. The potential impacts of modern technology on the natural environment and human health may therefore also be more radical than

in the past.

iii) The governance of food can no longer be restricted to the conventional food safety concerns for which the standard risk policy provided the undisputed basis. Regulating risks in the global risk society can not be as straightforward as simple modern approaches presuppose because the science and technology that are needed for governance are considered the causes for the existence of these risks in the first place. In addition, different consumer concerns are emerging constantly, related to environmental, health, social, ethical or animal welfare issues all related to food production and consumption, and they demand innovative regulatory tools.

iv) Finally, establishing consumer trust in the quality and safety of food also requires changes. The continuous time-space distanciation forces traditional face-to-face, or personalised, ways for establishing trust to give way to more abstract ways based on 'expert-systems'. In this reflexive modernity, consumers nowadays have to evaluate and modify their daily practices repeatedly in the light of a continuous stream of, often contradictory, information stemming from expert systems. This information may originate from scientific experts, but also from information produced by political actors, NGO's and different media. The plurality of viewpoints, sources and opinions forces consumers to *choose* from a plurality of opinions among different experts and this results in a permanent ambiguity in consumer trust in food (Beck, 1992; Irwin 2001).

These transitions make simple, one-dimensional solutions to the regulatory challenge inadequate beforehand. Therefore, the involvement of different social actors in different combinations and roles, consumers/citizens, private firms, NGOs, national governments, and international institutions, are needed to create flexible individual arrangements. The engagement of these different actors may be more passive or more active, incidental or permanent, formal or informal and sometimes operating at large distances through global networks. Such flexible arrangements should also facilitate dealing with concerns about food from (different groups of) consumers while these concerns may be science-based, ethical or political, and may even change over time and differ per location. Real understanding of this complex reality requires further empirical research, and therefore we will study four different and concrete cases to review the daily reality of contemporary food governance in the global network society.

After this analysis of the challenges facing conventional nation-state-based arrangements and reviewing current responses, the central research questions of this study formulated in chapter 1 can be rephrased as follows:

1. How can the innovative governance arrangements be comprehended using the concepts of organisation of space and time in the global space of flows and in the local space of places?
2. How do these novel arrangements function in comparison with conventional nation-state-based regulations, in particular, with regard to the roles of the nation-state, the market-parties and the civil society organisations?
3. How do these responses meet the key challenges for food regulation in global modernity?
  - a. allow the participation of different social actors in their development and implementation.
  - b. allow the use of different definitions of food quality.
  - c. enable producers and consumers to choose between different (ways of producing) food with different concerns.
  - d. create trust among consumers in the context of the global space of flows.

Before the results of the case studies are presented in chapters 4 to 7, the methods used for the empirical research during these case studies will be presented in the following section.

## Notes

- <sup>66</sup> Not only is food travelling but people are moving too. It was estimated that in 1995 about 597 million people crossed international borders, taking with them specific food habits and often demanding being provided with food according to their own traditions (Motarjemi et al., 2001).
- <sup>67</sup> And as many of these food products can be found all over the world, one may be tempted to see the emergence of a 'global cuisine' (Mennell, 1996).
- <sup>68</sup> A difference should be made between agricultural products as inputs in food processing industries (soybeans, maize and different kinds of oils and fats) and products for specialised and differentiated (niche-) markets (for example for fresh foods and vegetables). The organisation transport may be different (bulk transport by boat or more exclusive transport by aeroplanes), depending on price and other characteristics of the food concerned.
- <sup>69</sup> It is essential to be aware that, for the near future, agri-food networks can probably not become fully disembedded from place and time, like 'footloose' financial networks can (Griswold and Wright, 2004). 'Space and time still constitute the essential context (for the plant's life-cycle)' (Adam, 2000: 134). More than with other products, attempts to *de*-contextualise the production of food remain a paradoxical and contentious issue. Goodman (1999: 18) speaks about 'corporeality: to signify organic, eco-social processes that are intrinsic to agriculture and to food'; Fine (1998: 8) states that 'what does set food apart is the necessary presence of the 'natural' at both the beginning and the end of the food systems – both in agriculture and in palatability'. Although food consumption is less directly linked to specific local material practices than is food production, it also remains embedded in specific localised social practices. For example, global fast food chains take efforts to adapt their menus to local taste. So, only McDonalds' customers in the Netherlands can buy a McKrokot, a special version of the typically Dutch kroket (or meat roll). And elderly Chinese women transform fast food into slow food as they pass the day in McDonald's waiting to pick up their grandchildren from school (Watson, 1997).
- <sup>70</sup> Agri-food networks are often associated with actor-network theories (Latour), but in this study they are conceptualised as social structures (recursively organised rules and resources used by knowledgeable and capable actors in the diversity of contexts of daily life) (Giddens, 1979).
- <sup>71</sup> There is, however, not necessarily a direct and automatic connection between the distance connecting food production and consumption in time and space on the one hand and the environmental impact on the other. Serious environmental impact may take place at a short distance, while global food supply chains may have limited environmental consequences. (See also section four.)
- <sup>72</sup> Interestingly, it seems impossible to imagine 'fair trade' coffee production and consumption in 1859, although this was the year when Multatuli first published his book 'Max Havelaar'. Yet the Max Havelaar' trademark was only introduced in 1986 as fair trade coffee probably as a result of changing consumer concerns and to the possibilities offered by modern communication technologies.
- <sup>73</sup> In the past Urry viewed recent changes in Western societies as a transition from organised to disorganised capitalism, (Lash and Urry, 1987), but in his more recent work he distances himself from such an economy-focussed approach and develops the concept of global complexity.
- <sup>74</sup> The space of flows still includes a territorial dimension because it requires a technological infrastructure that operates from certain locations connecting functions and people located in specific places (Castells, 2000). But these network nodes are much less oriented to the specific geographical characteristics of the location and its surroundings and much more to the interaction with the other nodes in the network.
- <sup>75</sup> Urry (2002b) claims that social relationships at a distance have not fundamentally changed through globalisation or through the use of new information and communication technologies because social relationships have always involved complex patterns of immediate presence and intermittent absence at-a-distance. Nevertheless globalisation has radicalised the scale and the impact of these possibilities.
- <sup>76</sup> In the economic sphere this means time-space compression in production and the formation of a flexible

workforce (for just in time production) while in the social sphere biological rhythms no longer determine life because rhythmicity is breaking down altogether. In the cultural sphere, temporality becomes undifferentiated (at the same time eternal and ephemeral, cultural hybridisation).

- <sup>77</sup> EU regulation is gradually replacing nation-state-based regulations in Europe, while the WTO dominates global regulation of international trade. The EU is repeatedly regarded as a model for a new regulatory state (Urry, 2000b) as it is a relatively small structure employing few bureaucrats and controlling a modest budget (apart from the Common Agricultural Policy). As the EU's treaties and directives oblige member-state governments to bring their own legislation in line with the EU's and, in addition, allow individual EU citizens to appeal to the European Court of Justice, the EU can be regarded as a form of multi-level governance (Hajer et al., 2004).
- <sup>78</sup> See also the 'Manifesto on the Future of Food', produced by the International Commission on the Future of Food and Agriculture, which brought together scientists and activists mainly from developed countries but also from India. Their ultimate objective is 'a transition to a more decentralized, democratic and cooperative, non-corporate, small-scale organic farming as practised by traditional farming communities, agroecologists, and indigenous peoples for millennia' (ICFFA, 2003: 4).
- <sup>79</sup> See for example the *Guide to eating locally and seasonally in the Greater Portland and Vancouver Areas*: 'Food has the potential to weave together the land, people and communities into a fabric of relationships that foster justice and sustainability. Unfortunately, the food we eat often represents unjust relationships and a degraded Earth. Community food security (defined as all persons in a community having access to fresh, local, culturally appropriate food at all times in a community) is a concept and process that creates healthy relationships around food' (Interfaith Network, 2003).
- <sup>80</sup> Several authors refer to different ways to organise food supply chains, or circuits, to maintain quality and sustainability. Marsden, (2004: 138) for example claims that 'what marks alternative food chains out from the conventional system is by no means their face-to-face nature necessarily. In some of the more mature quality supply chains we see the development of spatially extended networks, which are selling brands and labels and seriously commodifying their culinary repertoires (e.g. Parmigiano Reggiano Cheese). They are still categorically alternative, however, in that they have done and do re-equate nature, space, socio-technical practices, and quality conventions in ways which make it impossible to replicate these outside that network. These then are the new ecologically-deepened supply chains'. See also Van der Meulen (2000) and Goodman (2004).
- <sup>81</sup> See for further debates on the interests of agricultural trade for developing countries UNCTAD (2004).
- <sup>82</sup> A critical issue then is who determines the safety of food, because despite the presence of global food safety norms they may offer problems for specific producers and certain countries (Busch et al., 2000). For example, the decision by the EU to allow European consumers to choose between GM and non-GM food requires labelling of all GM food everywhere (see chapter 5). Otsuki, Wilson and Sewadeh, (2001) estimated that the harmonisation within the European Union of standards for aflatoxins in dried fruits and nuts would have devastating consequences for African farmers exporting these products to the EU. Harmonising aflatoxins levels facilitates trade within the EU, but because African farmers cannot comply with these norms they will lose their market share. This economic model-based calculation, however, did not fully appreciate the concrete complexities of governance and trade (Moonen, 2004).
- <sup>83</sup> The legitimacy of private company-based forms of governance is a critical issue as well, and although this can be established pragmatically through the quality of the end result, it remains unlikely that this solution will satisfy all concerned. Papadopoulos (2003), however, shows that standard political-administrative decision-making systems are not necessarily more democratic and legitimate than co-operative forms of governance are.



## Intermezzo





## Introducing the empirical research

The research questions, formulated in the previous chapter, form a methodological challenge because they require an explorative study of global phenomena, applying innovative concepts. Moreover, as most data on food, trade and environment are still produced within the framework of individual countries, reliable data on global phenomena are lacking. This double challenge necessitates further reflection on research methods.<sup>84</sup>

This empirical research could not be based on empirical verification (or testing) of hypotheses using surveys or statistical analysis. The principal reason is that no completely developed theory is developed yet about the governance of existing and emerging concerns about food production and consumption in the context of globalising food supply chains. Therefore, the use of case studies is considered the most promising option to investigate these phenomena because this allows a more qualitative exploration. Thus, this study is based on an explorative multiple case study approach building on grounded social theory as developed by Glaser and Strauss (Glaser and Strauss, 1967; Strauss and Corbin, 1990; Denscombe, 1998). The discovery of grounded theory ideally aims at developing theory on the basis of empirical research whereby data collection, using different research methods, is undertaken not only during one phase in the study but throughout the research-process. Concepts and theories should be developed out of the data and these emerging concepts and theories should be improved by checking them repeatedly against new data which are collected specifically for this purpose. The empirical research done for this study is to a certain extent founded on this approach, but differs by taking some distance from their (i.e. Glaser and Strauss) radical inductive methodology. This choice is made to leave more room for theoretical reflection and conceptualisation on the basis of existing literature and not limit the development of a theory to empirical research only.<sup>85</sup> Nevertheless, data collection done within the case studies is interwoven with in-depth analysis of these data to further develop theories and concepts and the results of this process were used to refine the subsequent case studies and to create deeper insights.

This research follows the model of a qualitative, exploratory case study research, designed as an embedded multiple case-study (Hamel et al., 1993; Yin, 1993/1994/1998; Stake, 1995/1998; Robson, 2002). Through this case study-approach an in-depth analysis was made of four examples of particular, contemporary phenomena associated with globalised food production and consumption, using multiple sources of evidence (Yin, 1998) and combining theoretical thinking (development of innovative concepts) and empirical reflection.<sup>86</sup>

The main aim of this empirical research is to further develop relevant conceptual tools for understanding and interpreting contemporary food governance. The use of a case study approach was therefore not intended to formulate generalisable conclusions but to inform and further develop theoretical and policy-relevant thinking. Consequently, these cases were not selected with the intention of creating a representative sample. The selection of the four cases was based on the expectation that they would provide relevant information for the research questions and facilitate reflecting on the emerging (theoretically derived) categories and concepts. Each case study requires a flexible empirical design (Robson, 1993) and was implemented using different, particularly qualitative, research methods as well as statistical data (when available and appropriate). In addition, the conclusions of the different methods were strengthened through triangulation. The choice of the specific research methods for each particular case-study was guided by the specific research questions formulated, in combination with the accessibility of primary material and the available resources. Therefore, the concrete cases were selected using four criteria. Case studies should:

- i) deal with a concrete public concern regarding food production and consumption,

- ii) have a global impact in terms of governance,
- iii) contain sufficient diversity to provide broad insights in different contemporary dynamics in global food governance,
- iv) allow satisfactory investigation and analysis within the available time frame of this research; in particular related to the presence of accessible information.

On the basis of these criteria, cases were identified to better understand contemporary public debates on global governance of food and to provide more profound insights in the kind of innovative regulatory arrangements that are being introduced. Although these questions refer to global phenomena, it is impossible to cover the whole world in just one study. Therefore the centre of attention has been on dynamics in Europe, although in some case-studies reference is made to processes taking place in other parts of the world. Finally the following four cases were selected:

- a. BSE, or mad cow disease, is a concrete example of modern food risks which had radical impacts on public concerns about food production in Western Europe and on the organisation of food governance within the European Union. BSE has had global consequences for trade and regulation, for the role of science in policy-making processes and for public trust in conventional food safety regulation. Moreover, although the acute BSE-crisis in Western Europe seems already under control for several years, BSE remains the model case referred to when issues concerning food risks and the importance of public trust and innovative food governance are discussed. Moreover, developments in Canada, the US and Japan show that the BSE crisis continued even after problems in Western Europe were solved. The results of this case study are presented in chapter 4.
- b. Genetically modified food (GM-food), as the second case, is an example of the complex challenges facing governance of food today. Many different social actors, national governments and international institutions take part in attempts to regulate the production, trade and consumption of GM-food. Different discourses, opinions about scientific evidence and particular interests with regard to GM-food are all examples of the more general problems in organising and governing global food trade. This case study is selected to provide further insights in different national practices in food regulation and particularly in the essential shifts in the roles of science and public participation in regulating food. The results of the case-study on genetically modified food are presented in chapter 5.
- c. Aquaculture, or fish farming, is the third case study. Consumer demand for fish is growing, while open sea catchment fisheries run against their limits because of generally depleting stocks. Consequently, fish production through aquaculture is growing but this practice may also have serious environmental problems and create new food safety risks. In this situation environmental NGO's and other social actors involved in governing this practice are confronted with a dilemma. They have to look for ways to combine reduced pressure from intensive catchment fisheries on endangered fish stocks, with avoiding the negative environmental impacts from an expanding fish farming sector. This case-study reviews the complexities involved in regulating sustainable and safe provisioning of fish in global network society. Particular attention will be paid to the role of different social actors, their overlapping responsibilities and practices, and the existence of complex food supply networks resulting in a plethora of regulatory arrangements. The results of the case-study on the aquaculture will be presented in chapter 6.
- d. Labelling of food is the fourth case study. Since the early 1990's, the number of food products labelled as environmentally and/or socially friendly has grown spectacularly. Official labelling of food is confronted with guidelines from the WTO, but private firms and NGOs are intro-

ducing certification schemes and labels that function outside and beyond these WTO arrangements. This case-study is intended to better understand these new tools in the governance of global food trade dealing with different concerns. Two food labels, 'fair trade coffee' and 'Marine Stewardship Council (MSC)', will be studied as concrete examples of consumer oriented food labels developed outside of conventional nation-state based governance arrangements. The focus will be on the ways in which these labels establish new relationships between food producers and consumers and how they deal with different concerns regarding food production and consumption. These regulatory tools are analysed after presenting the relevant framework of the WTO and the hybrid forms of governance through ISO 14001 and HACCP certification. The results of the case-study on the labelling of food are presented in chapter 7.

The choice of the cases restricts the possibilities to generalise the conclusions of this research. Nevertheless, this study aims at formulating answers and conclusions that go beyond the individual cases studied alone. The cases of BSE and GM-food can be considered as the first examples of a new kind of global food risks and therefore the conclusions of this study may be applicable to similar events in Europe in the future. Aquaculture has become the rapidly growing sector of food production in the world today, and through the case-studies on salmon-raising and on shrimp-farming in Thailand, conclusions can be drawn that might be applicable to the sector as a whole. Finally, as the number of food labels is growing rapidly so the conclusions formulated after the case-studies on fair-trade coffee and MSC-labelled fish, may be relevant for the much larger category of NGO-initiated labelling schemes.

The methodological choice for a grounded social theory meant that each case-study research was followed by an attempt to further improve the theoretical concepts and to refine the approach for the next case-study. As a consequence specific research questions were formulated for each case-study and particular methods had to be selected to answer them.<sup>87</sup> So the specific research questions and methods applied for each case study differ somewhat:

- a. The specific research questions in the case of BSE are:
  - i) Is a different kind of politics emerging to replace the conventional policy instruments to deal with food risks in the space of flows and what forms and instruments characterise this alternative risk politics.
  - ii) Which differences can be found in the 'new' risk politics in four European countries, i.e. United Kingdom, France, Germany and the Netherlands?

To answer these questions different research methods were used. First, a qualitative content analysis of newspaper articles was done. All substantial (i.e. those including analysis and/or comments) articles on BSE published in two national newspapers in the four different countries between 1 November 2000 and 31 May 2001 were selected with the help of the internet. The newspapers and number of articles were in France: *Le Monde* (17) and *Libération* (10), in Germany: *Die Welt* (18) and *Die Tageszeitung* (22), in the UK: *The Times* (7) and the *Guardian* (9) and finally in the Netherlands: *De Volkskrant* (18) and *NRC* (12). These newspapers were selected to provide information on diverging views regarding BSE with a nationwide coverage and were accessible through internet. The countries were selected to allow in-depth understanding of the BSE-crisis in Western Europe because this crisis started in the UK, continued in France and the Netherlands, which are two main food exporting countries, and concluded in Germany which constitutes the largest consumer market in Europe. This qualitative content analysis was supplemented with a study of the key official publications

on BSE in these different countries. Finally, also a qualitative content analysis was made of the relevant NGO documents (reports, press comments, and internet websites).

b. The specific research questions for the case study on the governance of genetically modified (GM-)food were:

- i) What are the main discursive and regulatory networks involved in defining the potential risks of GM-food and the need for particular governance arrangements?
- ii) What is the impact of these main discursive and regulatory networks on attempts to establish forms of governance of GM-food in the space of flows and the space of places?

Different research methods were used to answer these questions. First, a qualitative content analysis was done of the key official publications on GM-food regulation in the European Union and the United States. Secondly, a qualitative content analysis of documents (reports, press comments, and internet websites) from several NGOs on GM-food in Europe (France and the Netherlands) and the United States. The NGOs were selected on the basis of their active engagement with national public debates on GM-food complemented with two NGOs operating internationally (Greenpeace and Friends of the Earth). Finally, this information was complemented with a review of the rapidly growing body of scientific literature on the regulation of GM-food

c. The specific research questions for the case study on aquaculture:

- i) What were the recent developments regarding salmon raising in general and shrimp farming particularly in Thailand, with regard to their environmental impact?<sup>88</sup>
- ii) How do NGOs deal with conflicting issues regarding practices and regulatory arrangements in aquaculture, combining global flows and local practices; especially how do they combine the growing consumer demand for fish with the environmental impacts of both catchment fisheries and aquaculture.

To answer these questions, first several semi-structured interviews were done. Key informers on the actual practice of salmon raising and shrimp farming were interviewed followed by interviews with representatives of organisations (governments and NGOs) that are actively involved in the governance of the international trade in these products. Secondly, a qualitative content analysis was done of documents (reports, press comments, and internet websites) from several NGOs actively participating in international public debates on regulating practices and trade. These methods were completed with a literature review on the history and current practices of regulatory arrangements for salmon raising and shrimp farming in particular regarding global trade of these products.

d. The specific research questions for the case study on the labelling of food were:

- i) Does the labelling of globally traded food, produced with care for the local environmental and social impacts, represent an opportunity for combining global and local governance when the conventional nation-state based forms of regulation can no longer adequately deal with these issues?
- ii) What are the concrete features of labelling globally traded food in the case of Fair-Trade coffee and Marine Stewardship Council (MSC-) labelled fish.

Two research methods were used to answer these questions. First, semi-structured interviews with specialists who participated actively in the introduction and development of the Fair-Trade and the MSC labels and with representatives of the social actors engaged in everyday practices of trade in these labelled food products.<sup>89</sup> Secondly, a literature review was done on the history and current governance practices regarding global trade in coffee and in fish

products.

The conclusions formulated after concluding the different case-studies were confronted in open interviews with the views of different stakeholders in debates on global governance of food production and consumption. Their reactions were used to improve the general conclusions and recommendations in the final chapter.

## Notes

<sup>84</sup> Urry goes even further by claiming that conventional research methods are no longer applicable, because they assumed that the world is out there, more or less given and that the scientist has to map reality within a four-dimensional space composed of three Euclidean dimensions together with the passage of time. These categories are less productive of global realities at the beginning of the 21<sup>st</sup> century, a world that enacts itself to produce unpredictable, elusive, ephemeral and non-linear flows and more mobile subjectivities. Societies may be seen as diverse systems in complex interconnections with their environments and there are many chaotic effects distant in time and space from their location of origin. There are self-organising global networks and global flows moving systems far from equilibrium and a social order is never accounted for by purified social processes. (Urry, 2000a; Law and Urry, 2002).

<sup>85</sup> 'A grounded theory is one that is inductively derived from the study of the phenomenon it represents. Therefore, data collection, analysis, and theory stand in reciprocal relationship with each other. One does not begin with a theory, then prove it. Rather, one begins with an area of study and what is relevant to that area is allowed to emerge' (Strauss and Corbin, 1990: 23).

<sup>86</sup> Empirical findings within the studies were repeatedly confronted with theoretical thinking. The different phases in this process are not presented here in raw form but only the summarised results.

<sup>87</sup> To ensure validity, interpreted as the accurate representation of the phenomena studied in the case studies, the interviews were taped and written out and triangulation employed through the use of different data collection methods. Interviews with different experts in the relevant domains and peer debriefing by presenting the preliminary conclusions of the case studies to scientific audiences have contributed to the validity as well. (The case-study on BSE was presented in Helsinki and the 2001 Conference of the European Sociological Association; the case-study on food labelling in Brisbane at the 2002 Conference of the International Sociological Association; a paper on global flows of food and labelling in Wageningen at the Conference on Governing Environmental Flows (2003); the case study on GM-food in Murcia at the 2003 Conference of the European Sociological Association; and a paper on labelling of fish in Oslo at the Conference on Political consumerism (2004)). Explicit accounts of the research process are provided to ensure reliability (the research will produce similar results when repeated by another researcher (Denscombe, 1998; Bell, 1987)), supplemented by creating as much transparency as possible through the use of taped interviews and of open access documents, and in the case of BSE through qualitative content analysis of newspapers.

<sup>88</sup> Shrimp farming in Thailand was selected as a specific case because Thailand is the world's largest exporter of shrimps. In addition, access to information was greatly facilitated through the author's involvement in the Wageningen University funded project Cleaner Agro-Industries; Agro-Industrial Transformations towards Sustainability: Southeast and East Asia in Global Perspectives (AGITS) which included a study of global trade in frozen shrimp from Thailand.

<sup>89</sup> Appendix I provides a detailed overview of the different interviews held for the purpose of this study and the student research that has particularly contributed to the different case-studies.



## Part 2:

# Cases of food and governance in global modernity





## Chapter 4. Reinventing risk politics. reflexive modernity and the European BSE-crisis<sup>90</sup>

*“In a sense there are no scientists any more, only specialists in different, narrowing branches of science. The lessons of the scientific response to the BSE crisis are that scientists have to do more to acknowledge publicly the fragmented, international nature of their professions, and not let governments get away with glib phrases such as ‘our top scientists’*

(James Meek, science correspondent the Guardian, 28/20/00)

*“But meanwhile, being a neo-Luddite seems sane. The 21<sup>st</sup>-century Luddite feels almost as powerless as the original ones. But we can at least use today’s protest of choice, not violence, but economic rebellion. Where possible, boycott”*

(Felicity Lawrence, consumer affairs correspondent the Guardian, 28/05/01).

### 4.1. Introduction

Between 1985 and 2000 Bovine Spongiform Encephalopathy (BSE), or ‘mad cow disease’, developed from a local UK animal health problem into a globally feared food risk. Especially during the last months of the year 2000, many European countries were confronted with what can be labelled a BSE-crisis. This article will study the question whether this BSE-crisis led to the development of a new kind of risk policy. In studying the institutional responses to the BSE-crisis in the United Kingdom, France, the Netherlands, Germany and the EU as a whole, we will be able to identify the contours of risk politics in an age of reflexive modernity.

In section 2, the ‘risk society’ concept will be introduced, followed by a brief overview of BSE and its history in section 3. Subsequently, in four sections the BSE politics will be analysed in respectively the UK, the Netherlands, France and Germany. In section 8 the European Union will be the focus of attention. Finally, based on the BSE example, conclusions will be drawn regarding the emerging new risk politics under conditions of globalisation and reflexive modernisation.

### 4.2. Risk society

The BSE-crisis is often quoted as a ‘textbook example’ of what the German sociologist Ulrich Beck (1999) framed as a new category of risk in a ‘risk society’.<sup>91</sup> Modern Western society is interpreted by Beck as a risk society where progress is no longer equated with increased rationalisation and the functional differentiation of ‘autonomised’ spheres of action. According to Beck such instrumental rationalisation stopped being the motor of social transformation, but this has changed and is increasingly originating in the “the side-effects of technological and scientific development: risks, dangers, individualisation, globalisation” (Beck.1997: 23). The distribution of side-effects raises questions on the distribution of advantages and disadvantages of technological innovations.

In this new constellation governments can no longer continue to use conventional political arrangements in managing risks. These ‘old’ arrangements consisted of a clear distinction between scientifically based ‘risk analysis’ and political decisions based on its results via ‘risk management’, which got translated to the public via ‘risk communication’. Conventional risks didn’t seem to have anything to do with perceptions, trust or changing social circumstances,

but were regarded as scientifically/technologically verifiable chances on adverse effects on human health or the environment as a result of exposure to a 'hazard' (Schierow, 2001). According to Beck, this policy approach can no longer be maintained in late modernity because of three reasons: (i) people have become aware of weaknesses in the scientific methods used; (ii) science, technology and politics are increasingly seen as contributors to the production of risks themselves; and (iii) the general public (in the rich western countries) is less focussed on fulfilling their direct material needs. Consequently, political institutions in western societies have to develop new risk policy approaches, which are characterised by insecurity, ambiguity and heterogeneity. Trust has to be created actively and can no longer be regarded as given (Beck, 1994). For that, governments have to change their policy style regarding risks towards a more communicative approach, focusing on the participatory building of consensus of the definition of problems, the formulation of policies and the policy measures attached. Official governmental policies are not always successful in re-creating trust among the general public and as a consequence 'sub-politics' are emerging: politics outside the existing traditional political institutions (Beck, 1986/1997; Giddens, 1990; Tacke, 2001).

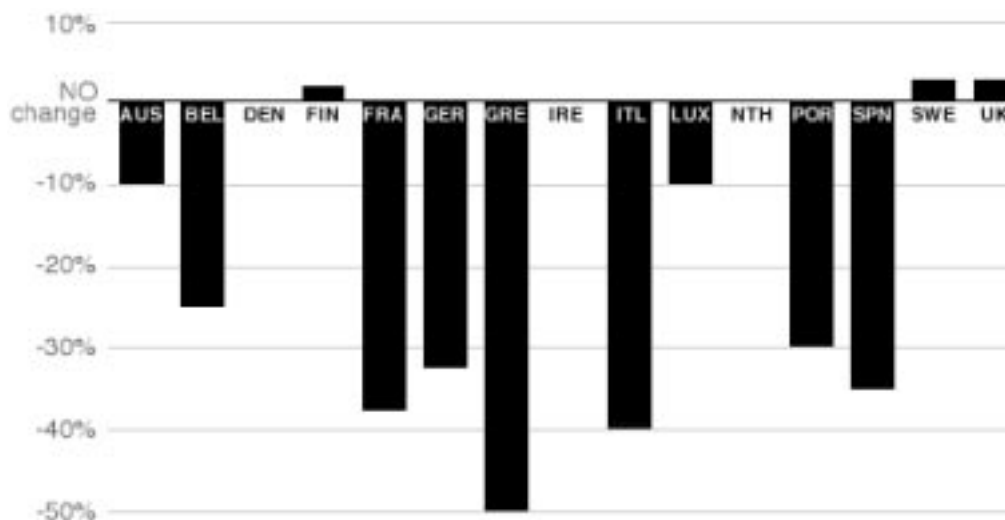
If BSE is indeed a clear case of new risks characterising the risk society, the conventional risk policy instruments and institutions from simple modernity are no longer adequate. According to the risk society thesis new forms and instruments in dealing with the BSE-crisis have to be developed. Can we already identify the emergence of these new policies and politics regarding BSE, how do these new forms and instruments look like, and which differences can be found between the national risk politics of several European countries?

### 4.3. BSE; a brief history

In 1985 a cow in the UK died after suffering head tremors, weight loss and lack of co-ordination in its behaviour. The government asked scientists to study the case and the latter found evidence of a new animal disease named BSE. Several measures were taken to avoid this new disease from spreading, first by the UK government and later also by the European Commission. Cows showing signs of BSE were slaughtered and cattle feed containing meat and bone meal (MBM) from slaughtered animals was banned, as MBM was considered a main cause in spreading BSE.<sup>92</sup>

For more than 10 years the official position was that there were no risks of spreading the disease to humans. So March 20, 1996 came as a shock. At that date the UK Health Secretary officially announced that a 'probable link' existed between BSE and a new variant of the human disease Creutzfeldt-Jacob (vCJD). The first known victim of this disease had died on May 21, 1995 in the UK. This announcement led to a first BSE-crisis, as consumers from all over Europe (and even world-wide) lost confidence in beef and looked for alternatives. There was a sharp drop in the sale of beef, for example 25 per cent in France, but sales recovered after several weeks.

Several stringent measures regarding the consumption and the export of British beef were taken by the European Union and were lifted progressively in the following years.<sup>93</sup> However, by autumn 2000 it became clear that the crisis was far from over. The number of BSE-cases continued to grow in other countries than the UK and more importantly the number of victims of vCJD increased, mainly in the UK. When in October infected beef was found on supermarket shelves in France and in November the first cases of BSE were detected in Spain and Germany, the second BSE-crisis led in many countries to even larger drops in sales of beef than during the first crisis (see Figure 4.1). In December 2000 the European Commission announced a series of drastic measures in an effort to restore consumer confidence.

**Figure 4.1: changes in beef consumption (october-November 2000)**

Source: European Union

**Table 4.1 Number of BSE cases per country on 31/03/01**

| Country                    | No. of BSE cases |
|----------------------------|------------------|
| <i>UK</i>                  | <i>180,967</i>   |
| <i>Germany</i>             | <i>57</i>        |
| <i>Belgium</i>             | <i>27</i>        |
| <i>Denmark</i>             | <i>4</i>         |
| <i>Spain</i>               | <i>38</i>        |
| <i>France</i>              | <i>302</i>       |
| <i>Ireland</i>             | <i>638</i>       |
| <i>Italy</i>               | <i>13</i>        |
| <i>Luxembourg</i>          | <i>1</i>         |
| <i>Netherlands</i>         | <i>14</i>        |
| <i>Portugal</i>            | <i>545</i>       |
| <i>Liechtenstein</i>       | <i>2</i>         |
| <i>Switzerland</i>         | <i>374</i>       |
| <i>Others<sup>94</sup></i> | <i>4</i>         |
| <b>Total</b>               | <b>182,986</b>   |

Source: European Union: [http://europa.eu.int/comm/food/fs/bse/bse29\\_fr.pdf](http://europa.eu.int/comm/food/fs/bse/bse29_fr.pdf)

By March 2001 a total of 182,986 cases of BSE had been identified (see Table 4.1). The top of the BSE-crisis in quantitative numbers of infected cows is to be located in the beginning of the nineties, when most cases were found in the UK. During the first quarter of 2001 only a few new cases were detected, despite a substantial expansion in the number of cows tested. Figure 4.2 shows the predominant role of the UK in the number of BSE-cases identified. By the end of March 2001 there were 99 confirmed or suspected cases of vCJD in the EU, mostly young people.

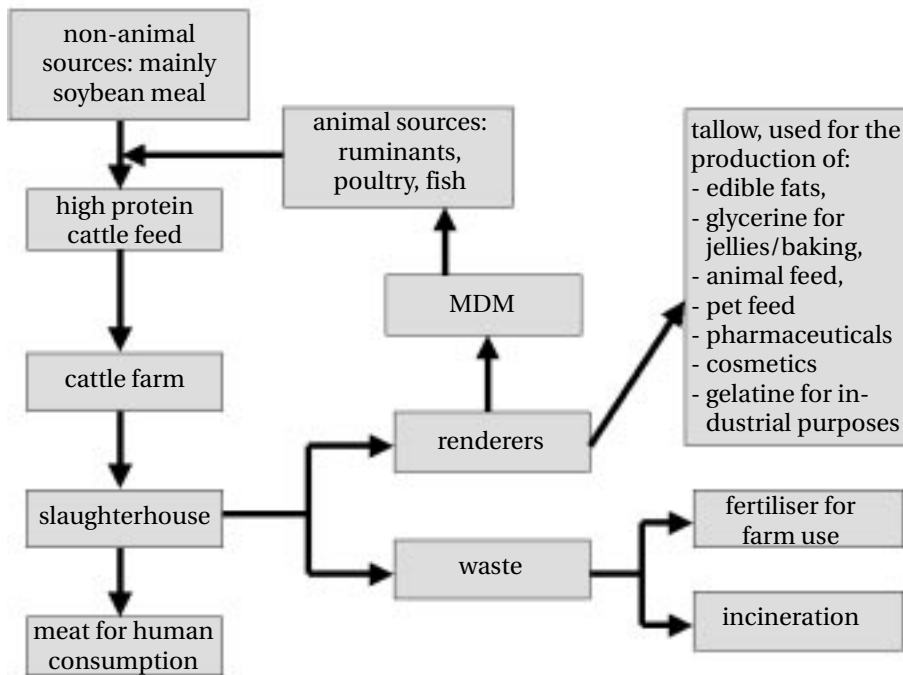
All cases have occurred in the UK with the exception of France (3) and Ireland (1) ([http://europa.eu.int/comm/food/fs/bse/bse20\\_en.html](http://europa.eu.int/comm/food/fs/bse/bse20_en.html)). There are no European-wide data available on the number of cows slaughtered and destroyed because of BSE. But in the UK until September 2000 over 4.7 million cattle had to be slaughtered (Phillips, 2000, par. 9).

**Figure 4.2: cases of BSE (1987-2001)**



Source: European Union: [http://europa.eu.int/comm/food/fs/bse/bse29\\_fr.pdf](http://europa.eu.int/comm/food/fs/bse/bse29_fr.pdf)

**Figure 4.3: distribution of risk material in the food chain**



Based on: Phillips et al., 2000.

Over the years, extensive research concentrated on BSE, on its transmission to other cows and on the way humans acquire vCJD. The dominant view at the moment is that, although the causes behind the initial case of BSE remain unclear, this initial case started off a chain of transmission (see Figure 4.3). Leftovers from cows after slaughter were used to feed ruminants, as it provided a rich source of proteins. Experts now believe those new rendering practices allowed a resilient strain of scrapie to enter animal feed and to re-emerge into a new form in cattle disease, BSE.<sup>95</sup> BSE-infected material was found in animal feed, in meat and in other products meant for human consumption.

As only a tiny amount of infected material was needed to transmit the disease, ‘the size of a peppercorn’ (Phillips, 2000), it spread very fast, first to other cows and then to humans. Until further information becomes available, this knowledge constitutes the basis for current national and international policies and measures to prevent the disease from spreading. But several years had passed before these insights developed and were accepted. In the meantime governments in Europe had to respond to an evolving crisis. The subsequent sections analyse how four European countries and the European Commission struggled in developing an answer to this evolving crisis, in a situation where it slowly became clear that conventional science and politics have lost their innocence.

#### 4.4. United Kingdom: from simple to reflexive risk politics

In Britain roast beef is normally consumed within the family and is considered an important symbol of good family life (Urry, 2000). The risks created by BSE threatened this basic element of British culture and put the government under strong pressure to come up with a solution. The government relied on scientific expertise in developing its strategy to combat BSE, but this proved far from easy due to the complexities of the problem (Urry, 2000; Wynne and Dressel, 2001).

The BSE crisis in the UK can be divided in two phases. From 1985 until 1996 BSE was considered an animal health problem, while from 1996 until 2001 BSE also became a human health problem.

##### *1985 – 1996: BSE as an animal health problem*

When BSE was first recognised in the UK in 1986, British scientists were asked to examine it and their conclusions formed the basis for several measures. A separate scientific commission, the Southwood Working Party, studied possible human health implications. They reported in 1989 to the government that the risk of transmitting BSE to humans appeared remote and that “it was most unlikely that BSE would have any implications for human health” (Phillips, 2000, summary par. 4). This Southwood report formed the basis of governmental policy until 1996 and the legitimisation that no additional measures were needed. As the independent Phillips report concludes later: “The UK government was preoccupied with preventing an alarmist over-reaction to BSE by the public because they believed that the risk was remote” (Phillips, 2000). So the government developed a campaign of reassurance and tried to settle public unrest, partly by symbolic actions. For instance, in May 1990 the Agricultural Minister John Gummer fed a beef burger to his 4 years old daughter, dressed in white cloths. Another symbolic action was the decision to forbid the use of risk material for human consumption. The Southwood Report had recommended that “manufacturers of baby food should exclude certain bovine offal” (as quoted in Phillips, 2000: vol. 1, par. 539). It was considered a precautionary measure of ‘extreme

prudence' and not explicitly based on clear scientific evidence. But when in parliament questions were raised as to why this offal was not banned for all human consumption as it was deemed unhealthy for babies, the government had no answer. Consequently, they decided to implement a ban on specified bone offal for *all human* consumption (Phillips, 2000. Vol. 1, par. 536-611). Although unintended, this measure could have protected the public from further exposure to the risk of BSE, but as it was considered a highly symbolic measure of public relations, its full implementation was not seen as crucial.

The UK government tried to restore public confidence by relying on the role of science in the public realm and by taking symbolic measures. Putting the responsibility in the hands of only one Ministry (Agriculture), having little communication with other Ministries, characterises the functional differentiation in simple risk politics. The government was unable to deal with uncertainty in scientific research on BSE, so typical of the changing conditions in modern society where science and epistemic communities, uncertainties and complexities mix in new settings.

#### *1996 – 2001: BSE as a risk for human health*

The situation changed dramatically when the British government had to inform the public of the existence of a new and deadly human disease, a new variant of Creutzfeldt-Jacobs Disease (vCJD), most likely caused by BSE. This radical turn by the UK-government made "consumers feel they had been lied to" (Phillips, 2000) because for over 8 years they had been told that British beef was safe. Consumer trust in beef declined, as well as trust in science and the government. In the media and in parliament, the government was accused of, while being aware of the risks, not wanting to take the necessary measures because of the economic interests of the beef industry.

The discovery of the link between BSE and vCJD indicated a shift in risk management by the UK government, from a so-called substantial equivalence to a more precautionary approach. According to the substantial equivalence approach BSE was considered to be largely similar to the much longer existing sheep disease scrapie. And as scrapie, as far as was known, did not cross the species boundary to humans, the Southwood Commission in 1989 judged it very unlikely that BSE would pose a risk for human health. This proved to be a very costly 'mistake' and backfired very heavily on the government. During the evolving crisis in the UK the risk approach changed towards a much more precautionary one. In 1996, the Ministry of Agriculture said 'it wishes to protect consumers of bovine products in the UK and elsewhere against any risk, however remote, that BSE may be transmissible to man' (MAFF, 1996). Later in 2001 the UK government even explicitly said that "where there is uncertainty the Government is committed to a proportionate precautionary approach" (HM Government, 2001: 49).

After many years of conservative government in the UK, the new Labour government set up an official Commission in 1998 to study the history of BSE and BSE policy in the UK until 20 March 1996. The Commission had to review the adequacy of government responses in an attempt to restore public trust in the government. This 'Phillips-report' focuses on the lack of communication between different government departments and on the unclear distinction between scientists and government officials in risk management. One of the recommendations is the need to clearly separate the responsibilities of scientists and politicians, without falling back into positivist science. Scientists should openly state their views and include any doubts they have. On the other hand the government should retain sufficient in-house capacity to review scientific advice, and not simply translate the scientific advice into political measures. The consequence will be a more open and public debate on uncertainties in scientific evidence and thus on the justification of governmental (non)politics.

The BSE crisis in the UK is now considered to be under control, because the number of cows

diagnosed with BSE has sharply gone down since 1993 (FSA, 2000). The number of vCJD cases however is still growing.

In retrospect, it can be concluded that the UK government tried to stick to a conventional risk policy in its confrontation with new unknown risk (BSE/vCJD). First, scientists had to analyse the problem and only then politicians could act. The undisputed scientific evidence hoped for didn't come, and this jeopardised the conventional government approach. The approach balanced between securing the existing agri-food system and taking public unrest serious. Symbolic actions and symbolic measures, including lax control on their implementation, were characteristic of this conventional risk policy. When people died from vCJD it became clear that the government had misunderstood the changing nature of risk in late modernity. Although efforts were made to maintain 'simple risk politics' by stressing the separation between science and politics, more reflexive elements emerged in risk politics, for instance in the decision that the public should be informed more openly about diverging scientific views. Increasingly, the view dominates that risk politics should and can no longer be limited to the inner circle of some scientific experts and government bureaucrats. Instead a public debate on uncertainties and opposing scientific views should play a leading role in governmental risk policies.

#### **4.5. The Netherlands: continuation of simple risk politics at large**

In the Netherlands, like in most European countries, BSE was for a long time considered being a specific UK problem and the main risks were thought to be caused by imports from the UK.<sup>96</sup> Official press statements in the period 20/03/96 – 30/04/96, stressed that the Netherlands was BSE-free so Dutch meat was safe and all necessary measures had been taken to avoid risks for consumers (Meere and Sepers, 2000).

The first case of BSE in the Netherlands was detected on 21 March 1997, and by May 2001, 15 cases had been found in total. Until 2002 no case of vCJD has been reported. After the first cases of BSE the Dutch government took several measures, such as slaughtering and destroying infected cows and specific risk material. In reaction to the second BSE crisis currently all cows slaughtered, aged over 30 months are checked on BSE before they are approved for consumption. This measure made it likely that the number of BSE-cases detected would increase. In advance the government tried to convince the public that any increase in reported cases, should not be interpreted as an enlarged risk, but—on the contrary—as a sign of diminishing risks. With a large advertising campaign early 2001 the Dutch government communicated the following message: 'More BSE, but still safer food'.

There has not been a clear reaction from Dutch consumers following the BSE-crisis, not in 1996 nor in 2000. An exception forms the last week of March 1996, when the percentage of households buying fresh beef fell from 22.5 per cent to 16 per cent. But the first week of April this raised again to 21 per cent (Meere and Sepers, 2000: 16). It seems that the Dutch have greater trust in the safety of their food and in government efforts to safeguard their food than people in other countries (although there are signals of a decline in this regard).<sup>97</sup> The limited reaction by the Dutch public might also be caused by the quick and drastic actions taken by the Dutch government compared to governments in other countries.

Dutch agriculture has profited much from the EU Common Agricultural Policy (CAP), so efforts were taken not to endanger this.<sup>98</sup> However because of the BSE and other health and food crises, criticism in the Netherlands is growing on the one-sided economic foundation under CAP and on the negligence of public health, animal welfare and environmental dimensions. This cautious change in the Dutch view on CAP is exemplified by the Dutch resistance to a

proposal by EU commissioner Fischler, February 2001, to slaughter a large number of cows to avoid a fall in prices after the drop in beef consumption. Supported by public opinion the Minister of Agriculture declared he didn't want to kill healthy animals, because this is 'not ethical'.

The government handled the BSE-crisis mainly as a technical issue: the risk to human health had to be minimised by taking necessary technical measures. This approach has been quite effective in limiting distrust among the public and in controlling the amount of BSE cases. It is a typical case of 'simple risk politics': the Ministry of Agriculture de-politicised the problem and formulated technical answers to technically defined problems. The continuation of 'simple risk politics' at large can be explained by the typical Dutch policy style of de-politicising and looking for compromises. It also helped that—in contrast to other countries—official statements were not contradicted by concrete events and the number of BSE-cases remained limited. Minor exceptions to this 'simple risk approach' were the extensive public information and communication activities by the government and the lack of distinction between science and politics. Clear scientific evidence was not conditional for taking drastic measures; political and economic considerations also contributed in designing these governmental measures. The BSE-crisis itself didn't lead to changes in agricultural or risk policies, but it may have contributed—together with other food crises—to a slowly emerging debate on the future of agriculture in the Netherlands.

#### 4.6. France: facing the limitations of simple risk politics

France is Europe's most important agricultural country in terms of employment and GDP. It is also Europe's most important exporter of beef and was for a long time the second largest consumer of British beef.

The first French case of BSE was detected in 1991 and by March 2001 the total number stood at 302, while 3 cases of vCJD have been registered. The first BSE-crisis emerged in March 1996, when the relation between BSE and vCJD was announced in the UK. The market for beef imploded and France decided to ban the import of beef and cattle from the UK. By taking these initial measures, the French government gave the impression that the crisis was under control. Moreover, they decided to maintain the ban on British beef even after the European Commission lifted it in August 1999. In October 2000, the discovery of having contaminated meat at Carrefour stores created a national panic.<sup>99</sup> This second French BSE-crisis was even more profound than the first one. It led to a ban of beef in school canteens and to a major drop in the sales of beef. In the second week of the crisis beef consumption dropped by 40 per cent, compared to 25 per cent in the 1996 crisis (Institut de l'élevage, 2000).

The BSE-crisis in France can be regarded as both an economic crisis and a crisis of confidence in public administration (Barbier and Joly, 2000).

##### *BSE as an economic—but not yet agricultural—crisis*

Three cases of vCJD have been reported up till now in France. Although the risk of attaining vCJD might be limited compared to other food-related diseases, BSE risks caused an enormous drop in beef consumption. This collective fear had catastrophic consequences for beef production and for the agro-industry as a whole. But it did not seriously affect the conventional agricultural system, for three reasons.

Firstly, French farmers are renowned for their activism, which is translated in a substantial political influence. Consequently, confronted with the BSE crises public authorities tried to combine



consumer protection with sustaining the existing conventional agrarian production system. Support for the French farmers was paralleled by a large-scale slaughter of cattle (subsidised by the EU) to reduce BSE risks. Secondly, the traditional character of the French agricultural production (long standing relationships between farmers, food producers and traders) is based on trust, not only within the agri-food system but also towards the consumers regarding the quality of food. It was believed that changing this conventional agri-food system would only lead to more public unrest and more distrust. Thirdly, different French farmers' unions (Confédération Paysanne, FNSEA, CNJA and FNB) successfully claimed that French farmers are victims of the BSE-crisis: victims of big enterprises (animal feed producers etc.) and of unscrupulous politicians. Britain exported contaminated feed to France and infected French cows and also local animal feed producers (especially the larger ones) continued to use components that were not free of BSE. Therefore French farmers carry no blame and the government should support them financially.

Only isolated voices are casting doubt on the basis of modern French agriculture. *Le Monde* wrote in an editorial on 17 May 2001 that the objectives and the structures of the Ministry of Agriculture have to change. The objectives of the productivistic agricultural production system (self-sufficiency and producing cheap food) were laudable in the beginning but they have become lost in low quality food ('malbouffe').

#### *BSE as confidence-crisis in French authorities*

Public trust in the French government emerged as a problem during the second BSE-crisis. This new crisis came on top of preceding food crises and the scandal of the continued use of HIV-infected blood.<sup>100</sup> Two different reactions from French consumers were found. Higher income consumers switched to better quality products, labelled products and those of biological origin.<sup>101</sup> People from lower socio-economic strata reacted much more violently and accused the government of allowing the BSE-crisis to continue, while definitive measures should have been taken at the first signs (Fischler, 2000).

In a report, published in May 2001, the French Senate (2001) studied the question why French cattle got infected with contaminated feed even after the problem was known. They concluded that the Agriculture Ministers in the period 1994 to 2000 "continuously tried to block or to delay the implementation of precautionary measures". The main reason for the French Agricultural Ministry not to act was the "lack of firm scientific evidence".<sup>102</sup> It was only in November 2000, when consumers showed a total lack of confidence in French beef that firm action was taken: the total prohibition of animal meal, a major increase of scientific research and the government enlarged the number of cows tested in slaughterhouses. From then on, recreating consumer trust in both the government and food products was considered crucial in French BSE policy. But regaining trust remained within the boundaries of the conventional agricultural system.

In conclusion, the BSE problem in France turned out to be an economic crisis as well as a crisis of trust in the government. Answers to these crises were found in measures to stabilise the beef market and to reduce the risk for consumers. No fundamental changes in agricultural system have been considered up till now. This conclusion is confirmed by the French Senate (2001), who concluded that biological agriculture is not the model for tomorrow's agriculture. In the same report re-creating consumer trust is seen as a major task for public authorities, if only to regain legitimacy. Associating consumer organisations in the elaboration of food security policy is one of the suggestions and this would be a new phenomenon in French political culture.

In France it proved impossible to control the BSE-crisis by sticking to simple risk politics. The Ministry of Agriculture initially focussed on scientific research to study BSE and to find appro-

priate solutions for governmental risk management, but no firm scientific results were produced at the required moment. Nonetheless, forced by increasing public unrest and diminishing consumer demand, measures had to be taken in a situation of scientific ambiguity while balancing food risks and economic costs. This didn't lead to fundamental debates on France agricultural production system. But some contours of new reflexive risk politics are beginning to take shape, where public debate and participatory decision-making processes are seen as necessary complements of scientific research in situations of major uncertainties.

#### 4.7. BSE in Germany: initiating reflexive risk politics?

Like in other countries, in Germany too BSE was for a long time seen as a unique UK-problem. BSE wasn't an item for public debate and even in 1997 people regarded the risk as remote and governmental measures as largely sufficient (FAZ, 14/02/01). So 24 November 2000 came as a total shock when the first officially German originated case of BSE was discovered in Schleswig-Holstein. The government reacted very fast and within two weeks measures forbidding the use of all animal meal as animal feed were implemented and enforced. Until 31 March 2001 a total number of 57 BSE cases has been found in Germany, but no case of vCJD yet.

German authorities always said that BSE could not emerge in Germany and that beef was safe. So no testing or ban on risk material in human and animal feed was introduced. It was believed to be a British problem because Germany considered BSE to be the same as scrapie among sheep. It could only transfer to cows because of changes within British rendering practices. As Germany had not that many sheep and the rendering practices were different the official conclusion was: 'BSE is not possible in Germany'. This conviction prevented authorities from taking several warnings serious, such as the warning in January 1999 from four scientists at Kiel University, claiming that internal German infection could not be excluded (Welt, 08-01-01). In a similar way, the Scientific Steering Committee from the European Union concluded in April 2000 that no country was completely safe for BSE, and advised that risk material should be fully separated during slaughter and destroyed.

##### *A crisis in agricultural policy*

The discovery of a German originated case of BSE in November 2000 had enormous political, social as well as economic effects. Firstly, German consumers panicked and stopped buying meat. Germans were seriously concerned with BSE: 73 per cent was convinced that BSE was a serious risk, 54 per cent felt personally threatened, 32 per cent stopped eating beef and 35 per cent reduced beef consumption (FAZ, 14/02/01, my translation). Secondly, the Minister of Health and the Minister of Agriculture were forced to resign. Thirdly, a broad debate on the agricultural production system and on agricultural politics in general got off the ground. Although triggered by BSE, this debate did not focus on BSE as such, but concerned the agricultural modes of production in general: 'industrial versus more ecological, animal-friendly and sustainable agriculture'. The majority of the population thought that BSE was not an isolated case, but just the tip of the iceberg, a sign that many food products were not safe. They demanded guarantees for the safety of their food, in the first place from scientists and the government and only in the second place from farmers. Fourthly, this all led to fundamental changes in the objectives of German agricultural policy. As this is for a major part EU policy, the debate also included the need to change the latter. Consumer protection was widely believed to be the new basis for German and common agricultural policy.<sup>103</sup>

The new agricultural political programme can be summarised as follows: The BSE crisis is

the alarm signal for an already existing crisis in the agricultural production system leading to the destruction of nature and the environment and to a loss of ethics towards animals. The alternative is a transparent ecological farming system, based on small-holdings, with an integrated combination of different agricultural activities and using animal-friendly production methods. Agricultural production has to have a regional base and consumers should be able to know where their meat is coming from. The government should consider consumer interests at least as important as producers' interests. This radical political programme received broad support by the German public.

The opinion among German consumers about scientists was very mixed. On the one hand people asked for quick and clear answers from experts, but on the other hand they were confused by the amount of information they received. At the same time, they felt dissatisfied when these experts formulated their answers in formal scientific language, not taking their emotions into account. No scientific research had been carried out in Germany on BSE before November 2000. But this situation changed immediately after November 2000, when large sums were spent on finding fast testing methods for BSE and on more fundamental research (TAZ, 05/02/01).

In conclusion, the BSE-crisis generated much upheaval in Germany by the end of 2000, but the problem itself almost disappeared behind a more fundamental debate on the future of the agricultural production system. This is understandable because the German government took all possible measures within 2 weeks, where other countries needed several years in earlier stages of the crisis.<sup>104</sup> The BSE-crisis does seem to mark the end of existing agricultural policy, but it remains to be seen whether it also marks the end of existing agricultural practices as only optimists are expecting organic agriculture to cover more than 10 per cent of the market in the coming years. Besides the immediate implementation of measures already known from other countries, the main mechanism to recapture consumer trust used by the German government was a political one: the inclusion of consumer protection as a guiding principle in official agricultural policy.

The debate in Germany on the agricultural production system that generated BSE (and other side effects) can be interpreted as a clear example of reflexive risk politics. Surprisingly, there is very little sign of ambiguity in formulating an alternative model. The new model seems to be clear: an integration of farmers', consumers' and environmental interests. However, integrating these interests does not seem self-evident. Only the future will show if this heterogeneous model will be successful, or if one of its composing elements will dominate the others.

#### **4.8. EU and BSE: a first step towards reflexive risk politics**

The EU played an important role in the BSE-crisis. Agricultural policy is the most important part of EU-policy, at least in budgetary terms, and the existence of a common market makes EU involvement necessary when countries want to ban imports from other member states. On several moments over the last 13 years the EU has been actively involved in managing the BSE-crisis, basically in two ways. Firstly, measures were taken at EU-level to prevent the risk from spreading over the national borders. Secondly the EU played an important role in bringing scientific research together and translating it into policy measures.

Detailed analysis of the EU measures makes clear that there is a gap between 1989 and 1994 (Wynne and Dressel, 2001; Sénat, 2001). This temporal inertia can be explained by the internal strife between different departments within the EU bureaucracy in Brussels and by the role of the scientific committees. These committees play an important role in EU's decision making

process and among them the Scientific Veterinary Committee was very prominent during the BSE-crisis. In the first phase this Committee, as well as its BSE subgroup, was dominated by British scientists and this made it difficult for the European Commission to take measures countering the UK denial of risk for humans.

The decision by the EU to ban the export of British beef in 1996 led to anti-EU sentiments among British politicians and the British public in general. In an effort to end this ban the UK brought the case before the European Court of Justice. In their verdict they concluded that one has to accept that, while uncertainties concerning the existence and the effects of risks for human health remain, institutions can adopt protection measures without having to wait until the reality and gravity of the risks are fully demonstrated (Sénat, 2001). This meant an enlargement of the precautionary principle to health risks, which until then was limited to the field of the environment.

The second BSE crisis in 2000 led to considerable EU activity and several far-reaching decisions were taken on short notice. The principal rationale of these measures was to restore public faith in beef. The deep crisis led to a large drop in the sale of beef and the EU had to take big quantities of beef off the market to support its price. Until February 2001 the European Commission spent 700 million Euros to buy and destroy or stock superfluous cows (Financiële Dagblad, 13/02/01). They expected to take 1.7 million cows out of the market before the crisis is over. This policy combines economic and health considerations: beef is taken out of the market because consumer demand is lacking, and because the EU doesn't allow untested cows older than 30 months to enter the beef market. This policy ran into difficulties because the total budget for CAP is fixed. Either the budget had to increase or the production had to diminish. Increasing the budget is excluded until 2006 and diminishing the production would lead to falling farmer incomes and probably to political problems in countries like France. So despite a general agreement between the member states on the need to take drastic measures, no conclusions were reached.

David Byrne (2001) EU commissioner for health and consumer protection argued that comprehensive food safeguards are in place and that BSE is a minimal risk, but scientific uncertainty and consumer unrest remain. Public communication must make "known the risks and the protective measures we have introduced to tackle those risks" (European Commission, 2000). It proved far from easy to communicate these EU measures, because the interference of national policies led to different situations in each country. For example, Germany made testing compulsory for cows aged 24 months while the EU regulation is 30 months, and at the same time countries like Finland, Austria and Sweden don't have to test at all. Maintaining the image of a consistent common BSE-policy is difficult in these circumstances.

EU measures relied heavily on advice from scientific committees based on clear scientific evidence. This 'simple risk politics' ran into difficulties; (national) political and economic considerations played an important role in scientific advice committees and in the decision-making process as a whole. Also science didn't produce the certainty needed for difficult decisions which engaged conflicting national interests and the BSE-crisis itself continued to produce surprises. Only during the second BSE-crisis some significant changes took place: consumer protection became a distinctive political objective and politicians accepted the need to take decisions in a situation of scientific uncertainty. Maybe even more important is the acceptance of the 'precautionary principle' in guiding decisions on food security, despite its inherent vagueness (Dratwa, 2002).

In conclusion, there are indications for new risk politics concerning food and health, but it is crucial to see whether the economic rationale of the CAP will really no longer determine agricultural politics. Some politicians stick to the idea that the BSE-crisis will disappear in the near

future because it is 'just a consumer-hype'. 'Normal' agricultural politics can then resume like before, except maybe for some minor changes.

#### **4.9. General conclusions: BSE between simple and reflexive risk politics**

BSE drew large public attention in all countries studied, but in each country institutional reactions were influenced by existing national conditions and became linked in different ways to other food and public health concerns. If we only look at the definition of the problem: in the UK the BSE crisis can be described as an animal and a human health problem, in the Netherlands as a technical problem, in France as an economic problem and one of trust in the government and in Germany it became a problem of agricultural policy. BSE is indeed a global food crisis, but has different national variations.<sup>105</sup>

This article aimed to analyse whether BSE led to new forms of risk politics and how this new reflexive risk politics looked like. In their confrontation with BSE-crises most governments continued existing simple risk politics, although they were faced with new risk dimensions: scientific insecurity, large scale public unrest and balancing between public health risk and economic interests. A fundamental new way of managing risks, reflexive risk politics, has not yet appeared across the board, but some of its contours can be identified in different degrees in the various countries.<sup>104</sup> I have brought these together under four items.

##### *Institutionalising consumer protection*

Although many politicians claimed during the BSE-crisis that 'our food is safer than ever before', all governments increased their attention to food risks. They were forced to take action following political and popular pressure and had to bring consumer protection to the centre of agricultural and food policies. They did that either via establishing independent organisations following the example of US Food and Drug Administration or by redefining the tasks of the Agricultural Ministry towards consumer protection. In this way balancing public health and economic interests becomes an explicit aspect of political decisions.

##### *Precautionary principle*

The precautionary principle has increasingly been called upon to guide policy decisions under conditions of scientific insecurity. This is done to stress the importance of consumer protection in political decisions, while underlining the impossibility of guaranteeing zero-risk. The precise meaning of the precautionary principle is not clear but maybe rather because of this it became a unifying element in EU politics on issues of food and risk.

##### *Reorienting the modernisation process*

BSE can be considered a consequence of a one-dimensional modernisation process in agriculture, without paying sufficient attention to any side-effects. In that regard the agricultural modernisation should be re-oriented, by taking the environmental sustenance base into account from the start. This could lead to a process of de-modernisation or to one of ecological modernisation. It is not yet clear which model will guide future agricultural policies. It is even not clear if these ideas of reorientation will influence the agricultural production system as a whole, or that conventional agriculture will resume its course after this BSE crisis is over.

##### *Science and politics*

Finally, the BSE crisis raised questions on scientific knowledge and its relation to political deci-

sions. Being a new problem with little available scientific knowledge, policies had to be developed in the context of extreme scientific uncertainty. These new types of risks in modern risk society have three elements in common:

- There is a big difference between the knowledge produced in scientific laboratories and the concrete social practices where political measures are applied. For example the decision to remove risk material from cows to avoid their entrance in the food chain was scientifically correct. However, slaughterhouse practices differ much from those in laboratories and because the quantity of infected material needed to spread BSE was much less than initially thought, this measure proved not effective.
- There is a big difference between the approaches of risk by lay people and by experts. Most experts are approaching risks in a reductionist framework: they try to establish the objective chances on encountering a specific hazard and conclude for example that the risk of acquiring vCJD are very small compared to other food hazards (Wynne, 1995; Guivant, 2001). But the message that the risk of acquiring salmonella is much greater than getting vCJD does not convince the general public. The public judges risks not only on the basis of objective scientific calculations, but also on the basis of whether this risk is imposed by distant authorities and whether this risk is reversible or not (Wynne, *ibid.*). BSE is criticised by lay people because it is the result of conscious changes in agricultural practices for economic reasons and imposed on consumers, who have no means to verify the quality of their beef.
- Scientific recommendations were formulated by a small group of scientific experts close to the government and they proved to be sensitive to economic and political considerations. Therefore, some politicians begin to stress the need to more clearly separate scientific research and the decision making process. Scientific advice has to be taken into account in political decisions, but politicians should actively look for different scientific viewpoints on the matter and accept that they have to make decisions in the face of incomplete knowledge and uncertainty. This uncertainty and different scientific viewpoints on the matter should be debated in public. The general public should be aware of this and be allowed to participate.

The BSE-crisis had a profound influence on the relationship between politics and science, on consumers' trust in governmental measures guaranteeing the safety of food and on the way politicians are trying to restore citizens' trust. But it goes one bridge too far to conclude from the BSE story that new reflexive risk politics are there. At best we can identify some innovations in some countries as an answer to the shortcomings of the simple risk politics in dealing with the BSE crisis. Whether these changes in discourse will be met with similar changes in political and agricultural practices, is an interesting issue for further research.

## Notes

<sup>90</sup> This chapter has been published in: *Journal of Environmental Policy & Planning*. (2002) Vol. 4, no. 3: 215-229.

<sup>91</sup> While Beck used the nuclear accident in Chernobyl as the principle example of these new risks, the German (Green Party) Minister for Agriculture in Nordrhein-Westfalen, said that what the nuclear accident in Chernobyl meant for the nuclear industry, BSE means for agriculture (FAZ, 11/03/01).

<sup>92</sup> MBM containing animal proteins was used in cattle feed because:  
Increased meat production and lower meat prices, led to increased availability of cheap meat-offal.  
Animal proteins are more easily used by animals.  
Efforts to become less dependent on American soy-beans (Robelin, 2000).

The use of feed from animal origin was seen as an indication for modern hygienic conditions and modern economic production (recycling) in the 60's and 70's and changed into a symbol of how a cow is unnaturally transformed into a carnivore.

- <sup>93</sup> These measures played an important role in the public debate in the UK. They were considered by many of the leading (conservative) politicians and newspapers unjustified and too severe, based more on anti-British sentiments and on national economic interests than on sound scientific arguments (Wynne and Dressel, 2001).
- <sup>94</sup> Falkland Islands, Oman (2 cases) and Canada.
- <sup>95</sup> Scrapie is a widespread disease among sheep and has the same characteristics as BSE but it is not transmissible to humans.
- <sup>96</sup> The Netherlands is integrated in global agro-food chains. For example: in 2000 the Dutch meat export grew by 17 per cent to 11.1 billion and the import by 10,5 per cent to 4.9 billion . (Volkskrant, 20/03/01). 70 per cent of meat consumed in the Netherlands in 2000 was imported, mainly coming from neighbouring countries.
- <sup>97</sup> Consumers seem to link the risk of BSE to earlier food risks like dioxin and salmonella. A poll in December 2000, found that 46 per cent of the studied households didn't agree with the proposition that 'our food has never been as safe as today' (Communicatie, 2001).
- <sup>98</sup> For example the Dutch government was aware of the risks involved in German sausages but was not able to act as European regulations didn't allow taking measures. Only by the end of 2000 measures could be taken
- <sup>99</sup> 'Affair Carrefour': On 24 October 2000 a cow was to be slaughtered at a slaughterhouse in Beuzeville, but showed signs of BSE. The cow was tested positive and 18 other cows from the same herd had to be slaughtered and destroyed. However 11 of them were already slaughtered on 4 October and 1 ton of beef was distributed to 39 supermarkets from the Carrefour retail chain and some others. In combination with a television broadcast on young vCJD patients this created a profound food scare.
- <sup>100</sup> HIV-infected blood was continued to be used for blood transfusion to haemophiliacs in the '80's, because of lacking control or bad will from high French authorities. Hundreds of haemophiliacs were infected with AIDS and this scandal was subject to a widely debated legal procedure in 1999.
- <sup>101</sup> Interestingly earlier escapes, the return to traditional products, are no longer available. It is especially the listeriosis-bacteria that can be found on traditional products and not on industrial fabricated food products (Fischler, 2000)
- <sup>102</sup> France has paid a lot of attention to scientific research to solve insecurities around BSE and related problems. Compared to other countries much more was expected from this research in answering important questions to guide policy and this is regarded as a clear indication of the governments commitment to fight the problem. It is very interesting to see the French Senate now criticising this strategy as an excuse for not acting. France has started a substantial research programme on prions in 1996 which reached an expenditure of 70 million Francs in 2000 (Minister of Research, 2000). The Comité Dormont, was created by the Ministries of Research, Health and Agriculture. This is a scientific committee composed of 24 scientists giving advice to the government on scientific aspects of the BSE crisis. A lot more will be invested (140 million Francs) in the coming years (Robelin, 2000).
- <sup>103</sup> In January 2001 the new Minister of Agriculture changed its name into the Ministry of Consumer Protection, Food and Agriculture.
- <sup>104</sup> Additional reasons for this very rapid shift in agricultural policy objectives are that the German government at that time was a coalition of social democrats and greens and they don't have a large electoral support from farmers like the Christian Democrats in preceding governments. Besides, this situation proved to be a good opportunity for the Green party to get more profile in the coalition government.
- <sup>105</sup> "BSE has been a particularly British disaster. Almost all the victims of vCJD have been in the United Kingdom. Over 170,000 cattle have been diagnosed with BSE here compared with fewer than 1,500 abroad. (...) So far, over 4.7 million British cattle have had to be slaughtered, and their carcasses burned or buried

as potentially dangerous waste. The livelihood of thousands of farmers and businesses has been damaged” (Phillips, 2000, par. 9). The total costs have been estimated at almost 5 billion British pound.

<sup>106</sup> An interesting question brought up by an anonymous referee to this article is whether it is appropriate to assume that ‘the old model’ of risk politics will be replaced by ‘a new model’. Maybe it is more appropriate to suggest that risk politics has always been a mixture of reflexive and non-reflexive elements and that the BSE case shows that new kinds of combinations of these elements is being sought after. On the basis of available empirical material this question can not be answered, but it would be a very challenging hypothesis for future research and debate.



## Chapter 5. Governing genetically modified food in the global network society?

*'(Genetically modified crops and other biotechnology are safe and their use would dramatically boost food production.) Yet our partners in Europe are impeding this effort. They have blocked all new bio-crops because of unfounded, unscientific fears.'*

(US President Bush at a speech to the graduating class of the US Coast Guard Academy, 22 May 2003.)

*'Africa is in danger of becoming the dumping ground for the struggling GM industry and the laboratory for frustrated GM scientists. The proponents of GM technology sell a sweet message of GM crops as the second green revolution and the answer to African hunger, but the reality is quite different. A close look at GM crops and the context under which they are developed makes clear that GM crops have no place in African agriculture.'*

(Zachary Makanya in Seedling Magazine, published by GRAIN; [www.grain.org/seedling/?id=294](http://www.grain.org/seedling/?id=294)).

### 5.1. Introduction

Since the mid-1990's, when Genetically Modified Organisms (GMOs) were effectively introduced in food production, the European public has ranked GM-food among the most controversial social issues (Wales and Mythen, 2002).<sup>107</sup> Just recovering from the BSE crisis, GM-food (repeatedly called 'Frankenstein-food') was considered a new threat to consumer health. In addition, environmental NGOs pointed to the threat for biodiversity from this new technology, while organic farmers feared the future of their livelihood. Many different social groups in Europe expressed their concerns about this new technology and they put pressure on authorities to introduce regulation that would protect them from its potential dangers. So, the governance of GM-food production and consumption developed into a serious political problem, initially in the EU but subsequently at the global level as well. Public debates about the regulation of GM-food involve many different social actors with different views on the potential risks, on the role of science, on the need to facilitate global trade and on the governance arrangements necessary to deal with these issues. Thus, GM-food forms an exemplary case to study the ways in which the governance of food production and consumption in global modernity is challenging conventional nation-state based arrangements.

As long as food production and consumption was local or regional, food governance remained local or regional as well, but when food trade became global trade, global arrangements became indispensable. The production and consumption of GM-food constitutes a clear example of the increasing global organisation of food production and consumption at the beginning of the 21<sup>st</sup> century. GM-food also shows the problems for food governance in this changing context. The use of GM-technology in the production of food is, furthermore, an example of the increasingly radical human interference with nature. Therefore, the globalised production, processing, trade and consumption of GM-food needs new forms of governance able to deal with different concerns about human health and the environment. Governing GM-food provides an interesting case to study the challenge to combine facilitating international food trade while dealing at the same time with local environmental and food-safety considerations. Recent history shows the global character of the issue and the active public engagement in the debates. International institutions such as the World Trade Organisation (WTO) and the European Union (EU) have become actively involved in the governance of global flows of GM-food, as well as many nation-states and civil society organisations and private firms. Therefore the question

may be raised, what new forms of governing global flows of GM-food are developed and how the concepts introduced in chapter 3 can contribute to further understanding of the dynamics taking place?

This chapter will therefore review the recent history of the debates and practices on governing GM-food in order to identify the ways in which different social actors try to combine their interests and concerns into innovative regulatory approaches. The following section two presents the specific theoretical concepts applied in this case study, building on the conceptual tools developed in chapter 3 supplemented with the notion of discursive and regulatory networks. With the help of these concepts, the recent history of GM-food governance will be described on the basis of the changes between 1993 and 2003 in the regulation of GM-food in the United States (section three) and in the European Union (section four).<sup>110</sup> The increasing involvement of multilateral institutions, such as the WTO and the Convention on Biodiversity, and the obligation for China and countries in southern Africa to develop a policy on GM-food production and consumption, show that GM-food governance has become a global challenge, as I will explain in section five. In the final section, six, I will conclude that the recent history of GM-food regulation shows that global governance of GM-food can not be based on product characteristics only, although it is not yet fully clear how characteristics of the production processes can be included in a satisfactory way.

## **5.2. Conceptual tools for analysing the governance of global flows of GM-food and potential risks involved**

In the early 1990's, GM-food governance was only a concern for a limited number of food and agriculture regulators and agro-food corporations in the United States, but this transformed into a global issue by the end of the same decade. Remarkably, though the commercial production of GM-food started in the US, it became an important public concern mainly in Europe. Particularly in Western Europe, environmental NGOs and media drew attention to these 'Frankenstein foods threatening our food supply'. At the same time, the authorities responsible for food safety in the EU were engaged in a process of redesigning their regulatory approach which had proved inadequate during the BSE and the dioxins-crises. As a consequence new principles and tools emerged in the regulation of GM-food in the EU, like the 'precautionary principle' and the 'mandatory labelling of food'. This new approach to governing food within the EU seemed inconsistent with an existing trend towards increasing liberalisation of global food trade which goes together with a push towards uniform global governance of food. In this situation several challenges confronting governing food in global modernity, already identified in chapter 2, became particularly visible. GM-food is by many considered a typical example of the new kind of risks in global modernity. Dealing with consumer trust in food in relation to GM-food seems to have become a task for all actors involved. And balancing food safety and environmental concerns with interests of trade, dividing the responsibilities between state and non-state actors and multilateral institutions, all acquire special characteristics in the case of GM-food.

GM-food bears all the classic hallmarks of a manufactured risk as defined by Beck (1992): it is created by humans, has potential catastrophic effects that can be illimitable in time and place and is uninsurable (Wales and Mythen, 2002).<sup>111</sup> The use of GM-technology constitutes a more radical interference with nature than previous technological innovations in food production like the selective breeding techniques introduced to create high yielding varieties during the Green Revolution (Atkins and Bowler, 2001). Therefore, although some official bodies hold on

to the standard risk political arrangements (see chapter 2) to deal with GM-food as well, many social actors call for an innovative approach because they claim that this new technology creates new kinds of risk. The example of the failures of standard science-based risk politics in dealing with BSE is called upon to justify specific regulation of the potential risks involved in GM-food although clear and generally accepted scientific evidence may be absent. As the case of BSE also showed, conclusive scientific proof for the existence of risks might be lacking, but still the disastrous consequences were there. But even with regard to BSE, some individual scientists had uncovered indications for potential risks which became convincing only much later (see chapter 4). Providing sufficient scientific evidence for the (potential) environmental and health risks involved in GM-food production and consumption may even be more complicated. Potential environmental and health consequences of GM-food production and consumption may be present that can only be observed after long term research. Therefore critics of the use of conventional risk politics in GM-food governance, demand that governing the production and the trade of GM-food allows the inclusion of potential, and not yet fully scientifically established, risks. Moreover these critics point at the importance to not limit governance arrangements to characteristics of the final food product alone but to cover the production practices as well.

Different views on the presence of risks involved in the production and consumption of GM-food and on the way to deal with them lead to the promotion of different forms of governance for the production and trade of GM-food. These different options to regulate GM-food trade can be regrouped under three ideal-typical models. Each of these different governance models is more or less based on a coherent discourse about possible risks involved in GM-food production and consumption, about the role of science in dealing with these risks, includes particular key actors and finally defines some guidelines for concrete forms of governance of GM-food. (See Scheme 5.1 for a summary). The first, model is guided by the intention to facilitate global food trade, the second by the aim to prevent environmental and health risks and the third model tries to form the ideal combination of the other two.

Facilitating global trade in GM-food requires some form of global governance and the reduction of nation-state based protective and supportive regulatory regimes. Such global governance of GM-food aims at 'governance in the space of flows', requiring generally applicable principles to base standards and regulations on. Consequently within this approach, the safety of GM-food should be established by defining particular requirements with regard to the food products themselves and not by referring to the production processes that underlie these products. The WTO is an important driving force in the first model, oriented towards GM-food governance in the space of flows. Therefore, a separate regulation for GM-food is only acceptable according to WTO imperatives if GM-food poses concrete dangers for human, animal or plant life and health. In addition, the presence of these dangers should be established by sufficient scientific evidence while the regulation is based on an official risk assessment. Such flow-based governance is justified by the aim to facilitate global trade and to reduce the possibilities for unjustified protectionism, but the consequences of these strict product-based criteria for the possibilities of governing GM-food receive critical comments.

Growing concerns about the potential health and environmental impact of GM-food create a driving force towards the establishment of a form of food governance that principally aims at preventing risks. Consumption of food in general can already be considered delicate (Fine, 1998; Keil and Beardsworth, 1996), but their unknown consequences make the consumption of GM-food even more sensitive. The production of GM-food might, furthermore endanger the production of organic food and threaten biodiversity through the spreading of genes to wild relatives of agricultural crops. As a result of these different worries governance arrangements should deal with the specific characteristics of local food production and consumption practices and

thus explicitly cover the production process. Alternative arrangements, such as regional food supply chains and organic food producers attempt to re-establish direct links between producers and consumers of food. In doing so, they facilitate the re-building trust on the basis of face-to-face interaction and the inclusion of environmental, animal welfare as well as human health considerations. As consumer trust in GM-food remains minimal, these alternative, regional food supply chains and organic food producers do not produce food with the use of GMOs. Furthermore, to allow their continued existence as non-GM-food producers, these alternative food supply chains demand strict guarantees that GMOs will not intrude in their fields or in their markets and this can be considered as a form of governance organised in the space of places. Environmental NGOs and organic farmers' organisations are the most important driving forces behind this regulatory model. Such a model of 'governance in the space of places' effectively excludes the production of and the trade in GM-food.

The third model is based on an attempt to combine governance in the space of flows with governance in the space of places, and tries to facilitate global food trade while protecting consumer and environmental interests. This could be achieved through direct government governance, through regulations in the form of duties, taxes or other charges rather than import bans, export certificates or other forms of trade restrictions and through the labelling of GM-food. Labelling of GM-food would allow consumers to choose between GM- and non-GM-food and thereby to indirectly influence producers' choices. One consequence of allowing consumers this opportunity to choose is that farmers, processors and retailers have to preserve the identity (GM or not-GM) of the food throughout the supply chain. Eventually this may lead to the establishment of separate production lines for GM- and non-GM food. Multilateral environmental agreements (MEAs), such as the Biosafety Protocol of the Convention on Biodiversity (CBD), and the European Union have been driving forces behind this model.

**Table 5.1 Models and GM-food governance**

| Regulatory models                 | Risks in GM-food  | Role of science  | Key actors   | GM-food governance  |
|-----------------------------------|---|--|--|---|
| Governance in the space of flows  | There are no particular risks involved in GM-food as such; not using GM-technology would lead to insufficient food production on the longer term.               | Science provides the information to base decision-making on.   | USA- government<br>WTO.  | No specific regulation needed because GM-food is not different from conventional food.  |
| Governance in the space of places | GM-food production creates dangers for biodiversity; consumption of GM-food may result in acute health risks and have disastrous consequences on the long term. | Science is the cause of GM-food and can not provide the security needed for its regulation, only the information about possible risks. | Regional food supply chains, organic farmers, NGOs, some European countries. | No GM-food because the potential risks are too large. Establish direct producer-consumer links, protect the environment, sustain diversity, prevent potential risk. |

|  |  |   |                                |   |
|--|--|---|--------------------------------|---|
| Combining governance in the space of places and governance in the space of flows | The long term effects of GM-food production and consumption are unknown, but today no clear proof for the absence of risks; applying precautionary principle means protecting other forms of food production, allow consumers a choice and only accept GM-food if there is a clear advantage in its use. | Science should provide information about risks and benefits and inform the public debate and policy makers. | NGOs, some European countries. | Labelling of GM-food to allow consumers a choice and guarantee the continued production of non-GM-food; facilitate food trade while protecting the environment and guarantee food safety. |
|--|--|---|--------------------------------|---|

Table 5.1 makes clear that contesting the governance of GM-food is not just based on different views from different social interest groups on a predefined unequivocal problem characterised by particular risks, but contains a complex and continuous struggle over the definition and the meaning of the GM-food problem and about the objectives of food governance (Hajer, 1995). The public debates and political struggles have led to the development of different networks of actors that reproduce particular discourses about GM-food. In these discourses, views on the potential dangers involved are combined with specific opinions about the necessary regulatory practices and they are given permanence through 'discursive and regulatory networks' (Toke and Marsh, 2003; Newell, 2001). These discursive and regulatory networks may display a shifting composition, but they have nevertheless acquired some permanence. The three main models for GM-food governance are promoted in the public and political debates by different discursive and regulatory networks, composed of both state- and non-state actors. The state actors may include national governments, but also intergovernmental and multilateral institutions, while the non-state-actors may comprise scientists, NGOs or groups of producers and consumers. Many different arguments about the advantages and the risks related to GM-food are used within these networks. (See annex 2 for an overview of the main arguments used by proponents and opponents of GM-food.) Most of these discursive and regulatory networks have become global networks, linking social actors from different regions and resulting in a permanent exchange of arguments, experiences, strategies and viewpoints.

Analysing the historical process of GM-food regulation in the US and the EU provides an interesting opportunity to review the ways in which these different discursive and regulatory networks have promoted options for governance.

### 5.3. Growing GM-food production and its regulation in the US

GMOs, for which the basic technology was discovered in the 1970s, were further developed in the following decade, and as a result the first genetically modified agricultural crops could be planted for commercial purposes in the mid-1990s. Since then the area for growing GM-crops increased very rapidly from estimated 1.7 million hectares in 1997 to 58.7 million hectares in 2002. (See Table 5.2.)

**Table 5.2 GM-crops worldwide**

| Year  | Global area of GM-crops<br>(million hectares) |
|-------|---|
| 1996  | 1.7   |
| 1997  | 11.0  |
| 1998  | 27.8  |
| 1999  | 39.9  |
| 2000  | 44.2  |
| 2001  | 52.6  |
| 2002* | 58.7  |

Source: Millstone and Lang (2003: 44/5) and \* Weaver (2003: 1).

GM-crops are produced in 16 different countries, but more than 95 per cent of the area is still located in just three of them: US, Canada and Argentina. Soybeans make up the main GM-crop (62 per cent of the total area of GM-crops) and 51 per cent of the total global soybean production is based on the use of GMOs (Weaver, 2003). Herbicide tolerance is the dominating transgenic trait present in soybeans, corn, and cotton, and accounts for 75 per cent of the global area planted with GM-crops (Weaver, 2003: 1).<sup>108</sup>

The area of GM-crops in Europe is infinitesimal compared to the US, Canada, and Argentina and only Portugal, France and Spain have had limited areas of Bt maize. In 2000, only about 30,000 ha of Bt maize were grown commercially in Spain. (See Table 5.3.)

**Table 5.3 European area under Bt maize**

| Country  | 1998   | 1999   | 2000   |
|----------|--------|--------|--------|
| France   | 2,000  | 1,000  | –      |
| Spain    | 20,000 | 10,000 | 30,000 |
| Portugal | –      | 1,000  | 1,000  |

Source: European Commission, Directorate-General for Agriculture (2000).

When the first GM-food crop, the Flavr Savr tomato, was commercially introduced in the US in 1994, the authorities had to define a regulatory framework to deal with it. The US authorities choose to base the general regulation of GM-food on the assumption that specific testing and regulation (for example through labelling) was not necessary because GM-food could be considered as safe as conventional food. This regulation was based on the so-called '*substantial equivalence*'-approach, which was developed by the OECD and essentially considers the existing, 'conventional' food products as a benchmark against which to assess the safety of new, genetically modified food products. 'If a new food or food component is found to be substantially equivalent (compositionally similar) to an existing food or food component, it can be treated in the same manner with respect to food safety' (OECD, 1993: 16). Therefore, because a transgenic crop differs from an unmodified crop only in the trait coded for by the transgene and is 'substantially equivalent' in all other respects, merely this trait needs measuring (Clark and Lehman, 2001).<sup>109</sup> Only in exceptional cases when clear evidence for food safety risks exist is specific regu-

lation required. This way, the US regulation of GM-food can be considered as governance in the space of flows because it is not based on the production process (i.e. the use of GMOs) but only on product characteristics in case they pose a specific health risk for consumers. The US regulatory approach only accepts 'sound scientific evidence' as the basis for decision-making and excludes other elements of governance in the space of places, such as (potential) long-term local environmental consequences, particular ethical principles, the protection of local food or agricultural traditions or specific consumer concerns. Based on the absence of accepted scientific evidence for particular risks involved in GM-technology, the US authorities decided that genetic modification should not be seen as risky in itself and therefore does not require mandatory labelling (Princen, 2002).

The governance debate in the US was dominated by the governmental institutions Food and Drug Administration (FDA), US Department on Agriculture (USDA) and the Environmental Protection Agency (EPA), a limited number of private biotechnology firms (Monsanto, Novartis, Aventis, etc.) and some farmers' organisations. They build their approach on natural science-based technological optimism and the conviction that society would profit more from GM-technology if governments would interfere as little as possible and avoid introducing specific legislation. According to this discursive and regulatory network, the guidelines for GM-food should be science-based and directly product-related, thus severely restricting the role of public discussion.<sup>112</sup> The only elaborated viewpoint opposing the GM-food regulation in the US was built around the Organic Consumer Association (OCA), but only after the European public opinion had changed and the US GM-food regulation was already fully implemented. The OCA's discourse centres around the promotion of 'natural foods', produced without the use of GMOs, hormones or any other 'unnatural' substance. It considers the promotion of 'natural food' necessary to fight the 'gene giants' (large biotech firms) who treat food, just like any other product, as a possibility for making profit. Governance in the space of places therefore formed the basis of their regulatory approach that eventually accepted only organic agriculture as a certain guarantee for safe food. This alternative discursive and regulatory network has, so far, remained marginal and unable to really influence GM-food regulation in the US.

After the US had developed their 'substantial equivalence' approach in regulating GM-food, the EU decided to create its own regulation which differs in several essential aspects from of the US example, see section four. As a consequence, US food exports to Europe reduced substantially because of the absence and delay in approvals of GM-food products by the EU. For example, the US share in EU maize imports fell from 86 per cent in 1995 to 12 per cent in 1999, which is calculated as a loss of US\$ 200 million in 1998 alone. The US soybeans exports to Europe also dropped from 9.85 million tonnes to 6.75 million tonnes between 1995 and 1999, while Brazilian (then still considered non-GM-) soybean exports soured from 2.99 m tonnes in 1996 to 6.87 m tonnes in 1999 (Vidal, 2001).<sup>113</sup> In reaction to this substantial loss in exports and the resulting financial damages the US filed a complaint at the WTO against the EU. (See section five.)

US policy on GM-food has been conventional nation-state based but through its limitation to product characteristics alone, this provided a basis for the governance for international GM-food trade. Risk politics in the US was based on standard risk politics, although the particular character of GM-food nevertheless required the introduction of the new principle of 'substantial equivalence' to deal with the complexities of this new form of human interference with nature. The policy debate in the US was surprisingly restricted to a limited group of social actors, whereby the driving discursive and regulatory network comprised officials in particular from USDA and some biotechnology firms and some scientists.

#### 5.4. The history of GM-food-regulation in Europe

The EU's regulatory regime on GM-food is not a copy of the US regulation but was developed separately in reaction to local public controversies about the dangers of GM-food. In the mid 1990s, European NGOs framed GM-food as a food safety problem threatening consumer health, while at the same time the authorities in charge of food safety in the EU were redesigning their regulatory approach. The existing European Union's food safety politics had proven inadequate during the BSE-crisis. The framing of GM-food by the NGOs, putting this issue in alignment with BSE and dioxins, built on public worries about food safety and opened up a window of opportunity for successfully contesting GM-food regulation in the political European arena (Hannigan, 1995; Hajer, 1995). Any review of the evolution of GM-food regulation in the EU would therefore have to include civil society organisations and could not be limited to official agencies alone. The history of this debate on governing GM-food in the EU can be divided into the following three periods. The first period was between 1990 and 1996, when the GM-food evolved from an interesting technological innovation into a highly controversial public issue. This was followed between 1996 and 2001 by a period where social movements and private economic actors enforced a 'de facto' moratorium effectively blocking the production and import of GM-food in the EU. And, from 2001 to 2003, when the EU attempted to develop an innovative regulatory that would be acceptable within the EU but also for other countries and global institutions.

##### *1990 – 1996: GM-food gets regulated*

Initially the authorities in the EU, notably the EU Directorate-General for Industry and Research and Development as well as the biotech-industries in Europe considered biotechnology, including GM-food, an interesting option to promote high-tech industry. Several EU member states developed their own national regulations in the late 1980s for this technological innovation. This process however resulted in disparity, in content and in effect, between the regulations in different member-states creating unequal conditions for competition. Moreover, the differences between these national regulations put up barriers to trade, which were increasingly considered unacceptable in the EU's transition towards a common market. In reaction, the European Commission felt obliged to look for a common regulation, but this task was interestingly not assigned to the Directorate-General for Industry and Research and Development, but to the Directorate-General for the Environment.<sup>114</sup> This regulatory process resulted in Council Directive 90/220 issued to regulate the deliberate release of GM-food into the environment through both field-testing and marketing to the public.<sup>115</sup> The Directive 90/220 imposed uniform environmental standards on GM-food production, facilitating food trade within the EU and was largely based on the concept of governance in the space of flows. Risk assessment procedures had to be performed by the member-states and subsequently forwarded to the other members, who could then eventually oppose the conclusions. Following this procedure, the EU licensed Monsanto's Roundup Ready soybean in 1996 and Ciba-Geigy Bt-maize in 1997 and subsequently, in 1998 some 20,000 hectares of GM-maize were grown in Spain and about 1,000 hectares in France (Princen, 2002). Nevertheless, the Directive 90/220 already included the precautionary principle as its main regulatory approach, while, in addition, the criteria for environmental risk assessment remained vague. Thus different EU member-states interpreted the regulatory arrangements contained in this directive in accordance with their own preferences, introducing several elements of governance in the space of places (Barling, 2000). Therefore, despite the presence of a common EU policy to regulate the production of GM-food, the latitude offered by the Directives in combination with the public



debates in several Member States did put this uniform basis under pressure even before it was fully implemented.

*1996 – 2001: GM-food becomes a public issue*

The commercial introduction of GM-food in Europe by Monsanto importing maize from the US in the mid-1990s led to large-scale public unrest and, the existence of a communal policy notwithstanding, to unilateral initiatives. The principles of regulation incorporated in Directive 90/220 came under pressure, because Austria and Luxembourg did not allow the production of GM-crops while Denmark, France and the Netherlands developed national measures to segregate GM-food offering consumers a choice between GM- and non-GM-food. These different national choices in the implementation of Directive 90/220 created a 'race to the top' whereby governments competed between themselves by issuing standards that claimed to be better in safeguarding public health and the natural environment. These unilateral initiatives by the member-states influenced on their turn GM-food regulation for the EU as a whole. Issuing a particular law or regulation by a member-state that differs from the regulatory regime in the other member-states, invariably places this inequality on the agenda of the Union as a whole. This way around 1997, the growing tensions between the requirements for a single market regulation and different national regulations in the member-states created a political pressure towards the elaboration of a new and innovative GM-food governance framework in Europe. Under the pressure of particularly France, Denmark, Italy, Greece and Luxembourg the EU decided in 1998/1999 to momentarily interrupt the approval processes of GM-crops in order to harmonise different opinions and to review existing regulations, this way the EU materially established a 'de facto' moratorium (Sand, 2001).<sup>116</sup> By the end of 1998, the EU had already approved the cultivation of fourteen GM-crop varieties: maize (4), oilseed rape (4), carnation (3), chicory (1), soybean (1) and tobacco (1). At the same time the EU had nineteen applications for GM-crop varieties pending: maize (7), oilseed rape (5), sugar beet (2), cotton (2), fodder beet (1), soybean (1) and potato (1) (JRC, 2003).<sup>117</sup> The European authorities decided to review the approval process prescribed in Directive 90/220 and to look for ways to reduce potential risks involved in their production and consumption.

At the same time interesting initiatives were taken by non-state actors to create some form of GM-food governance based on governance in the space of places. Public trust in regulatory agencies in Europe had been undermined by consecutive food scandals in the mid-nineties (Joly, 2000). In their efforts to find new ways to regain consumer trust in the safety of their food, supermarket chains felt compelled to explicitly deal with GM-food. Private involvement in GM-food governance started in the United Kingdom in 1996, when the American Soybean Association, Monsanto and the US trade association declared that they could impossibly segregate GM-soybeans from conventional soybeans (Margaronis, 1999). These firms and associations described British food retailers as 'backward Europeans, who should just accept what is right for their consumers' (McGarity, 2001: 55). However, in the mid-1990s public fear about the safety of GM food was particularly high in the UK because of the recent BSE crisis (Toke and Marsh, 2003).<sup>118</sup> The NGO Friends of the Earth then requested the public in the UK to write letters to supermarkets, urging them not to stock foods containing GM-ingredients. In reaction, Tesco, the UK's leading supermarket, declared in February 1999 that it would become the first supermarket to label all GM-soybean derivatives and not just proteins. Marks & Spencer banned GM from its own-brand products altogether and labelled 100 to 150 products that contain "a minimal trace of GM-ingredients". The UK frozen food retailer, Iceland, responded to the consumer unrest in 1998 by leading a search for non-GM-sources of soybeans for their own-brand products. In addition, since October 1998 Asda supermarkets asked suppliers to exclude

GM-food from its own-brand products where possible and in February 1999 McDonalds and Burger King announced they would be sourcing non-GM-food while KFC would be labelling GM-products. Most UK food retailers removed GM-products from their home brands, refused to purchase from potentially GM-contaminated American sources and turned to GM-free sources instead.<sup>119</sup> Major processors, under pressure from these retailers, followed suit, as did some restaurants and catering groups. Given that many European food processors have integrated their operations on a continental basis, it became nearly impossible to produce non-GM-foods for the UK and foods potentially containing GMOs for the rest of Europe so they decided to avoid GMOs in all of their food products (Phillips and Foster, 2000).<sup>120</sup> (See table 5.4.) Interestingly, biotech companies themselves also showed support for labelling initiatives; for example, Novartis decided in 1997 to label all its genetically modified products to give consumers a choice. In 1998, Monsanto too declared its support in Europe for labelling genetically modified foods, but on the condition that labelling was 'science based' (Bhatia and Powell, 2000).<sup>121</sup>

**Table 5.4 Overview of private labelling of GM-food by retailers**

| Retail food chain        | Target market                                | Non-GM product coverage                                     |
|--------------------------|--|---|
| Carrefour                | France                                       | Own label food products                                     |
| Delhaize                 | Belgium                                      | All products  |
| Edeka retail association | Germany, Czech Rep., Denmark, France, Poland | All products  |
| Effelunga                | Italy  | All products  |
| Iceland Group            | UK   | Own label products (as well as artificial colours/flavours) |
| Marks & Spencer          | UK   | Own label goods (<0.1% tolerance level)                     |
| Migros                   | Switzerland                                  | All products  |
| Northern Foods           | UK   | All products, except derivatives                            |
| Park N' Shop             | Hong Kong                                    | Own label products  |
| Sainsbury's              | UK   | All products  |
| Somerfield               | UK   | All products  |
| Superquinn               | Ireland                                      | All products  |
| Tesco                    | UK   | All products; encouraging non-GM feed                       |
| UK Co-op<br>free diet    | UK   | Eggs to be produced from chickens fed on a GM               |
| Waitrose                 | UK   | Own label products  |
| Walmart (ne. Asda)       | UK   | Own label products  |
| Whole Foods Mkt. Inc.    | US (Texas)                                   | All products  |
| Wild Oats Mkts. Inc.     | US (Colorado)                                | All products  |
| Woolworth                | South Africa                                 | Will seek alternatives to GM-products, or label             |

Source: Phillips and Foster (2000: 13).

Interestingly, between 1995 and 2000, while the official EU regulatory approach seemed to be bogged down, a complete system of market-led private governance was emerging under public pressure. This process was facilitated by the concentration into large-scale retailing, processing and catering corporations, and by improvements in detection technology for GM-proteins.<sup>122</sup>

This innovative form of governance, which combines governance in the space of places with governance in the space of flows, started with local consumers' and citizens' concerns and was implemented further by private companies who took these measures probably on commercial grounds as well (Phillips and Foster, 2000; Toke and Marsh, 2003).<sup>123</sup>

*2001 – 2003: EU attempts to combine governance in the space of flows with governance in the space of places*

The emerging forms of privately initiated governance practices combined with the inability to implement existing legislation created a growing pressure on the EU to review its regulation. Therefore the European Commission took steps to adapt the Directive 90/220 and thereby to end the 'de facto' moratorium and to harmonise national regulations anew. This process aimed at bridging opposing viewpoints, can also be interpreted as an attempt to combine governance in the space of flows with governance in the space of places. This process resulted in the new Directive 2001/18, which did not prohibit the production and commercialisation of GM-food as such, but attempted to give consumers a choice and to protect organic and conventional farmers.<sup>124</sup> The procedures in this directive are based on a case by case approach using a process of notification and consent among the member-states and requiring the presence of satisfying, science-based risk analyses and risk assessments. Member states are only allowed to diverge from the formal decision taken at EU-level if there are possible hazards, which are specific to the local conditions (Sand, 2001).<sup>125</sup> Despite the detailed character of these regulations with regard to the production of GM-food, the European Commission still considered them a positive contribution towards the necessary increase in food production and to technological progress in general, and therefore official regulations should 'not unnecessarily hinder the potential of technological innovation' (EC first proposal for amendments COM (89) 85). The Directive 2001/18 required the labelling of GM-food but the European Council could establish the exact details of the procedural guidelines for labelling only in July 2003.<sup>126</sup> The EU currently demands the labelling of all food containing GM-products above a threshold of 0.9 per cent as well as of all food produced from GMOs irrespective of whether there is DNA or protein of GM origin in the final product itself. This labelling procedure allows the traceability of GMOs 'at all stages in the production and marketing chain, providing a robust safeguard system' (EU press release IP/03/1056).

Besides its intention to allow consumers a choice between GM- and non-GM-food, the European Commission also looks for guarantees to secure the continued opportunities for growing organic and conventional crops alongside GM-crops. In order to make such a 'co-existence' possible, the different EU member-states are requested to elaborate and implement the necessary concrete measures on the basis of the generally formulated Directive.<sup>127</sup> This approach was chosen because of the large variations between the different countries in their production circumstances and in the proportion of organic farming. The presence of these differences would exclude a standard regulation for the EU as a whole. The most difficult issue with regard to the regulation of co-existence is that genes (including genes containing GMOs) may be transmitted to other crops of the same species (Tolstrup, 2003). The magnitude of genes transmission depends on crop characteristics, the size of the cultivated area and on inter-field distances.<sup>128</sup> Therefore regulating the co-existence of GM-food production, conventional agriculture and organic farming requires detailed regulation by the different EU member-states.<sup>129</sup> The European Commission nevertheless states that 'no form of agriculture should be excluded in the EU' (EC, 23 July 2003). This second element of governance in the space of places within the broader framework of a governance in the space of flows also fits into the intention of the EU to allow consumers a choice between GM-food and non-GM-food. Such a choice is only

possible when non-GM-food as well as GM-crops can be produced at the same time without obstructing each other.

The formulation of Directive 2001/18, including the elaboration of the labelling requirements and the co-existence measures signify the intention by the EU to end the 'de facto' moratorium on GM-food production and trade. Between December 1998 and March 2003 no new GM varieties had been approved and so besides the already approved fourteen varieties on the basis of Directive 90/220, still nineteen applications for GM-crop varieties remained pending. The future practice of implementing the Directive 2001/18 will clarify whether the different positions within the EU have been sufficiently harmonised to create more unanimity in the regulation of GM-food.

This brief overview of the history of GM-food policy making in the EU shows a transition from a conventional regulatory approach in 1993 to a search for more innovative tools in 2003. Initially, EU regulation supported a promising technological innovation and applied conventional science-based risk assessment to deal with potential dangers. During the second half of the 1990s, however this debate evolved into a search for a form of governance that would allow the inclusion of other than conventional science-based risk considerations. At that time the first introductions of GM-food in the European supermarkets coincided with a dramatic increase in consumer worries about the safety of their food and suspicions about the capacity of authorities to protect their interests. Consequently, especially consumer protection became a guiding element in the development of new EU regulations whereby authorities attempted to regain consumer trust in the safety of food (Princen, 2002). This transition also shows the struggle to combine facilitating food trade with protecting human health and the natural environment, thus to combine governance in the space of flows with governance in the space of places. Several issues played a key role in this process that deserve more extensive review, in particular the changing approach to risk and the innovative tools of labelling and co-existence.

Increasingly the European authorities considered the requirement within standard risk politics to base the regulation of risks also in the case of GM-food only on 'sound scientific evidence' (as in the US) as problematic. The possible risks involved in the production and consumption of GM-food risks differ fundamentally from risks of conventional food because they are the results of new and radical science-based interference with nature. At the same time, only scientists are in principle able to provide politicians the required information about possible risks on which regulation can be based. This forced dependency on scientists to build a regulatory framework is the cause of ambiguity in public trust in science-based politics on GM-food. Moreover risk assessment of GM-food involves a wide range of uncertainties both in terms of potential effects to be covered as in the time lags involved in observing the consequences.<sup>130</sup> The presence of this ambiguity and these uncertainties leads to a continuous debate on the conclusions of scientific research. Consequently no scientific committee seems to be able to end the dispute on GM-food production on scientific grounds alone (Rowell, 2003; Scoones, 2001).<sup>131</sup> These complexities highlight the reality of risks in global modernity (see section five in chapter 2). The concrete presence of GM-food nevertheless requires some form of decision-making in a situation where complete and reliable scientific proof is lacking and whereby the potential consequences may be large-scale and disruptive. The European Commission concluded over the years that political decisions can not be made on science alone: 'a (political) decision must be science-based, but is essentially a political or a societal value judgement to be taken by the responsible regulatory authorities' (Dratwa, 2002: 204).<sup>132</sup> This changing view on the role of science allows authorities to refer to the precautionary principle in their decision making process.<sup>133</sup> Over time, the precautionary principle has evolved into a basic element in

the EU governance approach to GM-food acknowledging the complexity and uncertainty of policy-making and adopting long-term, holistic, and inclusive perspectives on environmental protection (Mayer and Stirling, 2002).<sup>134</sup> Despite its evolution into a basic component of EU's GM-food regulation the application of the precautionary principle in governance practices remains ill-defined.<sup>135</sup>

Labelling of GM-food products has become a central, although still highly controversial, instrument in the implementation of the EU policy on GM-food. Clear labelling of food products gives consumers the possibility to choose between products containing GMOs and those without them. This measure is justified by referring to the widespread concerns among consumers about the risks involved in GM-food. Moreover, the labelling of GM-food would not block global food trade completely, but only offers consumers the opportunity make their individual choice.<sup>136</sup> These individual choices may nevertheless indirectly influence production practices as it may stimulate the production of food without GMOs. Opponents of GM-food labelling state nevertheless that systematic labelling of food is unnecessary when a product is considered safe according to the existing regulations. Only a GM-food product that is significantly different from its conventional counterparts and may have serious consequences for particular consumer categories should be labelled (Caswell, 2000).<sup>137</sup> Mandatory labelling of GM-food products would otherwise only confuse consumers, hamper the smooth functioning of global food trade and involve unnecessary high costs for the food industry, because they will be obliged to segregate GM- and non-GM-crops throughout the whole food supply chain. Others criticise GM-food labelling for completely different reasons, because they claim that it results in the individualisation and privatisation of risk politics while its focus on health concerns and ethical issues excludes considering the potential environmental impacts for they can only be dealt with collectively.

Securing the co-existence of organic and conventional farming when GM-food production is accepted is another innovative element introduced in EU regulation. Particular guidelines are needed because in the rather small-scale European agriculture non-GM-food production would quickly disappear if GM-food production would be allowed without further restrictions. However, in practice co-existence seems to be rather complicated because genes will always to some extent be transmitted to other crops of the same species (Tolstrup, 2003). A recent scenario study commissioned by the European Commission has shown that introducing GM-crops in the European Union will definitely lead to problems for organic and conventional farming if they want to remain GM-free. 'The report concludes that a 0.1% limit will be extremely difficult to meet for any farm-crop combination, even with significant changes in farming practices. (...) When considering the 0.3% (production of seed) and 1% (food-feed production) thresholds, co-existence of GM- and non-GM-crops in a region (with 10% or 50% GMO share) might technically be possible but economically difficult because of the costs and complexities of changes associated' (Bock et al., 2002: vi). In addition, some NGOs, like Friends of the Earth, criticise the refusal by the European authorities to secure co-existence through communal guidelines and instead leave this to the national governments of the Member States. This choice may lead to confusion throughout Europe and to failures in securing the interests of non-GM-food production in particular countries (Friends of the Earth, 2003).

Interestingly these new regulatory tools aim at combining governance in the space of flows and governance in the space of places. This choice still allows global food trade while the labelling of GM-food offers consumers a choice on the basis of their eventual concerns and co-existence requirements enables the continued presence of different food production practices at the local level. This governance approach seems particularly developed to deal with food safety and ethical concerns among consumers and less on environmental considerations. This

bias can possibly be explained by referring to the limits set by international obligations (see section five below).

The transition in the governance approach of GM-food within the EU, the associated struggles as well as the deadlock can be explained by the presence of two discursive and regulatory networks. The first is built around the European Commission, some national governments (UK, Spain and the Netherlands), private firms and several natural scientists and economic experts. In their discourse GM-food technology should be in essence considered a contribution towards technological progress and its further development should therefore be facilitated by a common EU policy. Any regulation of GM-food should be based on scientific information and aim as much as possible towards a governance in the space of flows to facilitate production and international trade. Nevertheless, consumers should be offered the opportunity to choose non-GM-food on the market which requires labelling and thus a form of governance in the space of places. The main actors in the second discursive and regulatory network are many environmental NGOs and consumer organisations, the European Parliament, several environmental scientists, some governments (Austria, Luxembourg and Germany) and some retailers. Their discourse is based on the conviction that GM-food may contain serious environmental and food safety risks while GM-food production is not even needed because Europe is already producing more food than it consumes. GM-food governance should therefore be based on avoiding potential risks to protect food producers (including organic farming and regional agricultural and food traditions) and food consumers. The use of strict conditions for the production, processing and distribution of GM-food, guaranteeing the future of non-GM-food producers can offer the necessary safeguards and assure consumers they will not be confronted uninformed with GM-food. This regulation is basically a governance in the space of places, allowing production and trade of GM-food only under very strict conditions. The balance between these two discourses is changing over the years as shown above in the historical overview of GM-food regulation in the EU. The latter discursive and regulatory network has clearly gained in influence since 1990. This is however also an uneasy coalition combining social actors who support regulatory tools to stop the production and trade in GM-food altogether and others who accept the production and consumption of GM-food under specific conditions. Recent discussions in the EU, particularly on co-existence, may eventually lead to a split in this network.

The discussions about the EU policy on GM-food are not finalised yet because the EU decision-making process is no longer just an internal affair but has become a global issue. Whether the EU will actually be allowed to hold on to its regulation approved in 2003 depends to a large extent on the future positions taken by the WTO and other global actors.

### **5.5. Globalising GM-food governance**

In Mai 2003 the US filed a complaint against the EU, about its GM-food policy, at the WTO dispute settlement panel.<sup>138</sup> So eventually, the discussions on GM-food governance have evolved from a limited administrative challenge for regulators in the US, via a public debate in the EU into an issue of global concern. The global character of this becomes clear through the involvement in the debates on the governance of GM-food production and trade of two multi-lateral institutions, the WTO and the Convention on Biodiversity (CBD). The global character of the debate is furthermore shown in the complex challenge facing other countries like China and several southern African states to develop GM-food regulation.

*The World Trade Organisation (WTO)*

The involvement of the WTO in debates on GM-food governance has mostly been indirect because its general principles and agreements formed the background against which countries developed their own GM-food regulation. The complaint lodged in Mai 2003 by the US and several other countries against GM-food-regulations in the EU, however, forced the WTO to get engaged more directly. The US complained that its trade interests are unjustly harmed because of the absence of sufficient scientific evidence for eventual risks involved in the production and consumption of GM-food which makes the EUs 'de facto' moratorium illegal and forms a threat to the full development of a promising technology (USTR, 2003). The European Commission replied that the European regulation is clear, transparent and non-discriminatory and that the temporary stop in the approval of new GM-food was necessary to complete a regulatory regime addressing the challenges posed by the technology of genetic modification.<sup>139</sup> The final decision by the WTO Dispute Settlement Body on this complaint may take several years if this case follows the example of other disputes within the WTO (c.f. the beef hormones case which took from 1989 to 1998 before a final decision was reached (Charnovitz, 2002)).

The dispute between the US and the EU is brought before a WTO-panel because the general WTO principles and agreements seek to promote trade and reduce regulations by its member states and abolish or prevent regulations that constitute arbitrary or unjustifiable discrimination against other member states, thus promoting governance in the space of flows (see chapter 7 for further details). Two WTO agreements are especially relevant for GM-food regulation: the Agreement on Sanitary and Phytosanitary Measures (SPS) and the Technical Barriers to Trade (TBT) Agreement.

According to the SPS agreement, the members of the WTO are allowed to develop and implement sanitary and phytosanitary measures affecting international trade as long as these measures are only applied for the necessary protection of human or animal health or plant life and based on sufficient scientific evidence. The SPS agreement furthermore encourages the mutual acceptance of food safety standards between member states. Therefore the EU would need concrete scientific evidence if it considers imposing different standards for GM-food than the US where these products have already undergone a risk assessment. The labelling of GM-food as required by the EU may be considered an unjustified trade barrier according to the TBT agreement (Sheldon, 2002). In accordance with the TBT agreement, WTO members must ensure that technical regulations, voluntary standards and conformity assessment procedures are based upon product characteristics and are not more trade restrictive than necessary to fulfil a legitimate objective and use relevant international standards whenever they exist. Official labelling requirements should be science based and follow standards of objectivity, non-discrimination and proportionality.<sup>140</sup>

When member-states have the impression that other members are not fulfilling their obligations laid down in these agreements, they are entitled to file a complaint at the WTO dispute settlement bodies. The way both the SPS and the TBT agreements have been interpreted by different dispute settlement panels so far is contested by several observers who consider their reading too restrictive.<sup>141</sup> Decisions by the dispute settlement bodies within the WTO have made clear that only governance in the space of flows to regulate international trade is acceptable and that measures based on other considerations than trade and conventional science based risk politics, such as environmental concerns are not acceptable even when they are clearly not intended to protect trade interests (Neumayer, 2001).<sup>142</sup> The US regulation on GM-food seems to fit completely in this requirement, but whether the EU regulation will do as well remains doubtful at the moment. During the extensive procedures of this dispute settlement procedure, the opinions of the Codex Alimentarius will probably play a decisive role.

The Codex Alimentarius Commission (see chapter 7 for further details) includes a designated committee charged with food labelling and setting food safety standards that are enforceable within the WTO. This committee has repeatedly discussed the labelling of GM-food, but has so far failed to formulate a recommendation acceptable for all members. Countries supporting mandatory labelling for all GM-food (including EU, India and most other Asian countries) oppose countries that accept labelling only for specific product characteristics like safety, composition, intended use and nutrition (US, Canada, Australia, New Zealand, Peru and Brazil) (Bhatia and Powell, 2000). Interestingly, these opposing groups of countries bridge the traditional divide between developed and developing countries. Whether these particular alliances will be permanent remains uncertain, however, as each country may have its own particular reasons for the position it has taken. Their considerations may vary from trade interests to consumer protection or farmers' interests. In general, the discussion within the Codex on the labelling of GM-food gives the impression of the making of a stalemate, because consumer perception differs between countries while the distribution of costs and benefits varies between diverse labelling options (Kalaitzandonakes and Phillips, 2000).

Consequently, the Codex has not yet offered the clear guidelines on the regulation of GM-food demanded for.<sup>143</sup> This also makes clear that the original intention of the WTO to ask scientific organisations like the Codex to provide undisputed guidelines for the regulation of food trade has not materialised. On the contrary, it seems that shifting the political debate about food regulation from the WTO to a neutral scientific organisation like the Codex has politicised the functioning of the Codex as well.

#### *The Biosafety Protocol of the Convention on Biodiversity (CBD)*

The Biosafety Protocol which was developed under the auspices of the 1992 Convention on Biodiversity (CBD) has an impact as well on the discussions about the governance of international GM-food trade. The exact position of the CBD in relation to other international institutions is, however, not yet well defined.<sup>144</sup> The Biosafety Protocol attempts to ensure an adequate level of protection for biodiversity when living modified organisms resulting from modern biotechnology are transferred, handled and used.<sup>145</sup> Central in the governance approach developed in the Biosafety Protocol is 'advanced informed agreement', i.e. the exporter is obliged to notify the competent authorities in the importing country about the export of living modified organisms. This advanced, or prior, informed agreement has to follow detailed guidelines and allows the importer to accept (eventually under certain conditions) or prohibit the import. An importing country is allowed to have its own regulatory framework for the import of living modified organisms provided that such domestic regulations are consistent with the objective of the Protocol. This way the CBD permits the inclusion of environmental concerns in the regulation of GM-food trade, as long as it 'does not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade' (Neumayer, 2001: 145). This governance approach leaves much more room for governance in the space of places while allowing global flows of food, than the approach within the WTO. In particular because, contrary to the WTO, the Biosafety Protocol accepts the precautionary principle as a basis for regulation. Suspicion of a possible contamination caused by the import of living modified organisms is considered sufficient argument for halting trade under the Biosafety Protocol's approach. Such measures may be inconsistent with existing WTO-obligations, while the relationship between the Biosafety Protocol and the WTO is not yet completely clarified. On the one hand the Protocol declares that it will 'not alter rights and obligations under any existing agreement', while on the other hand 'this Protocol is not subordinate to other international agreements' (Anderson, 2002: 24). Therefore, if and how the Biosafety Protocol will materially influence GM-food-regulation in



different countries depends on the further detailing of its provisions in the coming years as well as on its relative weight compared to the WTO. An important weakness of the Biosafety Protocol in comparison with the WTO, is the absence of a satisfactory dispute settlement procedure.

So, the WTO aims at GM-food-regulation conceived as a governance in the space of flows intended to facilitate global food trade. The approach in the Biosafety Protocol, on the other hand, accepts governance in the space of places as well, because this would allow consumer choice, secure the interests of non-GM-food production and make the protection of biodiversity possible.<sup>146</sup> Therefore, as both the WTO and the Biosafety Protocol approach the issue from their own discourse, no consensus about global regulation for GM-food exists yet.

### *GM-food regulation in China*

In the absence of an accepted global regulation of GM-food and under the conditions of a continued spread of the technology and its products throughout the world, different countries are forced to develop their own GM-food regulation. The following two examples of China and southern Africa may show the complex challenges regarding the governance of GM-food production and consumption practices that these countries are confronted with.

China is developing the largest plant biotechnology capacity outside of North America, but the only GM-crop widely grown on a commercial base so far is insect-resistant genetically modified cotton. Between 1997 and 2000, 45 GM-plant applications for field trials were approved, 65 for environmental release and 31 for commercialisation, which represents more than double the number of GM-products released in the US (Newell, 2003: 3). The rapid development of China's capacity in this field was the result of an active governmental engagement with scientific research on biotechnology. However, since 2000 the approval process has slowed down significantly which is most likely due to changes in the international market for trade in GM-products (Baumüller, 2003). In reaction to these changes, China developed very detailed regulations for safety assessment, importation and the labelling of GM-food in 2001. This can be considered a transition towards process-based regulation (governance in the space of places) suggesting China is approaching a precautionary position akin to the European stance. GM-food regulation in China is developing in interaction with the country's new obligations as a recent member of the WTO and as a member of the CBD, but has to accommodate the interests of private foreign biotech firms and foreign governments with domestic biotech interests and consumer concerns as well.<sup>147</sup> Interestingly, the debates and protests in Europe have provided civil society groups in China, especially Greenpeace China, some leverage on government decisions (Newell, 2003). As a consequence GM-food regulation in China is not a simple domestication of foreign regulations and its international obligations, but the result of a complex process of translating international debates and discussion within the local context. GM-food regulation in China has not taken its definitive shape yet, but the final decisions can not be understood without reference to global trade and to public debates in the EU and other countries. The space of flows is interfering with the space of places whereas the economic opening of China means it is becoming integrated in different networks and gets influenced by economic and political debates as well, despite its economic power.

### *GM-food regulation in southern Africa*

A second example showing the global character of GM-food governance concerns the food aid provided to southern Africa in 2002. In 2002, nearly 13 million people were facing starvation in southern Africa (Malawi, Angola, Zambia and Zimbabwe) as a consequence of drought and the impacts of crop failure. The UN World Food Programme (WFP) provided food aid to the hunger stricken countries to resolve this problem. An important share of the maize sent to the region

was donated by the US and consisted (partly) of GM-maize.<sup>148</sup> When this maize was distributed in southern Africa, the authorities in these countries were kept in the dark but when the Zambian government authorities got informed about the possible presence of GM-maize, they decided not to allow the UN World Food Programme (WFP) to feed the 130,000 Angolan and Congolese refugees on its soil with genetically modified maize. Zambia justified this decision by pointing at their concerns about the potential health risks involved for the refugees and the possible local environmental consequences when GM-maize would be planted. Zambia also feared that the planted GM-maize would contaminate domestic grain fed to its local livestock which is destined for the European markets. This could eventually result in a refusal by European consumers to buy high-quality Zambian meat, which would create a serious financial backlash. For this reason, Zambia also refused to accept milled maize, which could not be used for planting, but still for feeding livestock. Two other countries in southern Africa, Malawi and Zimbabwe, also expressed concerns over the presence of GM-products in the delivered food aid, but these countries eventually did accept milled GM-grain (Reuters, 12 September 2002).

Despite some differences in their final decisions, in general southern African government officials and developmental and environmental NGOs expressed concerns about the way 'GM-food aid is being forced on countries in Africa facing starvation' (Peoples Earth Decade, 2003). According to the WFP, there is not yet an international agreement in force with regard to food aid that deals specifically with food containing GMOs. Nevertheless, it is standard UN policy that the decision with regard to the acceptance of GM-commodities as part of its food aid transactions rests with the recipient countries also in southern Africa. All WFP donated food should meet the food safety standards of both the donor and recipient countries as well as all applicable international standards, guidelines and recommendations (WFP, 2002). This policy is conform the Biosafety Protocol within the CBD, underlining the importance of getting prior consent from a country before sending in food containing GMOs rather than imposing it on a nation.

The absence of clear global guidelines or at least developed national systems of GM-food governance within Africa has resulted in confusion and difficult political and ethical problems. A delicate dilemma that resulted from this confusion was whether governments or NGOs could refuse to distribute available food to hungry refugees for the sole reason that this food was produced with GMOs. So far only four countries in Africa—Egypt, Nigeria, South Africa and Zimbabwe—dispose of elaborated biosafety policies. Even then, these countries encounter problems, because GM-food regulation requires much greater capacities for monitoring, testing, risk assessment, regulation and control than they presently dispose of. For example, there has been no assessment of the ecological impact of GM-crops already released in Zimbabwe, Egypt and South Africa (Mongelard and Warnock, 2002). In other countries, such as Zambia, attempts to formulate a clear policy on GM-food never materialised because their efforts were repeatedly thwarted by a lack of funding, scientific expertise and political will. However, in a globalised economy, such a regulation is a necessity, not a luxury, which is proven again by the confusion caused by the food aid in 2002.

## 5.6. Conclusions and discussion

Governing GM-food has evolved, between 1990 and 2003, from a technical problem for a small group of bureaucrats in the US into a global public debate covering many different dimensions. Over the last 15 years, countries became increasingly less capable of developing their own national regulations independently. Every nation-state today has to take into account its inter-

national obligations in multilateral agreements and is influenced by regulatory networks promoting these different regulatory options. China was forced to take public debates in Europe into account when developing its internal national regulation and the insecurity about potential health effects of consuming GM-food has put a traditionally undisputed practice of delivering food aid to hungry people into the centre of global political debates. This evolution has been driven particularly by consumer concerns in Europe about the safety of food and by national and international NGOs pointing at potential environmental risks. So, today, the governance of GM-food involves nation-states, multilateral agencies and non-state actors and covers environmental, food safety, economic, ethical and social considerations.

The introduction and spread of GM-food is a clear example of the problems facing risk politics in global modernity. GM-technology is blurring the clear distinction between nature and culture (or technology) of the past and confuses the distinctive roles of science and non-science in decision making. The distances in place and time between the action of planting GM-crops and eating GM-food on the one hand and the potential risky impacts on the other may be very large. And if negative environmental or health effects of GM-food production and consumption may be observed after many years of concrete use, it may be already too late to repair the damage. Thus GM-food governance has to take place in the context of basic uncertainty through the absence of scientific evidence about the longer term effects of the use of GMOs, the difficulties in balancing economic versus environmental and health arguments and the potential contributions of this technology for the future provisioning of food. Moreover, the example of GM-food also shows that dealing with risk in global modernity is no longer assigned to scientific experts and civil servants alone, but that consumers, producers and civil society organisations are getting involved as well.

Generally, globalisation has resulted in a continued pressure towards facilitating global food trade supported by regulations based on product characteristics alone facilitating the regulation of trade in the space of flows. With regard to GM-food, governance in the space of flows would require global and general standards for the safety of specific traits in GM-food products, based on clear scientific procedures. Food products that fulfil these requirements should be considered safe and be allowed to be traded globally without additional regulations. Regulating the processes involved in the production of GM-food as such, is considered unnecessary, because scientific research has not yet clearly proven that they are risky. Substantial groups of food producers and consumers oppose these views and want to introduce other elements into the regulation of GM-food production and consumption. Consumers, especially in Europe, became concerned about the safety of their food and about the environmental and social consequences of food production, while producers demanded attention for their specific local natural and social circumstances. So, according to their opinion, GM-food governance needs to pay attention to the way in which food is produced and include social, food safety and environmental considerations thereby contributing to a form of governance in the space of places of production and consumption.

Both regulatory models, governance in the space of flows and governance in the space of places, are supported by different discursive and regulatory networks regrouping shifting coalitions of state and non-state actors. Interestingly in the case of GM-food they operate globally as the examples of China and southern Africa have clearly shown. Their identity is based on a more or less coherent discourse about the possible existence of risks in GM-food production and consumption, the role of science and technology in dealing with these risks, the importance of international food trade and consequently on the necessary form of governance. The discursive and regulatory network promoting the governance in the space of flows dominates the regulatory practice in the US, while debates within the EU are influenced considerably by networks

promoting governance in the space of places. A third network, largely composed of environmental NGOs and farmers' organisations, proposes a complete ban to the use of GMO-technology in food production. The power of this third regulatory and discursive network seems, so far, to be limited to protest actions, such as the destruction of GM fields-trials and influencing public opinion and political debates in particular in the European Parliament.<sup>149</sup> Despite the presence of this third network, the first two discursive and regulatory networks dominate the public debate on GM-food governance. Whether this debate will result in one common global governance or in several different national regulations is difficult to predict, but the analysis of the different debates as presented in this chapter has shown that a science-based regulation of GM-food, developed completely in the space of flows has become an unlikely future. Future GM-food governance will probably have to include consumer concerns and take potential environmental consequences into account, thus somehow combining governance in the space of flows with governance in the space of places. Shifting coalitions within and between the global regulatory and discursive networks may hereby play a decisive role.<sup>150</sup>

## Noten

<sup>107</sup> The terminology used around this issue is often confusing and would deserve a separate study in itself. I use here the following concept: genetically modified organisms (GMOs) are those organisms produced from genetic engineering techniques that allow the transfer of functional genes from one organism to another, including from one species to another. I will focus my analysis on genetically modified (GM-) food, which cover foods and food ingredients consisting of or containing GMOs, or produced from such organisms (European Commission, 2000).

<sup>108</sup> This case study was concluded in December 2003 and therefore no reference is made to the continued debates and political struggles after this date in the US, the EU, the WTO and other institutions, as well as in civil society organisations.

<sup>109</sup> GM is a credence attribute of food which means that it is impossible to judge from the outside, or just by eating it, whether a food is produced using GMOs or not. The presence of GMOs can therefore only be firmly established with the help of specialised technologies or through providing reliable information about the production process involved.

<sup>110</sup> Herbicide tolerance where certain crops are made resistant to a specific herbicide allows for the use of that pesticide without risking the destruction of the crop itself. The other main GM-technology used is insect-resistance where the plant is producing the insecticide itself.

<sup>111</sup> These tests are not carried out by the US Food and Drug Administration (FDA) but by the applying company itself while the FDA only controls whether these tests have been conducted properly and revealed no unacceptable risk (Princen, 2002). This process is criticised because it depends too much on information provided by the producers and does not allow the incorporation of justified consumer worries. The concept of substantial equivalence is criticised as well because of the absence of clearly defined criteria; such as how much equivalence is necessary and what are the guarantees that the remaining differences will not be harmful. More in general, critics demand whether a food can be dissected in independent parts or whether it should be considered, holistically, as interdependent parts constituting a living organism.

<sup>112</sup> The limited public involvement in political debates on GM-food regulation in the US remained largely unchallenged, possibly because of a lack of public sensitivity in matters of food production processes, because of particular interests of private firms or scientists or because of the more general policy style in the US.

<sup>113</sup> The importance of GM-technology in these changes is however disputed because many observers attribute

the declining US soybean export to prize competition from Argentina and Brazil and not to GM-traits. Anyway the US soybean growers mostly made sure that the varieties they planted were approved by the EU (Princen, 2002).

- <sup>114</sup> The European Commission's first attempt to promote biotechnology in the 1980's, by uniting the relevant industrial actors under the guidance of the DG for research and development, was unwieldy and collapsed in 1991 because the structure set up to co-ordinate this activity (Concerted Unit for Biotechnology in Europe, CUBE) lacked executive capacity (Barling, 2000). Meanwhile, 'in 1985, the Biotechnology Steering Committee established the Biotechnology Regulation Inter-service Committee (BRIC) and in 1986 the Commission submitted a communication to the Council of Ministers on a framework for the regulation of biotechnology. This was produced mainly by the Environment DG working through BRIC. The Council of Ministers then assigned the chef de file (lead role) in the preparation of the deliberate release legislation to the Environment DG. This helped to shape the regulatory regime. In the European parliament the Environment Committee became the main committee concerned with the legislation: the final legislative decision passed to the Council of Environment Ministers. Furthermore, the effective management committee of the regime eventually established was based on national environment agencies. These arrangements did not guarantee a harmonious policy community in perpetuity, but did suggest an environment protection-centred rather than an industry-dominated approach' (Barling, 2000: 244).
- <sup>115</sup> This Directive was supplemented by two others, adopted in 1990 as well: 90/219/EEC on the contained use of genetically modified micro-organisms, and 90/679/EEC on the protection of workers exposed to biological risks (Lunel, 1995). According to the general EU procedures Directives have to be translated into national regulation by all member-states, whereas EU Regulations are a form of material law directly applicable throughout the Union.
- <sup>116</sup> Until 1998, the EC has issued only 14 positive decisions and in 13 of them with a qualified majority following the dispute resolution procedure. The 14<sup>th</sup> case, Bt-maize, created further controversies because the committee was unable to reach a qualified majority. After consulting three scientific committees, the European Commission decided positively, but was criticised by the European Parliament. The European Parliament stated that the European Commission had ignored the opposition from a majority of the member states and scientific evidence about the dangers involved in producing and consuming Bt maize. In reaction, several member states (Austria and Luxembourg) banned Bt maize, while France, which had originally introduced the application, now also required labelling (Rosso Grossman and Endres, 2000). Although these countries thereby violated communitarian regulation, they were not punished and the 'de facto' moratorium was a fact.
- <sup>117</sup> In addition, the EU had also, under the same directive, approved 3 vaccines and 1 test kit to detect antibiotic residues in milk, all applying GM-technology, bringing the total up to 18 GM-food products (or 16 because two approvals concerned further uses of the same product). See: [http://europa.eu.int/comm/food/food/biotechnology/authorisation/list\\_author\\_gmo\\_en.pdf](http://europa.eu.int/comm/food/food/biotechnology/authorisation/list_author_gmo_en.pdf).
- <sup>118</sup> The wildlife protection agencies in the UK (English Nature and the RSPB) were also worried about the potential negative effects of GM-crops on wildlife. Eventually, the government agreed in October 1998 to conduct a series of research trials (Farm Scale Evaluations) to test the impact on wildlife of the GM-crops using the precautionary principle fully (Toke, 2002).
- <sup>119</sup> For example, the Sainsbury and Safeway supermarket chains in the UK successfully launched a tomato paste made from GM tomatoes in 1996. By the end of the decade, they had to withdraw the product due to failing sales (Barling, 2000)
- <sup>120</sup> Similar resistance also developed in other EU countries although often combined with country-specific concerns, i.e. the French are concerned about the presence of GMOs but also about the threat to the high quality traditional French food products and to the independence of small farmers, and in Austria the threat GM-food production posed to organic farming got included as an additional concern.
- <sup>121</sup> Monsanto required such labelling to be based on the actual presence of GMOs in a specific food product

which can be established objectively and verifiably through the use of scientific evidence.

<sup>122</sup> For example, in the Netherlands public concerns were expressed via NGOs and public opinion polls. In reaction, the Dutch government organised a public debate on GMOs and food under the responsibility of an independent commission entitled 'Eten & Genen' (Eating & Genes). The objective was to involve the 'common' citizen and the 'average' consumer in the public debate on GMOs and food. Forced by limits in time (1 year) and money (around 5 million Euro), the commission discussed intensively with a restricted group of 150 individuals considered representative for all Dutch citizens. In addition, (networks of) private organisations and schools were invited to discuss the issue among themselves while the general public was involved via the media (including a website) and public hearings. Finally, two representative surveys were realised to monitor the opinions of the Dutch public in general. This process showed that the majority of the Dutch public is not supporting the use of GMOs for food production. Interestingly the commission also found that proponents and opponents to GMOs did not change their position after extensive debates and information exchange, but only used more elaborate arguments for the same views. This may undermine the viewpoint that the European public opposes GM-food because it is not sufficiently informed.

<sup>123</sup> Consumers can furthermore make use of different guides to orient their chopping behaviour, such as the 'Self-defense guide for consumers' from the US Organic Consumer Association (Cummins and Lilliston, 2000) and the 'Consumer's guide to GM food' from Alan McHughen (2000) which is basically defending GM-food.

<sup>124</sup> Originally the 90/220 directive contained the following elements (Mayer and Stirling, 2002):

information about the GMO – the recipient and donor organism, the vector and the GMO,  
potential for gene flow,

conditions of release and the receiving environment when in use,

assessment of potential health effects including toxicity and allergenicity.

Interactions between the GMOs and the environment.

The revised version 2001/18 also requires:

assessment of indirect effects on biodiversity as a result of changes to agricultural practice,

consideration of indirect effects arising from changes in management practice,

provisions for post-release monitoring and traceability.

In addition, authorisation is only given for a period of 10 years and 'member states may take into consideration ethical aspects' (Princen, 2002: 220). The Commission further established threshold labelling requirements for maize, soybeans, additives and flavourings in January 2000 (Commission Regulation 49/2000; Commission Regulation 50/2000; Rosso Grossman and Endres, 2000).

<sup>125</sup> In practice, the member-states remain central in many concrete decision making procedures. It is the member-state that makes a decision on field trials, following the EU Directive 90/220 (and since 17/10/02 the Directive 2001/18/EC) and informs the Commission which informs the other member-states on its turn. Concerning the marketing of a GM-food product, it is still the member-state where the application is filed and the one who remains responsible for the procedures following the EU Directive, although other member states have the opportunity to raise objections prior to approval. If objections are raised by one or more member-states, which has been general practice until now, a dispute resolution procedure follows (Rosso Grossman and Endres, 2000). This may result in a lengthy process whereby important roles are given to the EU committees of scientific experts, but whereby little transparency is provided towards the applying firm and to the general public.

<sup>126</sup> These are the regulation on GM-food and feed (Regulation 1829/2003) and the regulation on traceability and labelling of GMOs and on the traceability of food and feed products produced from GMOs (Regulation 1830/2003).

<sup>127</sup> After discussions with the European Parliament, the European Commission amended Directive 2001/18/EC and inserted 'a new article which stipulates that "Member States may take appropriate measures to avoid the unintended presence of GMOs in other products" (Article 26a)' (European

Commission Press Release, MEMO/04/16; 28 January 2004).

- <sup>128</sup> The most important routes of transmission are via seed, pollen, straw, volunteer seed left in the soil, sowing and harvesting machines, transport equipment and storage facilities.
- <sup>129</sup> In this regard Austria requested to consider the whole country a GM-free zone to protect its organic farmers.
- <sup>130</sup> The image of scientific research on GM-food is simplified because it builds on the (bio)chemical engineer working in a laboratory with precision and control on the transfer of genetic traits to plants for the interest of mankind. Complex traits may however have multiple genetic bases and insertion of new genes may have major ramifications for that plant's biological functioning (Scoones, 2001). In addition, if peer reviewed scientific articles are considered sound science then both the proponents and the opponents to GM-food have scientific arguments for their position. See Clark and Lehman (2001) for references to scientific articles.
- <sup>131</sup> The high economic, political and scientific stakes involved complicate these decision-making processes even further (Rowell, 2003; Scoones, 2001).
- <sup>132</sup> One alternative solution could be to shift the role of science from a substantive role ('science knows and informs the politicians and the public') to a procedural role ('science contributes to public debate about potential outcomes, based on a two-way dialogue').
- <sup>133</sup> The EU puts the precautionary principle in the centre of its human health and environmental policies, cf. the 'Communication from the Commission on the precautionary principle' (EC, 2000). Here a distinction is made between reliance on the precautionary principle and the search for zero risk, which is rarely to be found in reality. The EC defines the precautionary principle as a useful tool for risk management, but it should not justify arbitrary decision-making. According to the precautionary principle, science can clarify many potential effects of a new technology but when important areas of uncertainty or indeterminacy remain, regulatory agencies can decide not to take chances and ban this new technology. In the case of the new category of risks in global modernity, such as GM-food, ignorance can not be removed completely and immediately with the help of science and therefore the regulation of risks should include multi-criteria analysis, scenario studies, and participatory deliberative approval processes (Scoones, 2001).
- <sup>134</sup> See Löfstedt et al. (2002) and Lehmann (2002) for an historical overview of the concept.
- <sup>135</sup> Besides for its vagueness, the precautionary principle is also criticised because it would block progress as all innovations inevitably involve risks and therefore the costs of applying the precautionary principle should also be included in the decision making process. Proponents of the precautionary principle react that a cost-benefit analysis is never fully possible because there is too much uncertainty about possible positive and negative outcomes. This debate is also related to the choice between type 1 and type 2 errors as the guiding principles in decision-making. Type 1 error means that if a risk assessment is too cautious it will conclude that a technology is unsafe although it is safe. Type 2 error means that if a risk assessment is not cautious enough it will conclude that a technology is safe although it is unsafe. See Van der Belt (2003a/b), Giampietro (2002), Lehmann (2002) and Löfstedt et al. (2002) for further discussions on the precautionary principle and GMOs.
- <sup>136</sup> The labelling of GM-food is in practice however less straightforward than initially thought because defining standards, specifying the certification process and determining the content of the label all involve complex choices. For example the exact location and wording of the label has to be defined, for example, the degree of certainty the label conveys (e.g. 'does contain', 'may contain' or 'does not contain'). Despite these comments, there is clear evidence for overwhelming public support for the labelling of GM-food (Klintman, 2002; Shaw, 2003).
- <sup>137</sup> For example the introduction by 'Pioneer Hybrid International of a Brazil nut protein into a soybean. The Brazil nut protein could cause an allergic reaction in sensitive persons. Pioneer voluntarily withdrew the product' (Echols, 2001: 74).
- <sup>138</sup> This complaint (DS 291) was followed by a similar complaint from Canada (DS 292) and the next day by

Argentina (DS 293). Interestingly, while Egypt initially supported the US, it withdrew its support only a few days later.

<sup>139</sup> The EC does not accept the use of the interests of developing countries by the US to justify the introduction of GM-food, because 'it is the legitimate right of developing countries' governments to fix their own level of protection' (EC, press release 13/05/03).

<sup>140</sup> The precautionary principle as it is interpreted and applied by the EU receives particular critical comments (see the beef hormone case: Princen, 2002 and Neumayer, 2001), because a WTO-member is only allowed to call upon this principle temporarily in case of lacking scientific evidence for definitive decision-making. It is very likely that the use of the precautionary principle will be discussed in the current dispute settlement procedure at the WTO about GM-regulation.

<sup>141</sup> The restrictive interpretation by the dispute settlement bodies of the texts of the treaty and the agreements, is not the only critique on this process in the WTO. In particular the lack of openness in the deliberations and the exclusion of non-state actors in the dispute settlement process also receives many comments. In the case of the US' complaint about the EU's regulation of GM-food an exception is made and has the panel accepted 'amicus curae' briefs from NGOs and from concerned scientists. (See: <http://www.lancs.ac.uk/fss/ieppp/wtoamicus/>).

<sup>142</sup> See for example, Anderson (2002: 11) 'article 3 (2) of the WTO Disputes Agreement states the Dispute Settlement Body is designed to provide security and predictability to multilateral trading, to preserve the rights and obligations of WTO-members under the various agreements and to clarify the existing provisions in accordance with public international law'.

<sup>143</sup> In their 2003 meeting the Codex has, nevertheless, approved three risk analysis standards for food derived from biotechnology. Interestingly enough these standards include references to the tracing of products and food labelling as a risk management tool. Although the exact definition of the terms seems not yet commonly agreed, it is considered a breakthrough vindicating at least partially the EU's insistence on labelling and traceability systems (BioRes, 11 July 2003).

<sup>144</sup> The CBD only entered into force on 11 September 2003, thus its concrete role is not yet clear and specifically whether the CBD or the WTO should take precedence in the regulation of GM-food. This question is further complicated by the fact that the EU has ratified this convention contrary to the US, which has not even signed the Protocol.

<sup>145</sup> A 'living modified organism' is defined as any living organism that possesses a novel combination of genetic material obtained through the use of modern biotechnology; and 'living organism' as any biological entity capable of transferring or replicating genetic material, including sterile organisms, viruses and viroids. A living modified organism may be considered a sub-category of GMOs because the term only cover those organisms that are living and have the capacity to re-generate.

<sup>146</sup> The EU explicitly refers to the CBD to claim international acceptance for its regulatory approach, justifying a separate regulation for GM-food because they might contain specific risks.

<sup>147</sup> With regard to international rule making China's position remains flexible. For example in the WTO, China may work together with other developing countries in opposing more restrictive patenting provisions, but with other food exporting countries like Australia in promoting the liberalisation of agricultural markets (Newell, 2003).

<sup>148</sup> For example, the WFP gave money (US \$51 million) as a loan to Zambia to allow the private sector to import maize from the USA.

<sup>149</sup> A remarkable activity has been the commissioning of research by Greenpeace at the scientific institute Plant Research International of Wageningen University and Research: 'Crops of Uncertain Nature? Controversies and knowledge gaps concerning genetically modified crops' by A.J.C. de Visser et al. (2000), Wageningen, PRI report 12.

<sup>150</sup> Future regulations may, however, also be influenced by crises comparable to the BSE-crisis.



## Chapter 6. Turning blue into green?

*While the idea that wild harvest fisheries is approaching limits is not a new one, (people) have generally failed to see aquaculture as the next logical step. Part of the problem is that while terrestrial-based livestock production has taken hundreds of years to convert over from small-scale subsistence production to today's large-scale operations, aquaculture operations have been trying to make the switch from wild harvest to large-scale farmed production in a matter of decades. Aquaculturalists have also been trying to accomplish this task at a time when all large-scale livestock operations have come under increasing scrutiny related to issues such as antibiotics use, production of nonnative species, use of genetically modified organisms, animal rights, and waste disposal.'*

(Harvey, David J. (2003) Aquaculture Outlook. Aquaculture production forecast to grow but many uncertainties loom. Washington, United States Department of Agriculture, LDP-AQS-18: 1)

*'Towards the end of the 20<sup>th</sup> century the 'farming' of salmon developed into a big business, with various results, some good and some undesirable. Farmed salmon can be marketed cheaply, and the supply has become so plentiful that there seems to be a risk of repetition of the situation which existed in some places in medieval times, when (to take one well-worn example) apprentices in the north of England stipulated that their free meals should not include salmon more than three times a week.'*

(Davidson, Alan (1999) The Oxford companion to food. Oxford, Oxford University Press: 685).

### 6.1. Introduction

Consumer demand for fish, especially in the richer countries, is growing but marine fisheries can no longer provide the necessary supplies because of the well-known problem of depleting stocks due to overfishing. Consequently, fish production through aquaculture (or fish-farming) is growing very rapidly and transforming into the fastest growing food producing sector globally. At the same time, aquaculture is accused of causing serious environmental problems and health risks, such as the destruction of mangroves and the extensive use of chemical substances. This situation gives rise to several challenging questions. Is fish farming the latest form of bio-industry, producing food in an industrialised manner at the expense of animal welfare, the environment and human health? Or can it become an important provider of food for the world's growing population in a sustainable manner now that traditional capture fisheries is approaching its limits? These intensely debated queries will be reviewed in this chapter by analysing the recent evolutions in fish farming and the changing regulatory practices.

This chapter will start with an introduction on the theoretical concepts used to analyse current regulatory practices in aquaculture. The remainder of this chapter then consists of two parts, whereby the first, more descriptive part comprises overviews of the recent developments in global fish production and consumption (section three), aquaculture in general (section four), salmon raising (section five) and shrimp farming (section six). The second part of this chapter looks into recent responses to the particular challenges for governance facing aquaculture, starting with fisheries in general (section seven), then identifying two key discourses on aquaculture (section eight) that guide regulatory initiatives by governments and the private sector (section nine), and by civil society (section ten). This chapter concludes with section eleven reconsidering the main arguments in the recent debates on governing the environmental and

health impact of aquaculture with particular reference to the discourse and practice of environmental NGOs.

## 6.2. Theoretical introduction

Aquaculture is associated with many relatively new environmental and food safety impacts and because of their ambiguous and complex character these problems must be structured before they can be acted upon constructively (Ward et al., 2004). Rapid technological and economic developments in aquaculture in combination with the growing demand for their products, in particular for salmon and shrimps, provide important challenges for the governance of the (potential) environmental and food safety consequences. However, as fish, produced by fish farms has become a globally traded food product, its governance requires arrangements that fit into this global modern context. Thus aquaculture is a clear example of globalised food production and consumption, which governance can not be organised through conventional nation-state based arrangements. Developing innovative mechanisms require the participation of different state and non-state actors, so in the debates on governance and the resulting practices, governments, producers, traders, consumers and NGOs, all play a role.

Modern aquaculture constitutes a new step in human interference with nature, through the organised production of fish. Traditional capture fisheries can be considered as still based on a clear separation between natural ecosystems allowing the growth of fish on the one hand and human activities catching part of the surplus of fish on the other. When, however, too much fish is caught or if the natural eco-system gets polluted, this results in serious problems. This clear basis of men harvesting the surplus of nature disappears with aquaculture because this practice depends on active human interference with what were traditionally considered natural processes. Thus it becomes increasingly difficult to refer to the image of 'nature' or 'natural' to identify clear solutions to observed problems. The unclear boundary between nature and culture complicates referring to simple modern technological improvement to solve problems in the case of fish farming. Dealing with environmental and food safety concerns in the case of aquaculture, thus requires more complex intervention, conscious of its possible 'side-effects' (see chapter 2). New forms of risk politics are necessary, also because of the global character of aquaculture, whereby both the regions of production and the consumption areas are spread all over the world.<sup>151</sup>

Establishing innovative regulatory mechanisms to deal with the environmental consequences of fish production requires original thinking about sustainable aquaculture and about ways to achieve this. Different social actors are trying to frame an environmental policy for aquaculture using knowledge and information about the environmental problems and the possible causal relations surrounding them. Different narratives on the problems of aquaculture and on ways to regulate them are developed not only to help defining the problem, but also to create a social and moral order and to establish regulatory and discursive networks. NGOs seem particularly involved in this process of conceptualisation and creation of networks. Environmental NGOs challenge existing regulations and are becoming an important driving force in the development of innovative governance arrangements. Understanding their different strategies and activities requires interpreting their discourse as 'a specific ensemble of ideas, concepts, and categorisations that are produced, reproduced and transformed in a particular set of practices and through which meaning is given to physical and social realities' (Hajer, 1995: 44). Environmental NGOs attempt to create new public spaces and understanding these attempts means placing these movements and their discourses in the context of socio-political, economic and

environmental developments (Eyerman and Jamison, 1991). Concerned environmental NGOs are confronted with the dilemma of how to combine reducing the pressure from intensive capture fisheries on endangered fish stocks, while avoiding the negative environmental impacts from an expanding fish farming sector. Essential to understand the discourse of environmental NGOs on aquaculture is their argumentative struggle with other social actors, such as governments, fish farmers, consumers etc. In this argumentative struggle NGOs try to influence the way these other actors define the problem and, in some cases, to establish regulatory and discursive networks with them (Hajer, 1995; Howarth, 2000).

Thus aquacultural fish production constitutes a particular regulatory challenge because this globalised way of food production and consumption is the source of new kinds of risks and engages many different social actors each with their own discourse about the way forward to sustainable fish farming. To what extent is it possible to introduce a form of governance in the space of flows in combination with the governance in the space of places? Is it possible to develop a form of governance that does not result in green barriers to international trade, as aquaculture is an important source of income for developing countries? How can in this context, economic, environmental, health, ethical and social concerns be combined?

### 6.3. General trends in global fisheries

Fish makes up the main source of animal protein for millions of people and currently provides employment for some 35 million workers.<sup>152</sup> Production of fish is still growing but this is only made possible by fish farming because this is the single sector which production is substantially increasing. Aquaculture is growing more rapidly than all other meat producing sectors.<sup>153</sup> (See Table 6.1.)

**Table 6.1 Annual growth in world animal protein production, by source 1990-2001**

| Source              | 1990 (million ton) | 2001 (million ton) | Annual growth (%) |
|---------------------|--------------------|--------------------|-------------------|
| Beef                | 53                 | 57                 | 1                 |
| Pork                | 70                 | 92                 | 3                 |
| Mutton              | 10                 | 11                 | 1                 |
| Poultry             | 41                 | 69                 | 4                 |
| Eggs                | 38                 | 56                 | 4                 |
| Oceanic fish catch  | 86                 | 95                 | 1                 |
| Aquacultural output | 13                 | 36                 | 10                |

Source: Brown et al., 2003: 47.

In contrast to most other food products, the real prices of fresh and frozen fish have increased since World War II. Therefore, it is probably not the price but taste and growing health concerns among consumers in Western countries that have caused the shift from beef and pork consumption to fish (and to a lesser degree to poultry) (Brown et al., 2003). Whereas in 1950, the global fish harvest was around 21 million ton, this has risen via 100 million ton in 1990 to 129 million ton in 2001. (See Table 6.2.) By that time capture fisheries accounted for 59 per cent and aquaculture for 41 per cent of the total harvest, although these figures may not be fully reliable as they are highly influenced by China (see Table 6.3) while several studies have suggested that

Chinese statistics may overestimate the real production (FAO, 2002). Anyway, world-wide aquaculture production has increased at an average compounded rate of 9.2 per cent per year since 1970 and this sector now accounts for about 25 per cent of the total employment in fisheries (FAO, 2002: 26). Production from fish-farming has doubled between 1989 and 1998 with an average annual increase of 15 per cent (FAO, 2002).

**Table 6.2 World fisheries production and utilisation (million ton)**

|                              |                   | 1996         | 1997         | 1998         | 1999         | 2000         | 2001         |
|------------------------------|-------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Production                   | Total capture     | 93.5         | 93.9         | 87.3         | 93.2         | 94.8         | 91.3         |
|                              | Total aquaculture | 26.7         | 28.6         | 30.5         | 33.4         | 35.6         | 37.5         |
| <b>Total world fisheries</b> |                   | <b>120.2</b> | <b>122.5</b> | <b>117.8</b> | <b>126.6</b> | <b>130.4</b> | <b>128.8</b> |
| Utilisation                  | Human consumption | 88.0         | 90.8         | 92.4         | 94.4         | 96.7         | 99.4         |
|                              | Non-food uses     | 32.2         | 31.7         | 25.1         | 32.2         | 33.7         | 29.4         |

Source: FAO (2002) Table 1.

Aquaculture production increased from 2.6 million ton in 1970 to 35.6 million ton in 2000 (Anderson et al., 2003a: 14). An overview of the main producing countries is presented in Table 6.3.

**Table 6.3 Fish production through aquaculture (1998)**

| Country      | Production (million ton) | Value (million US \$) |
|--------------|--------------------------|-----------------------|
| China        | 20.8                     | 21.7                  |
| India        | 2.0                      | 2.2                   |
| Japan        | 0.8                      | 3.1                   |
| Indonesia    | 0.7                      | 2.1                   |
| Bangladesh   | 0.6                      | 1.5                   |
| Thailand     | 0.6                      | 1.8                   |
| Vietnam      | 0.5                      | 1.3                   |
| USA          | 0.4                      | 0.8                   |
| Other        | 4.5                      | 12.5                  |
| <b>TOTAL</b> | <b>30.9</b>              | <b>47.0</b>           |

Source: FAO (2000)

Global fish trade amounted to US\$ 55.2 billion in 2000, equal to about 33 per cent of the total fish production (an increase of 52 per cent between 1990 and 2000, Anderson, 2003a).<sup>154</sup> A growing percentage of fish production is entering global trade as by 2001 over 38 per cent of world fishery production was traded internationally (FAO, 2004a). Developing countries provide some 50 per cent of global fisheries export through which they earned US\$ 11 billion in 1993 (Stone, 2002).<sup>155</sup> Currently China is the leading fish exporting country in value terms, just recently taking over from Thailand (FAO, 2004a). Japan is the main single importing country (US\$ 15.8 billion), whereas the EU is the largest market for fish imports. The international fisheries trade is dominated by only few fish products, especially shrimps (both cultured and wild), tuna, and fish meal and fish oil.

Consumption of fish is growing mainly in richer countries like Japan, USA and Europe where per-capita seafood consumption is considerably higher than in most developing countries. Nevertheless fish constitutes an essential source of animal protein for poor people living in developing countries. Fish supplies approximately 6 per cent of the world's protein requirements (16 per cent of total animal protein) and also provides micro-nutrients, minerals and essential fatty acids to many people in low-income food deficit countries (Allison, 2001). The global average per capita fish consumption has increased from about 9 kilograms per annum in 1970 to 16 kilograms in 1997 (ranging between 7.8 kg/capita in least developed countries and 27.8 kg/capita in developed countries). The growing world population, the increased presence of fresh and frozen fish against affordable prices and the changes in consumer attitudes ('consuming fish is healthy and prevents overweight and coronary problems'), as well as more traditional cultural traits and geographical characteristics are important driving factors behind the growing consumption of fish (Trondsen et al., 2004).<sup>156</sup> As shown in Table 6.4., average annual fish consumption differs considerably between different regions in the world, while differences between individual countries are even larger: people in Mongolia consume virtually no fish at all, while people in Japan (66 kg) and in Iceland (91 kg) consume much more than the average 14 kg.

**Table 6.4 Summary statistics of annual per capita fish consumption by region (in kg)**

| Region <sup>157</sup> | Mean      | Standard deviation | Minimum  | Maximum   |
|-----------------------|-----------|--------------------|----------|-----------|
| Africa                | 10        | 10                 | 0        | 45        |
| Asia                  | 18        | 19                 | 0        | 66        |
| Middle East           | 10        | 8                  | 1        | 29        |
| West                  | 16        | 17                 | 1        | 91        |
| <b>World</b>          | <b>14</b> | <b>15</b>          | <b>0</b> | <b>91</b> |

Source: York and Gossard, 2004: 296.

This growing demand for fish, in combination with increasing fish trade and coupled with the technological developments in fish handling, preservation and distribution results in new, often spatially extended, commodity chains linking fish production to consumption.<sup>158</sup> These trends lead to continuously growing catches, putting certain fish stocks at risk because of over-fishing (Hutchings and Reynolds, 2004).<sup>161</sup> Currently at least 70 per cent of the world's important fish stocks are considered in urgent need of management, while Myers and Worm (2003: 280) estimate 'that large predatory fish biomass today is only about 10% of pre-industrial levels'. Besides over-fishing, other factors also contribute to a worsening environmental situation in many seas and oceans. Ground trawling in the North Atlantic is destroying ecosystems at the bottom of the sea, while the use of dynamite and cyanide for fishing in the Indo-Pacific Ocean is poisoning large areas. In addition, chemicals and oil spills discharged by households, industries, the shipping trade and agriculture are contaminating certain parts of the sea as well (Constanza et al., 1999).<sup>162</sup> Currently, consumers, particularly in Western countries, are more and more concerned about these environmental effects of fisheries and about the health risks involved in fish consumption (the presence of heavy metals (mercury, copper, cadmium, molybdenum, chromium) and other chemical substances (dioxins, PCBs) which accumulate throughout the aquatic food chain). Despite these problems and concerns, the projected need 'for food fish could be as high as 121 million ton by the year 2010. This is some 22 million ton more than the volumes that were available for consumption in 1999/2000' (Wijkstrom, 2003: 464). If

wild fish catchments remain at the current levels which is the most optimistic prognosis according to experts, fish farming or aquaculture has to provide the necessary additional quantity by that time.

#### 6.4. Aquaculture

Aquaculture is defined by the FAO (2002) as ‘the farming of aquatic organisms including fish, molluscs, crustaceans and aquatic plants with some sort of intervention in the rearing process to enhance production.’ According to this definition aquaculture covers a broad spectrum of practices in very different environmental and social settings, such as land-based closed water-recycle systems, open water fish cages, polyculture in rice paddies, ponds, small-scale aquaculture in drains of urban areas, etc.<sup>159</sup> More than 220 different species of finfish and shellfish are raised in aquacultural production systems (Naylor, 2000; Tacon and Forster, 2003). Globally, the majority of the production comes from freshwater aquaculture (58 per cent in 1999), followed by mariculture (aquaculture at sea) 36 per cent and brackish water 6 per cent (IFPRI, 2003).<sup>160</sup> Fish farming grew particularly fast in the 1980s (from 4.7 million ton in 1980 to 13.1 million ton in 1990), but this trend continued during the 1990s (to 35.6 million ton in 2000) (Anderson et al., 2003a) and this will most likely be sustained in the foreseeable future (Eijk, 2001).

Traditionally aquaculture was low labour and capital intensive, but the introduction of modern techniques, which started in the early 1970s with salmon, led to high labour and capital intensive practices via a continued reduction of costs, optimisation of size, improved management, vertical integration and technical improvements.<sup>163</sup> The largest production areas are currently located in China, still producing considerable quantities of low-valued species such as carp. The recent growth can however be found in different developing and developed countries where high-valued species are produced destined for the international market. Today, over three-quarters of the salmon and two-thirds of the shrimps entering international trade are produced through aquaculture (Anderson et al., 2003b). Nevertheless, the initial expectation that simple modernisation of aquaculture would result in a virtually unlimited source of fish has not been fulfilled, as it has also resulted in negative environmental and socio-economic consequences.<sup>164</sup>

##### *Environmental impacts from aquaculture*

Modern aquaculture is currently criticised for its environmental damage impacting mangrove forests and other coastal zones, its use of wild fish to feed farmed fish which puts a high pressure on existing fisheries resources, water pollution through its discharge of water from ponds and net pens and its introduction of exotic fish species threatening biodiversity (see Pillay, 1992; Matthews et al., 2002; Goldberg et al., 2001 for further details).<sup>165</sup> For example, it is estimated that an average of between 2 – 5 kilograms of wild fish are used to raise just 1 kilogram of farmed species (Gardiner, 2002).<sup>166</sup> This so-called ‘fish-trap’ means that aquaculture runs into its own limits and can not be considered a sustainable solution for depleting fish stocks (Naylor et al., 2000). An alternative for fishmeal, in particular through adding proteins of plant and animal origins, remains currently problematic because of the limited availability of the correct proteins and because of palatability problems (New and Wijkström, 2002). The continuous demand for wild fish to feed farmed fish exemplifies the global environmental impact of aquaculture as does the introduction of exotic species, while other threats have a more local character.<sup>167</sup>

### *Food safety concerns in aquaculture*

The principal food safety risks involved in aquaculture are associated with the unintended and uncontrolled ingestion of antibiotics and the indirect effects of growing antibiotic resistance in bacteria that are pathogenic to humans (FAO, 2002; Benbrook, 2002).<sup>168</sup> Antibiotics are applied in aquaculture to stimulate growth and to prevent diseases from spreading, which concerns in particular viral and bacterial diseases that have a high probability in aquaculture.<sup>169</sup> These antibiotics are generally administered through commercially available medicated feeds, but during outbreaks of disease, farmers may also use other routes and they have not always been applied responsibly, leading to a number of risky situations for human health.<sup>170</sup> Besides antibiotics, aquaculture products may contain similar risks for human consumption as wild fish, notably their possible contamination with mercury and cadmium and other trace metals as well as with organochlorines, salmonella and algal toxins (dioxins and PCBs).<sup>171</sup> A particular consumer worry was caused by the discovery of BSE among cows, showing the complex and risky relationships between different food production practices. Currently the invention and potential use of genetically modified fish receive concerned reactions from consumers and environmentalists.<sup>172</sup>

Aquaculture is rapidly becoming an important and globalised form of food production and consumption, and this trend goes together with several serious (potential) environmental and health risks. Conventional, nation-state based regulatory approaches of these concerns seem unable to respond to them as will be shown with the help of two concrete examples: salmon raising (section five) and shrimp farming (section six).

## **6.5. The case of salmon**

Wild salmon caught by numerous individual fishermen dominated the world market until the 1980s whereby years of large harvests led to lower prices and years of low harvests resulted in higher prices.<sup>173</sup> Variations in catches were thus, at least partially, offset by the variations in unit value and, overall, salmon remained an expensive food product. But since 1980, when farmed salmon amounted to only one per cent of the world's salmon production, this practice expanded very fast. Already by 1991 the output of farmed salmon exceeded the entire wild stock harvest of the United States.<sup>174</sup> In 1992, farm raised salmon accounted for 32 per cent of the world's production and by 2002 for over 60 per cent. The growing aquaculture output in Northern Europe and North and South America resulted in an increasing share of salmon in global trade in fish overall, reaching 8 per cent in 2001 (FAO, 2004a).<sup>175</sup> World-wide, the production of farmed salmon increased from 527,000 ton in 1995 to 989,000 ton in 1999 and international trade increased from virtually zero to about 1 million ton (2001) in less than two decades. The species traded today are mainly Atlantic salmon and, to a lesser extent, Pacific salmon, which accounted for 88 and 10 per cent of the production in 2001 respectively (see Tables 6.5 and 6.6). The bulk of production is concentrated in Norway, Chile and Scotland, but the salmon consumption is global whereby Japan remains the largest importer by far, followed by the EU and the US. Farm-raised salmon is mainly sold fresh or chilled, while wild caught salmon are sold canned or smoked as well.

**Table 6.5 World production of Atlantic salmon by country, 1992-2000 (1,000 ton)**

| Country        | 1992              | 2000 (estimate)   | % change     |
|----------------|-------------------|-------------------|--------------|
| Norway         | 141 (54.1%)       | 422 (50.1%)       | 213.5        |
| United Kingdom | 36 (13.8%)        | 122 (13.8%)       | 238.9        |
| Chile          | 24 (9.2%)         | 152 (17.2%)       | 533.3        |
| Canada         | 17 (6.5%)         | 68 (7.7%)         | 300.0        |
| Faroer Islands | 17 (6.5%)         | 41 (4.7%)         | 141.0        |
| United States  | 10 (3.8%)         | 23 (2.6%)         | 130.0        |
| Ireland        | 10 (3.8%)         | 20 (2.3%)         | 100.0        |
| Australia      | 3 (1.1%)          | 11 (1.2%)         | 266.7        |
| Iceland        | 3 (1.1%)          | 3 (0.3%)          | 0.0          |
| <b>Total</b>   | <b>261 (100%)</b> | <b>882 (100%)</b> | <b>237.9</b> |

Source: Phyne and Mansilla, 2003: 113.

**Table 6.6 World production of Pacific salmon by country, 1992-2000 (1,000 ton)**

| Country      | 1992             | 2000 (estimate)   | % change  |
|--------------|------------------|-------------------|-----------|
| Japan        | 24 (38.7%)       | 10 (9.0%)         | -58.3     |
| Chile        | 23 (19.3%)       | 84 (75.7%)        | 265.2     |
| Canada       | 12 (19.3%)       | 10 (9.0%)         | -16.7     |
| New Zealand  | 3 (4.8%)         | 7 (6.3%)          | 133.3     |
| <b>Total</b> | <b>62 (100%)</b> | <b>111 (100%)</b> | <b>79</b> |

Source: Phyne and Mansilla, 2003: 113

Salmon production increased very fast through the practice of farming the fish but this consequently led to lower prices and falling profits. 'On average, between 1990 and 2000, the price for salmon dropped by 60 percent from US\$ 10.00/kg to US\$ 3.50/kg' (Anderson et al., 2003b: 63) making salmon a relatively mid-priced product in international seafood markets (FAO, 2002). This price squeeze contributed to a search for technical improvements to reduce the cost-price, so for example direct production costs in Norway declined from US\$ 5.52/kg in 1985 to US\$ 1.97/kg in 1999 (Anderson, 2003b: 153).

Farmed salmon originate in hatcheries where eggs are hatched and fingerlings raised in land-based tanks nearby. Once fingerlings become smolts, they are put in smolt-rearing facilities in fresh-water cages. After a period of 12-18 months, the smolts are shipped (sometimes by helicopter) to seawater cages and raised for a further period of 12-18 months. Salmon, a carnivorous fish, is fed a diet consisting primarily of fishmeal typically made from anchovies, herring, or the remnants of fish processing.<sup>176</sup> Whereas wild salmon's pink-coloured flesh comes from eating krill and other small crustaceans, farm-raised salmons are routinely fed colour additives (astaxanthin or canthaxanthin) to get the same effect.<sup>177</sup> Harvested salmon are processed according to the standards of the main consumer markets (Phyne and Mansilla, 2003).

Salmon farming may be the of cause several environmental problems. Firstly, the practice may pose serious risks to wild salmon because every year hundreds of thousands of farmed salmons escape from net pens creating an (uncertain) impact on wild salmon. These escapes are caused by storms, predator attacks (primarily seals), human error and vandalism (Goode and Whoriskey, 2003). In Norway, the escaped farmed salmon is increasingly displacing wild



Atlantic salmon and currently makes up for about 30 per cent of all salmon in Norwegian rivers outnumbering the resident salmon in many inland streams (Aerni, 2001: 18).<sup>178</sup> Other environmental problems concern the waste produced in the offshore pens where large quantities of salmon are concentrated, the spread of epidemics, particularly of sea lice and infectious salmon anaemia and the regular use of pesticides and antibiotics to combat outbreaks of infections and diseases (Brown et al., 2003; Goode and Whoriskey, 2003).<sup>179</sup> The presence of dioxins and PCBs in farmed salmon may reach critical levels for human consumption, as they accumulate in fish higher in the food chain. Hites et al. (2004) even claim that farmed salmon has significantly higher contaminant burdens than wild salmon potentially offsetting the beneficial effects of fish consumption.<sup>180</sup>

The environmental and food safety problems mentioned above have resulted in several efforts to respond to them. Most policy measures focussed on spatial planning and environmental improvements. For example: the Canadian province of British Columbia imposed a ban on building new fish farms in 1995, but lifted it again in 2002 when environmental regulations for fish escapes and waste disposal were reviewed and completed. Other measures were taken within the chain itself, for example the multinational Nutreco, which claimed it stopped adding antibiotics in Norwegian salmon raising already in 1995, doubled the nets to prevent salmon from escaping and replaced dangerous colour additives by less dangerous ones. Until now, specific international regulations for farmed salmon are lacking although sometimes guidelines from existing fisheries agreements are applied. The North Atlantic Salmon Conservation Organisation (NASCO) established in 1982, constitutes an exception in this regard for it contains specific guidelines for salmon farming.<sup>181</sup>

Despite the introduction of several environmental and food safety protection measures, salmon farming still provokes much criticism from NGOs. For example from the English Soil Association, which considers intensive salmon farming the modern equivalent of battery chicken production.<sup>182</sup> Against such criticism proponents of farmed salmon defend their activity, through claiming that the salmon-farming industry provides 'food safety and quality and economic benefits to the regions in which the farms operate' (Infante, 2003: 11). Furthermore, salmon producers in Norway contend that the environmental impact of salmon excrements on the Norway fjords is exaggerated. They also claim that the problem of fishmeal is incorrectly stated because the species processed in it, such as anchovies, are less interesting for human consumption.<sup>183</sup> These comments made by different social groups shows that salmon farming remains a controversial issue.

## **6.6. The case of shrimps**<sup>184</sup>

Shrimps currently account for 20 per cent of the total value of internationally traded fishery products and constitute the most important fish commodity in value terms, while nearly 80 per cent of the world's production enters the global market (Goss et al., 2000: 522). In the year 2000, world shrimp production reached 4.2 billion ton, of which some 1.2 billion ton (28 per cent of total shrimp production) came from aquaculture, compared to about 5 per cent in the early 1980s (EJE, 2003b: 6). Shrimp farming globally represents a total value of US\$ 6.9 billion at the farm gate and US\$ 50-60 billion at the point of retail. Most shrimps produced are black tiger shrimps (*Penaeus monodon*), a warm, brackish water species. Its production requires substantial quantities of water, so the farms are mostly located alongside rivers, estuaries and coastal areas in tropical regions. Shrimp production is very volatile because shrimps are a vulnerable organism and their production is more subject to negative impacts from weather and disease

than other forms of aquaculture.<sup>185</sup> Intensive shrimp farming began during the 1980s in Taiwan and then spread to about 50 countries in Southeast Asia and Latin America whereby the leading producers in 2000 were China, India, Thailand and Indonesia (see Table 6.7).<sup>186</sup> Thailand has become the largest exporter by far, exporting 90 per cent of its total produce (EJE, 2003: 6).<sup>187</sup> The US remains the most important shrimp importer with steadily increasing volumes and values throughout the period between 2000 and 2002, now importing 88 per cent of its total consumption.<sup>18</sup> Japan's shrimp imports and consumption remain more or less unchanged since 1998 (FAO, 2004a).

**Table 6.7 Annual shrimp production per major producing country (1,000 ton)**

| Country       | 1991           | 1995           | 2000           |
|---------------|----------------|----------------|----------------|
| China         | 564.1          | 665.6          | 1,241.9        |
| India         | 300.5          | 406.1          | 405.7          |
| Thailand      | 289.9          | 389.3          | 398.5          |
| Indonesia     | 296.8          | 334.7          | 398.4          |
| USA           | 148.5          | 140.5          | 153.0          |
| Vietnam       | 81.3           | 138.1          | 151.1          |
| Canada        | 44.7           | 63.1           | 130.6          |
| Malaysia      | 104.7          | 99.6           | 111.9          |
| Mexico        | 70.6           | 85.9           | 95.1           |
| Greenland     | 73.1           | 81.9           | 81.5           |
| Philippines   | 84.9           | 127.5          | 79.4           |
| Norway        | 49.0           | 39.3           | 66.2           |
| Bangladesh    | 19.6           | 34.0           | 58.2           |
| Brazil        | 42.3           | 43.0           | 56.6           |
| Ecuador       | 118.8          | 112.1          | 51.4           |
| Rep. of Korea | 55.8           | 42.5           | 37.2           |
| Others        | 532.7          | 594.5          | 651.7          |
| <b>Total</b>  | <b>2,877.3</b> | <b>3,397.4</b> | <b>4,168.4</b> |

Source: FAO (2002).

Many developing countries are promoting shrimp farming to earn export income thereby giving the industry a very dynamic character. Shrimp production and consumption is getting transformed into a global flow of food, largely unregulated, and virtually unhindered by trade barriers or distorting subsidies. Shrimp production and consumption has changed from 'a relatively specific capture-to-market basis to global production to a world consumption system' (Skladany and Harris, 1995: 182). Consequently, 'the ability of the nation-state to manage these contradictions effectively is simply overwhelmed by the international scope of the industry's fluid structure' (ibid.: 185).

Like other aquacultural practices in general, shrimp farming is also repeatedly criticised for being the cause of some serious environmental problems. The environmental impact of shrimp aquaculture can be divided in the effects of pond construction and the consequences of the operation of these ponds. Shrimp pond construction is particularly sensitive because it often involves clearing mangrove forests, that protect coastlines and serve as nurseries for local fish species.<sup>189</sup> The construction of ponds may also contribute to the degradation of other important habitats, such as salt marshes and freshwater wetlands and be the cause of serious con-

flicts over rights to land and of access to natural resources when multiple-user, open-access resources are converted into single-user, single-owned resources. In some cases, in India and Bangladesh, conversion led to the forced displacement of tens of thousands of poor people resulting in increased poverty, landlessness and reduced food security (EJF, 2003a; Maybin, 1996). Shrimp pond operation itself may affect the environment as well (Kaosa-ard and Wijukprasert, 2000) for in order to prevent and to treat diseases, large quantities of chemicals are used.<sup>190</sup> Moreover, shrimp feed, like salmon feed, is high in fishmeal, increasing the already high pressure on oceanic fisheries (Brown et al., 2003). The way this feed is handed out may furthermore create eutrophication of the surface water and pollution of the pond bottom.<sup>191</sup> Finally, the discharge of water and pond bottom sludge may also impact the surrounding ecosystems through salinisation of soils and surface water and pollution through the spread of used pesticides, bleaches and antibiotics.<sup>192</sup> The actual impact of this water and sludge discharge depends on specific factors such as the way in which the production is organised, the technical capacities of the shrimp farm operators, the degree of pollution and the presence of water treatment facilities.<sup>193</sup>

Thailand provides an interesting example to improve the understanding of the specific dynamics involved in shrimp aquaculture. Thailand has an optimal climate for shrimp farming and disposes of a well-developed infrastructure and a coastline of about 2,600 kilometres. Therefore it is not surprising that Thailand has become the largest shrimp exporting country acquiring about 18 per cent of the world market for frozen shrimps during the last decade, which is really global as Table 6.8 makes clear.

**Table 6.8 Thai frozen shrimp exports in 2001**

| Country           | Quantity (ton) | Amount (million euro) |
|-------------------|----------------|-----------------------|
| United States     | 66,990         | 576.4                 |
| Japan             | 24,837         | 247.0                 |
| Canada            | 5,758          | 47.6                  |
| Singapore         | 6,610          | 45.1                  |
| Taiwan            | 6,308          | 37.3                  |
| Australia         | 3,638          | 29.8                  |
| Republic of Korea | 4,121          | 26.9                  |
| China             | 3,412          | 22.3                  |
| Hongkong          | 2,610          | 20.6                  |
| United Kingdom    | 1,587          | 12.7                  |
| France            | 1,553          | 10.5                  |
| Germany           | 1242           | 10.0                  |
| Italy             | 876            | 3.4                   |
| New Zealand       | 337            | 2.4                   |
| Others            | 5,031          | 35.6                  |
| <b>Total</b>      | <b>134,910</b> | <b>1,127.6</b>        |

Source: [www.foodmarketexchange.com](http://www.foodmarketexchange.com).

Extensive shrimp farming with low yields began in 1935 along the eastern coast of the Gulf of Thailand in rice fields where shrimps were harvested both for private consumption and for sale on the local market. Relatively good prices and severely lowered salt prices in 1947 created the conditions for an expansion of extensive shrimp farming. The intensity, however, remained low:

the 1972 yield was about 11 kg/ha (compared to 3,500 kg/ha in 1995 (Huitric, Folke and Kautsky, 2002)). A steady price and a large demand for shrimps from Japan, US and Western Europe prompted the Thai Department of Fisheries to promote semi-intensive marine shrimp farming since 1973 and in the mid-1980s, technology developed in Taiwan allowed the further intensification of shrimp farming. When in 1987 Taiwan's shrimp industry collapsed, Thailand quickly filled the gap, although the particular region involved shifted repeatedly. Intensive shrimp farming regularly led to disease outbreaks caused by viruses, bacteria, fungi or other pathogens (Gräslund and Bengtsson, 2001). So the shrimp farms had to look continuously for new, disease-free, areas. Initially shrimp farming was mainly located in the inner gulf (Bangkok area), but via the Western Gulf, the Eastern Gulf and the Andaman Sea, shrimp farming is now moving further inland (Huitric, Folke and Kautsky, 2002).<sup>194</sup> Simultaneously, improved management practices were adopted moving away from open culture systems towards semi-closed recycling systems in which pond water is treated after each crop and then re-used (Flaherty and Vandergeest, 1998; Duraiappah et al., 2000).<sup>195</sup> Currently around 85 per cent of Thailand's shrimps are produced by intensive farming and only 15 per cent by extensive or semi-intensive farming. Intensive shrimp farming refers to very high stocking densities, whereby all shrimps are supplied by hatcheries, processed feed is used, water frequently flushed, and farming mechanised (aerators, water pumps, lighting). Although the actual area under inland shrimp farming is not known exactly, low-salinity inland production now accounts for a rising proportion of total Thai production, estimations go up to 30 per cent (Flaherty et al., 1999).

Unlike many other countries, the overall majority of shrimp farms in Thailand have been small-sized family-based enterprises, providing self-employment to thousands of producers. About 80 per cent of the shrimp farms are smaller than 1.5 ha, 18 per cent are between 1.5 and 2.5 ha and only about 2 per cent are larger than 10 ha (Rosenberry, 1997).<sup>196</sup> Aquaculture has increased the overall wealth of coastal communities but has also increased inequities (Lebel et al., 2002). Currently however, there is a trend towards vertical integration and consolidation and the shrimp industry in Thailand is evolving towards a more fully integrated industry (ibid.).<sup>197</sup> Vital to this process of change were capital and experience from Taiwan, as well as low salinity culture techniques offering the opportunities for land-based systems introduced by the 1,000 hatcheries (small-scale, backyard operations in Thailand) and spread by the Charoen Popkhand (CP) Group (Goss et al., 2000).<sup>198</sup>

Commercialisation of shrimps has become highly complex involving traders, processors and retailers from all over the world, as well as supermarkets, hypermarkets and convenience stores.<sup>199</sup> Central wholesale markets in Thailand—Mahachai near Bangkok and Nakhon-sitammarat—play a crucial role in serving the processing industries all over the world. In this global market, shrimp prices may vary considerably, depending on shifts in demand, but mostly on the market destinations and the quantity and quality of shrimps being on offer. Thailand's dependency on global markets makes it rather vulnerable for changes (in the economic situation and in regulatory practices) in Japan, the US and the EU.<sup>200</sup> Despite this vulnerability, the opportunities for high and quick returns on investments continue to make the shrimp aquaculture industry a very attractive activity for farmers and investors.

Thailand's booming shrimp industry is, however, also responsible for some serious environmental problems. Firstly shrimp farming has contributed to the reduction of the mangrove area which has halved between 1961 (364,000 ha.) and 1993 (168,700 ha.) (Huitric et al., 2002: 445; see also Barbier et al., 2002).<sup>201</sup> As exact data lack, it is difficult to establish the specific contribution from shrimp farming to the destruction of mangrove cover. In addition, this damage can also be caused by a number of other trends, including urbanisation, human settlements, tourism and related infrastructure construction, and salt water farming.<sup>202</sup> Even today, while

the total area in use for shrimp farming is no longer increasing, farmers regularly have to find new locations because the lifespan of an intensive shrimp farm is between five and ten years. Once a shrimp farm is closed down, the polluted soils left behind together with the other environmental damage make conversion to new productive activities difficult. The second environmental problem is the annual dumping of, mostly untreated, 100 to 500 MT of sediment per ha, containing faecal matter, uneaten food and inorganic fertiliser, which threatens agricultural areas or natural ecosystems.<sup>203</sup> Finally, the introduction of semi-closed inland shrimp farming systems will neither solve all environmental problems as the presence of saline water, despite its low percentage of salt, forms a serious threat to the soils and the freshwater systems of inland Thailand. Consequently shrimp farming is competing with rice production for the limited available fresh water supply in rural areas, because shrimp farming is very responsive to water pollution, while rice production is very sensitive to the presence of salt in water.

In response to environmental concerns the Thai Department of Fisheries already began to tighten its regulatory policies in 1991 (Kaosa-ard and Wijukprasert 2000).<sup>204</sup> These measures proved to be ineffective, however, because of non-compliance by a majority of the shrimp farmers. Furthermore, the authority to monitor and enforce compliance remained scattered among several agencies, each operating under a different legal mandate and using different regulatory approaches (Flaherty et al., 1999).<sup>205</sup> Repeatedly, attempts to create stricter legislation or to enforce the actual implementation of existing rules or decrees, were overturned by protests from the industry (Lebel et al., 2002). For example, in July 1998, the Thai government imposed a ban on inland shrimp farming, except for brackish and estuarine areas but the enforcement of this ban still remains rather problematic. Currently forms of self-regulation are suggested and supported by state authorities.<sup>206</sup> Suggestions for future regulation are the distribution of tradable permits for the production of shrimps, that are based on the carrying capacity of the water resource system. The presence of a strict monitoring system to secure adherence to the prescriptions included in such permits remains however a critical condition for the success of such a system. An alternative would be to adapt shrimp farming practices in a participatory way to the local environmental and institutional settings which would result in variations among the appropriate trajectories and require flexible government support. 'In some favourable locations this will imply de-intensifying production, whereas in many other places, the solution will be finding alternatives to growing and eating shrimp' (Lebel et al., 2002: 321; see also Huitric, Folke and Kautsky, 2002). A third alternative is to continue searching for technological innovations towards more fully human controlled practices, as for example shrimp farmers who adopt closed water management systems tend to experience higher survival rates compared with open system farms (Duraiappah et al., 2000).<sup>207</sup>

So, intensive shrimp farming has spread rapidly over the globe since the 1970s primarily forced by a high consumer demand in developed markets, thereby transforming the shrimp production chain into a global flow. The flow character is exemplified by the global character of shrimp production and consumption, by the successive relocations of shrimp farming in Asia and Latin America following a boom and bust sequential exploitation. Especially the sometimes disastrous local environmental effects force shrimp farmers repeatedly to move to new locations. Local environmental problems in production areas are thus linked to Western consumers through international trade sometimes controlled by transnational corporations. Furthermore, the practices of relocation, intensification and technological innovation seem to evolve continuously ahead of national environmental governance.

## 6.7. Regulating fish

Against this background of rapidly expanding aquaculture practices and related impacts, efforts are made to reduce these environmental consequences. However, regulating aquaculture is confronted with the particular difficulty of its overlap with capture fisheries, from which they clearly differ at the places of production but not at the places of consumption. Aquaculture has become part of a dynamic global flow of food and is confronted with numerous interests, a diversity of local, natural and socio-economic contexts and the involvement of a variety of government institutions at different levels of governance. In this global flow, fish produced by aquaculture gets mixed together with fish from capture fisheries. Therefore current governance practices with regard to aquaculture are directly influenced by the recent efforts to regulate capture fisheries.

The world's fish stocks have historically constituted an open access resource without strong legal institutions to control and manage them. In particular, the poor monitoring and regulation possibilities for fisheries on the high seas seemed to exclude effective control of the quantities of fish caught (Dommen, 1999; Jackson et al., 2001). Over-fishing, however, intensified the pressure to install effective regulation of capture fisheries to protect the remaining fish stocks. This pressure resulted (in Western countries) in command-and-control-based management systems, whereby fishermen were ordered to stay at home until the fish stock attained the optimum level defined by scientists, when subsequently quotas were distributed based on the sustainable yield for this stock among the fishermen (Roughgarden, 1998).<sup>208</sup> Despite these 'modern' science-based and state-controlled fisheries management practices, fish stocks continue to decline, so two alternative solutions are suggested, on the one hand, a strictly controlled integrated, ecosystems-based management system and on the other hand, a privatisation of fishing rights.<sup>209</sup> Integrated ecosystem management 'requires an explicit consideration of multiple objectives not only for the production of commodity species but also for the protection of species that provide ecosystem services' (Hanna, 1999: 282). An integrated management system has to provide as well for the economic, social and cultural needs of fisheries-dependent communities. Alongside this approach to regulate capture fisheries, several authors consider privatisation (including of aquaculture) a better solution because private ownership rights will provide security, allow planning and investment and improve production and marketing management (Anderson, 2003b). 'Legislation on integrated coastal area management (is required), defining rights and limitations to various types of activities, recognising basic individual rights (such as the accessibility to the shore or to water with specific properties) would help private and public promoters of aquaculture development to plan their activity in more secure and informed circumstances' (Bailly and Willmann, 2001: 96). However, in reality such a privatisation approach is confronted with the complicated challenge to identify the owners and determine the precise characteristics of fishing rights (do they concern an area, certain fish stocks, certain catchments or certain ecosystems?).<sup>210</sup>

Meanwhile, international, sometimes global, arrangements have largely replaced national institutions, as even 'the "enclosure of the oceans", codified in the 1982 Convention on the Law of the Sea, with establishment of exclusive economic zones (EEZ) out to 200 miles from the baseline, did not eliminate the high-seas fisheries management challenge' (Stokke, 2000: 206). Currently, there are 'over 100 multilateral, regional and bilateral treaties to supplement (or confound) the general trends in international ocean law as codified in the Law of the Sea, as well as a huge variety of national laws and practices. There are 14 UN agencies and 19 International Government Organisations with the oceans as part of their responsibilities' (Allison, 2001: 941; see the annex 3 for a summary of the most important regulations). Besides the growth in

the number of international laws and regulatory institutions involved in capture fisheries management is growing, more and more 'soft' governance instruments are being introduced as well. The FAO Code of Conduct for Responsible Fisheries provides policy direction for legal regimes and was developed in 1994/5 on the basis of relevant rules of international law to be applied on a voluntary basis. Furthermore, the Kyoto declaration (1995) identified the critical links between food security and the sustainability of fisheries because fishing contributes to the income, wealth and access to food for all people (Hanna, 1999). In developed countries innovative NGO-based certification programs were introduced, such as MSC (see chapter 7), aiming at producing fish on a sustainable manner and providing credible information to consumers. In addition to these new governance arrangements, official and privatised technical regulations such as food safety measures, labelling requirements, and quality and compositional standards are increasingly replacing tariffs and quantitative restrictions on food trade. According to the FAO (2004b) an integrated food chain approach is required, recognising 'that the responsibility for the supply of food that is safe, healthy and nutritious is shared along the entire food chain—by all involved with the production, processing, trade and consumption of food. Fish can be contaminated from the moment of capture until it is eaten, due to pathogenic micro-organisms which form part of the normal flora of the fish or to cross- or re-contamination or faulty handling and processing.' This view has contributed to the adoption of private and official traceability measures, allowing the identification of food to its origin, and of HACCP-based systems in the fish chain.<sup>211</sup>

These new arrangements, developed during the last decades to regulate fisheries, have had a direct effect on practices in aquaculture, because fish farming overlaps with capture fisheries and because their production contributes to the establishment of globalised fish supply networks. Existing nation-state laws and private regulations have created a tangled web although difficulties in enforcement remain and other forces are pressuring global and regional markets towards environmentally and socially sustainable practices (Van Houtte, 2001). Although conventional, official command-and-control measures may remain useful to outlaw certain unsustainable practices, they seem to be unable to promote continued improvements or to deal with supra-national dynamics. Therefore, besides these conventional nation-state based regulations of fish other forms of governance are introduced, such as international agreements, labelling and certification schemes, best management practices and codes of conducts, initiated at different locations and often applied in some form of public-private arrangements.<sup>212</sup>

## 6.8. Defining sustainable aquaculture

Regulating fisheries in general is taken up by several state and non-state actors, but regulating the many, often new, environmental, social and food safety impacts of aquaculture requires particular measures. The challenges for existing regulations and the driving forces towards the development of innovative governance arrangements are guided by particular discourses about the future of aquaculture. Establishing sustainable aquaculture in global food supply chains demands not only a straightforward definition of the required production practices and identity preservation throughout the chain, but also understanding of the social processes involved.<sup>213</sup> Therefore, in global networks it can not be the end product alone that is considered to define what counts as quality and as relevant concerns, because the meaning of 'quality' and the content of these concerns themselves is assembled in the structuration of the commodity chain. 'Quality differences influence the geography of supply and demand, which not only

affects the prospects for the existing industry, but also gives rise to industries in new places and to new trade patterns' (Mansfield, 2003b: 13). Therefore, the discourses not only help to define the problems linked to aquaculture and their governance, but also to create a social and moral order and to establish discursive and regulatory networks with other social actors.

In the different discourses or story-lines about sustainable aquaculture, two ideal-types of "sustainable aquaculture" can be distinguished. On the one hand the traditional practice of land-based fish farming and on the other hand the modern, technologically improved closed systems. The tradition-based model builds on 'extensive and balanced "*polyculture*": an integrated fish farming practice adopted over 4000 years ago in China and over 1500 years ago in Hawaii. (...) Polyculture techniques mix fed species (e.g. finfish, shrimps), herbivorous species and extractive species (filter feeders, such as shellfish, and seaweeds) in a more balanced ecosystem-approach aquaculture' (Frankic and Hershner, 2003: 518).<sup>214</sup> This practice has proven its sustainability over centuries and when herbivorous species are given central place and aquaculture is further integrated with agriculture this model becomes even more attractive (Weber, 2003). 'In contrast to intensive monocultures (in particular of salmon and shrimps, PO), integrated practices that mimic ecosystem processes and functions and that are more in tune with their natural environments could, in the long run, provide a more sustainable, and potentially more efficient, use of marine resources. Such ecocyclic practices should appropriate smaller ecological footprints. Integrated marine/coastal and terrestrial food production systems are already in place in some areas. (...) Such ecologically adapted practices need to be linked to institutional designs protecting them from policies and economic driving forces that undermine the capacity of ecosystems to sustain seafood production' (Folke et al., 1998: S70).

The other ideal-type aims at the development of closed intensive aquaculture systems. Technological innovations through improved food-conversion as a result of selective breeding can contribute to the reduction of the environmental burden.<sup>215</sup> As well as the introduction of re-circulation systems aiming at optimum use of water through re-use while superfluous feed and other organic waste is filtered off or separated through sedimentation.<sup>216</sup> Where the traditional pond system requires 2,000 – 20,000 litres of water to produce 1 kg fish, new re-circulation systems need only 10 – 30 litres (Eijk, 2001).

Currently neither of the two ideal-types presented above are common practice. The use of traditional, integrated systems is diminishing as expanded market possibilities invite producers to use more intensive specialised monoculture production systems. On the other hand, the costs involved in setting up intensive re-circulation systems are currently very high while the technique itself still encounters problems, so for the foreseeable future this option might only be interesting for expensive species such as tarbot (Anderson, 2003b).<sup>217</sup> The option of combining several species with different ecological niches and interrelated demands in a controlled eco-system may lower the environmental impact and optimise the use of nutrients. This alternative would, however, at the same time increase the complexity of the system, in particular because of the differing production scales and the various management requirements for each species combined with their different marketing opportunities (SST, 2003).<sup>218</sup>

## 6.9. Official and privately initiated forms of governance for aquaculture

Both these ideal-types have guided regulatory approaches introduced to deal with the environmental and food safety impacts of modern aquaculture. Although these regulations were often developed within the broader framework of regulating fisheries in general there are several



specific practices introduced for the governance of aquaculture. Aquaculture seems to be easier to control as their activities are much more localised.

The FAO Code of Conduct for Responsible Fisheries, developed in 1994/5 has become a central point of reference for defining sustainable fisheries and developing governance practices, including for aquaculture.<sup>219</sup> Article 9 concerns aquaculture and identifies different environmental risks. This Code is primarily based on the ideal-type of modern, technology intensive aquaculture, although some restrictions are added to restrain naïve technological optimism. The introduction of non-indigenous species threatening biodiversity and the ecosystem is considered especially risky. The need for a safe disposal of waste and a safe, effective and minimal use of therapeutants, hormones, drugs, antibiotics and other chemical inputs, is acknowledged as well. In addition, according to the Code of Conduct, overall food safety should be ensured and techniques to protect endangered species developed. In order to achieve these goals, national governments should create legal frameworks in combination with international cooperation by the governments concerned to govern transboundary effects of aquacultural practices. This way the Code of Conduct, although initially (and formally still) having only a voluntary status, provides policy direction for legal regimes and becomes binding, at global, regional and national levels.<sup>220</sup> Nevertheless, the concrete implementation of this FAO Code of Conduct for Responsible Fisheries still remains quite restricted.<sup>221</sup> (See Tacon and Forst (2003) for a general overview of government regulations; Read and Fernandes (2003) for an overview of EU regulations.) Some governments do regulate the stock intensity, control the introduction of exotic organisms and have elaborated regulations for the location of fish farms, sometimes including environmental impact assessments and waste treatment facilities to be installed (Pillay, 1992).<sup>222</sup>

Effective regulations often require, clearly defined ownership rights to be successful which is sometimes not the case, in particular in developing countries (Anderson, 2003b; Bailly and Willmann, 2001). Aquaculture has spread to many different developing countries applying standardised technology packages and producing standardised products. At the same time, in general, very few developing countries have established specific policies on aquaculture because of their limited institutional capacities and the problems they face in accommodating local regulatory requirements with the trend towards governance in the space of flows which has become critical in global modernity.<sup>223</sup> Consequently, despite the existence of some limited national governmental regulations for aquaculture, growing concerns about the environmental and social problems caused by these aquacultural practices have forced producers, trading companies, governments and consumers to reflect on ways to establish environmentally improved practices (Pillay, 1992). This has more recently resulted in the introduction of different forms of voluntary governance.<sup>224</sup>

Generally these private forms of governance can be differentiated in codes of practice and certification (and labelling) schemes. The presence of these codes and guidelines show that thinking about governance of aquaculture is departing from conventional nation-state based approaches. A first example is the Code of Practice for Responsible Aquaculture developed by the Global Aquaculture Alliance (GAA). The GAA is an industry-based aquaculture organisation bringing together mainly fish processors and traders from different parts of the world, plays a central role in voluntary regulations. This code is partly based on the FAO Code for Responsible Fisheries, mentioned above.<sup>225</sup> When reviewing shrimp farming, the GAA concluded there are no particular risks involved because properly conducted shrimp farming is profitable, environmentally sound and socially beneficial, provided the farms are operated while applying good management and business practices.<sup>226</sup> Nevertheless, as with any young and rapidly growing industry mistakes can be made, but the negative environmental and social impacts 'have inva-

riably resulted from poor planning or poor management by shrimp farmers and government agencies rather than as a routine consequence of shrimp farming' (GAA, 2001).<sup>227</sup> Consumers should, therefore, be better informed about the real concrete shrimp production practices to gain public appreciation of the interactions between shrimp farming and the environment. GAA will provide a Code of Practice as a framework for environmentally and socially responsible shrimp farming.<sup>228</sup> Their standards and guidelines include on site inspections and controls and are not intended to result in certification and labelling of seafood at the retail level aiming at direct consumer involvement (Roheim, 2003).<sup>229</sup> On the contrary, so far the project gives mainly the impression of a strategic attempt to offset NGO and consumer comments on aquaculture.

The Federation of European Aquaculture Producers (FEAP), the umbrella organisation of national aquaculture associations in Europe, has developed her own Code of Conduct. Their code is based on existing guidelines and not intended to be prescriptive but 'to motivate and assist the development of the principles of best practices' (FEAP, undated: 2). This Code provides rather general guidelines inviting fish farmers to respect existing laws and to avoid environmental problems as much as possible through effective self-governance, but suggests furthermore to develop more specific guidelines per species concerned. Future technological developments are supposed to contribute to more sustainable and more efficient fish farming according to FEAP.<sup>230</sup> An exception to the rather vague wording applied in this Code is the explicit refusal to accept genetically modified fish (FEAP, undated). The utilisation of these, GAA- and FEAP-developed, codes of conduct might contribute to improving practices in aquaculture, but their effectiveness is seriously hampered by their vagueness as well as by their lack of transparency to consumers and other interested parties.

Another interesting example is formed by the 'Holmenkollen guidelines for sustainable development', formulated in 1994 and adopted in 1998, elaborated by a group of scientists, authorities, producers and NGOs.<sup>231</sup> These guidelines are based on the conviction that modern aquaculture carries the potential to become an important provider of food, if the principles of sustainable development are applied, notably the precautionary principle and the principle of human equity.<sup>232</sup> Technological innovations are considered to be able to prevent environmental problems such as the threat to biodiversity from the introduction of exotic species or GM fish and the risks involved in the use of chemo-therapeutants or hormones. To be successful, priority should be given to 'integrated, poly-culture-based fish farming for omnivorous or herbivorous species' and to the development of other sources for animal feed than fish proteins and fish lipids. National governments should ensure the development of such modern integrated systems of fish farming through the introduction of laws and regulations, while producers should provide the consumers with information about the concrete production practices applied. An important driving force behind the realisation of such guidelines is that the initiators consider a future solution possible because all parties concerned ultimately have a common interest in clean water, a healthy environment, abundant wild stocks and economic prosperity. An open dialogue between all parties using sound, objective scientific knowledge should therefore result in governance standards that can be legally enforced (Goode and Whoriskey, 2003).

More generally used certification schemes (see chapter 7), such as ISO 14001 and HACCP (Hazard Analysis Critical Control Point), are also applied in aquaculture. ISO 14001 may combine compliance to environmental governance and response to stakeholders concerns, because firms are required to establish an environmental policy and to set targets and objectives for environmental management performance. (Frankic and Hershner, 2003). ISO 14001 can also contribute to establishing a 'green chain' certification from production to disposal, but the scheme does not prescribe specific environmental performance levels. HACCP constitutes a management system aimed at preventing food risks, whereby clear limits are set, process control

is emphasised and monitoring concentrates on points in the operation that are critical to human health and environmental safety. If these critical limits are violated, immediate and specific action should be taken. HACCP is especially relevant for processed seafood, because certification takes place at this stage.<sup>233</sup> Nevertheless the primary producer's role is also essential because he should 'provide the processor with information concerning chemical contaminants and aquaculture drugs so that the processor can comply with this in his plan' (Miget, 2004: 4).

Organic labelling of aquacultural products might contribute to the more sustainable use of natural resources (Bailly and Willmann, 2001), but so far no international guidelines exist for organic aquaculture production. Organic fish did exist in the EU, but since August 2000, wild caught fish cannot officially be labelled organic due to EU regulations, which prohibit any wild creatures from being called organic.<sup>234</sup> During the public process of defining general criteria for organics in the US the participants also concluded that wild fish may be regarded as 'natural' but can not be considered organic because the production process is not controlled by humans (Mansfield, 2003a/2004; Vos, 2000). However, 'farmed fish have the potential to be classified with other types of farms, based on the possibility of control of both the setting and process by which the organism is grown' (Mansfield, 2004: 227). According to Bailly and Willmann (2001: 99) a number of specifications laid down for organic food production in agriculture would be readily applicable to aquaculture, but 'the adaptation of current international standards for organic food to fish and shellfish from aquaculture is likely to require significant changes in production methods and processes, especially for semi-intensive and intensive aquaculture systems'. It might, nevertheless, offer interesting marketing opportunities for small producers if they would get institutional and organisational support. However, the organic movement in the US denied the possibility of applying the same criteria on both terrestrial and aquatic animals (fish) and therefore farmed fish can never be considered organic (Mansfield, 2003a/2004).

Most official and private initiatives to govern modern aquaculture are building on the ideal-type of controlled but nevertheless continued technological development. The absence of well implemented government-based governance arrangements for aquaculture forms a driving force towards private initiatives of governance. Developing and implementing global institutional arrangements in the fish distribution chains seems rather complicated because of the large dissimilarities between different countries. Still, 'in spite of several existing GMP standards in use, the European fish industry sector considers that new GMP standards should be developed on an international level, established by official standard bodies or agreements with industry as voluntary guide models and controlled by third independent party' (Pérez-Villarreal and Aboitiz, 2003: 55). In practice not many initiatives are effectively implemented, nor do they seem to respond adequately to the problems facing governance of fish farming in global modernity. In particular the hesitance in many of these initiatives to create more transparency towards the consumers is problematic but also their lack of precision in defining (the conditions for) safe and sustainable fish farming.

### **6.10. Civil society initiatives to govern aquaculture**

The negative social, environmental or food safety impacts of aquaculture combined with the lack of substantial regulation have drawn attention from different NGOs. In discussing the complex problems surrounding aquaculture these NGOs are faced with the dilemma of having to choose between complete rejection of modern aquaculture for its negative consequences and cautious support for improving practices. Improvements in aquaculture might contribute to ensure the income of workers and small (fish-)farmers and guarantee supply of fish for a

growing demand in a sustainable way. This way, NGOs basically have to solve the problem of combining governance in the space of flows with governance in the space of places, by determining how global fish trade should be organised while at the same time controlling the local environmental impact of aquacultural production and the food safety risks for consumers. Many NGOs are struggling with this complex challenge and they identify different, sometimes even opposing, solutions.

In particular, the disastrous effects of shrimp farming in many developing countries have drawn the attention of international NGOs, such as the Environmental Justice Foundation, Greenpeace and Christian Aid (Maybin and Bundell, 1996; Barnhizer, 2001; Greenpeace, 1997).<sup>235</sup> In their discourse, the negative environmental consequences of shrimp farming tend to merge completely with their devastating social impact upon the local populations in developing countries, whose livelihoods get destroyed. They claim for example, that 'domestic and foreign investors with few or no ties to local communities exploit the (coastal) areas and undermine the base of natural productivity on which the traditional residents depend. (...) This industrial shrimp aquaculture (produces) a high value cash crop to feed rich consumers in United States, Europe and Japan' (EJF, 2003b: 26). Furthermore, these NGOs argue that industrial shrimp farming producing for a global market requires large quantities of wild-caught fish to feed the shrimps and causes the destruction of mangroves or other coastal wetlands which are in use as agricultural land, thereby forcing the displacement of thousands of people endangering their food security. Other environmental problems such as the pollution of surface water through the use of pesticides and antibiotics may create human health risks, in particular when thereby the quality of their drinking water is worsened.<sup>236</sup> Reducing these negative consequences requires, according to these NGOs, a fundamental reorientation towards organic and diversified systems of aquaculture adapted to the local context, a reduction in the use of fish products as feed and a willingness among consumers to pay a much higher price for their fish products. Achieving this solution should be based on recognising the rights of the local community securing their participation in all transition processes towards less intensive and more sustainable shrimp farming. Further intensifying the existing technologies in aquaculture should not be considered a solution for the problems, because this would primarily aim at solving the shrimp industry's internal problems and not the problems caused by this industry for the local populations. Western consumers should boycott shrimps that are produced through a-social and environmentally destructive practices (buycott, see chapter 3). Several NGOs consider this a support for a transition towards smaller-scale and extensive shrimp farming in the hands of local people—including traditional rotational systems—in combination with the improved protection of wild shrimps and fish stocks through the use of sustainable methods.<sup>237</sup> International donors and Western governments should develop and apply sustainability criteria for the use of foreign aid and international funds in financing shrimp farming in developing countries. These demands are, for example, formulated in the Choluteca declaration (Accion Ecologica, 1996b) as 'a global moratorium on any further expansion of shrimp aquaculture in coastal areas until the criteria for sustainable shrimp aquaculture are put into practice'.<sup>238</sup> Western governments and shrimp importers should also participate actively in organising sustainable trade (Roberts and Robins, 2000).

Some other nature conservation NGOs, such as the International Union for the Conservation of Nature – Marine and Coastal Programme (IUCN-MCP), advocate the creation of marine reserves. Such reserves would promote, influence and catalyse the sustainable use and equitable sharing of marine biodiversity resources as well as protect the ecosystems (Tsamenyi and McGorm, 1999).<sup>239</sup> Thus, many environmental NGOs concentrate on organising governance in the space of places through defining sustainable shrimp farming as one based on the ideal-type

of traditional integrated practices under the control of local populations. Consumers should pressurise governments and private firms to promote such sustainable practices while they reduce their own shrimp consumption at the same time. Problematic in the approach most of these developmental and environmental NGOs is their failure to recognise the global character of shrimp production and trade. Their alternative governance arrangements are mostly based on a locally defined sustainable model of shrimp farming demanding nation-state intervention to ensure its implementation. It seems problematic for them to identify innovative governance tools in the space of flows, fitting in a globalised food supply chain. Such governance instruments are however necessary in the context of globalised shrimp production and consumption. In this situation, the possibilities for shifting production areas are growing while the, already seriously limited, capacity of many national governments to effectively control local production practices seems to decline only further.

Whereas NGOs have more or less the same opinion about the way to solve the problems of shrimp farming in developing countries, they have more diverging views with regard to salmon raising. NGOs like WWF (especially their Norwegian branch), Friends of the Earth Scotland, Coastal Alliance for Aquacultural Reform (CAAR) and the David Suzuki Foundation, all seem to agree on the environmental risks involved in intensive salmon raising. The main environmental risks they identified were water pollution through the discharge of organic waste, which creates eutrophication, and the spread of antibiotics, chemicals and metals (particularly copper). The biodiversity is furthermore considered to be threatened by the use of fishmeal, the spread of sea lice, the escape of farmed salmon and the killing of salmon predators. CAAR adds several human health risks to this overview, because intensive farming proliferates diseases, that already occur naturally, involves dangerous levels of PCBs and dioxins, adds colouring additives to produce pink salmon and uses antibiotics.<sup>240</sup> The David Suzuki Foundation points also at the dangers for the livelihoods of local fishermen catching wild salmon by the falling prices for salmon due to the growth of farmed salmon production.<sup>241</sup> In contrast to the broad consensus regarding the environmental problems of salmon fish farming, these NGOs disagree on possible solutions. WWF does not make a particular choice and just underlines the need for additional research to achieve sustainable practices (WWF, 2003). Friends of the Earth Scotland pleads for organic salmon farming, more diversification and land-based containment.<sup>242</sup> The David Suzuki Foundation, on the other hand, does not see any realistic possibility for a more sustainable salmon aquaculture and considers safeguarding the traditional, local wild salmon fishing as the only sustainable alternative. Most NGOs, nevertheless, agree on the need for active engagement by national governments to control salmon farming and to enforce sustainable production. Friends of the Earth Scotland, for example, asks for a national government policy to reduce stocking densities, to relocate or remove farms and to label farmed fish to allow consumers a choice. WWF proposes the development of 'a code for responsible aquaculture' and in the longer term an environmental certification scheme for farmed fish products. The CAAR suggests a social and environmental regulation of salmon farming by national governments and until then consumers should refuse to eat farmed salmon which therefore would have to be labelled. Finally, according to the David Suzuki Foundation national governments should enforce environmental protection and no longer promote salmon farming.

Interestingly, apart from the code of conduct suggested by WWF, no NGO is demanding global governance arrangements and they call upon consumers to put pressure on their national governments to take the necessary measures, basically looking for ways to re-establish conventional nation-state based regulation in the space of place. For a long time, NGOs' engagement with aquaculture seemed to concentrate on production practices and it is only very recently that some organisations take consumers and their practices serious.

An interesting and innovative attempt to bring in the consumers in the debates while enhancing governance in the space of flows, are 'consumer guides'. These guides aim at reducing the environmental impact of fish farming (and fisheries in general) by active consumer engagement. For example, the Audubon Society explains on its wallet: 'consumer demand has driven some fish populations to their lowest levels ever. But you can be part of the solution. You can choose seafoods from healthy, thriving fisheries'.<sup>243</sup> The Seafood Choices Alliance concludes that: 'government regulation of the fishing industry has failed to protect the resource. (But) over time, we believe that the choice made in the open market place will influence the seafood industry and government regulators in favour of better conservation of ocean resources'.<sup>244</sup> These guides can be considered a form of subpolitics introduced to promote more sustainable fisheries in general (not limited to aquaculture). Several NGOs have developed rather simple tools, buying guides, to help consumers and restaurant chefs to choose between different fish species on the basis of their relative environmental impact. Although the specific form varies, these guides all differentiate between the fish species common at the local markets that can be bought without problems and those that should not be bought for environmental reasons. The guides themselves often lack details about the criteria used to rank the different species, but this information can often be found among the web-based background information. The Audubon Society seafood wallet card uses several, general criteria to rank different species: the abundance of the species (threatened/endangered or not), the fishing methods and the management arrangements. The Audubon Society seafood wallet card, for example, provides an overview of the 30 most popular species and puts them in a ranking order according to their environmental impact.<sup>245</sup> The Monterey Bay Aquarium has produced the 'West Coast seafood guide' which is updated at least twice a year, using the motto: 'You have the power. Your consumer choices make a difference'.<sup>246</sup> The pocket seafood selector from Environmental Defense distinguishes two categories: 'best fish' (21 species) versus 'worst fish' (18 species), both presented in alphabetical order.<sup>247</sup> Others are developed by the (US) Conscious Choice, Seafood Choices Alliance, the (Dutch) North Sea Foundation, the (UK) Marine Conservation Society (MCS) and the Blue Ocean Institute.

Although these guides are prepared for specific local consumer markets and for a limited period of time, reference to specific local production circumstances even with regard to farmed fish remains exceptional. Fish is categorised according to general (categories of) species and not to where and how they were actually caught or raised. In these consumer guides fish produced through aquaculture is generally just listed among wild caught fish without further explanation. Shrimps are for example categorised in the red and not further differentiated into farmed and wild caught/trapped. The consumer guide recently introduced by the North Sea Foundation in the Netherlands does in general not make a difference between farmed or caught species. But this guide forms an exception when in the case of salmon a differentiation is made between MSC-labelled Alaskan salmon which is considered green, Norwegian farmed salmon which is orange-red and Scottish salmon which is red, while Chilean farmed salmon is considered to be even further in the red: 'do not buy for the moment, choose an alternative'.<sup>248</sup> Nevertheless, despite the absence of specific differentiation between farmed and wild caught fish, in general mussels and clams are ranked among the environmentally friendly species because they filter feed plankton from the water, do not require wild fish for nourishment while their production does not cause habitat disruption. On the other hand, most guides consider salmon and shrimps in general as rather problematic.<sup>249</sup> In the exceptional cases where the criteria for judging the environmental impact of aquaculture are mentioned explicitly, they remain rather general: most farmed salmon 'are raised in net pens, like cattle in a feed lot, use captured fish for feed and pollute the environment through discharging waste and chemicals and putting

human health at risk through the spread of PCBs and dioxins' ([www.mbayaq.org/cr/cr\\_seafoodwatch/sfw\\_ac.asp](http://www.mbayaq.org/cr/cr_seafoodwatch/sfw_ac.asp) accessed 28 October 2003). Shrimp farming is considered here the potential cause of harm to the coast in tropical countries and to social problems as a consequence of the conflicts between different groups of land users and the declining employment opportunities.<sup>250</sup> Incidentally some NGOs suggest alternatives for particular farmed fish products, for example the Monterey Bay Aquarium recommends to substitute farmed salmon by arctic char, rainbow trout or wild salmon and imported farmed shrimps by wild shrimps and by US farmed shrimps raised with environmentally friendly methods. In general, NGOs point to raising fish inland, using closed re-circulation systems to filter wastewater, as the way forward to improving the environmental performance of aquaculture. According to these organisations, farmed fish can thus only be considered a supplement and not a replacement of wild seafood, because aquatic technology can never provide the variety found at sea and moreover because fish-farming continues to be dependent on the sea for its inputs. Limiting fish farming to raising filter feeders (mussels etc.) and plant-eating fish would be considered an optimal solution according to many NGOs.

A more complex innovative regulatory instrument that includes governance in the space of flows is constituted by programmes for certification or labelling of particular environmentally friendly fishing practices. One well-known example of a voluntary eco-label for fisheries is the Marine Stewardship Council (MSC) label. Initiated by the World Wildlife Fund (WWF) and Unilever, the MSC label is designed to establish a global system of sustainable fisheries that will provide powerful economic incentives for well-managed sustainable fisheries and stop a catastrophic decline in the world's fish stocks by harnessing consumer power (Constance and Bonanno, 2000). The MSC label conveys to the consumer otherwise unobservable information concerning a product's environmental impact. Thereby this label allows consumers to buy seafood products that are sustainably caught and creates a market-based signal and incentive to resource managers to maintain sustainable fisheries resources. Research has shown that consumers are prepared to choose sustainably produced fish products provided the price difference with conventional products is not too large (Roheim and Donath, 2003).<sup>251</sup> Until now, the MSC label is not applied to fish farming but only to specific capture fisheries. (See chapter 7 for further details on the MSC-label.)

The focus on consumers as a driving force to enhance sustainable fisheries, makes consumer guides and environmental labelling of fish an interesting innovation towards governance in the space of flows. However, the categorisation using fish species only without further details referring to the production practices applied, makes the tool rather blunt. Such consumer guides may therefore raise consumer awareness, but without regulation in the production areas, in the space of places by national governments, the growing consumption of not endangered species may eventually result in endangering them as well.

## 6.11. Conclusions

The global character of production, trade and consumption of fish and the large differentiation in species and production practices seem to make regulating aquaculture rather complicated. These complications are even further intensified through the overlap with wild capture fisheries. Aquaculture may have considerable environmental problems and food safety risks. The environmental problems mostly have a localised character, but the actual locations are constantly moving due to environmental effects and marketing opportunities. Food safety risks have a global character by definition as fish trade has become global. Governance is even more

complicated because fully opposite views exist on the future of aquaculture, on the one hand optimism about potential technological innovation towards better controlled, closed systems (de-localised) against tradition-based integrated systems mimicking ecosystems (localised).

Governance in the space of flows is not very often attempted in the case of aquaculture or for that matter in the case of fish production and consumption in general. 'Trade has become a driving force in the global fishing enterprise, influencing the species of fish targeted and farmed, the intensity of fishing pressure, and, in many cases, the incentives for fishing either sustainably or destructively' (Kura et al., 2004: ix). An exception concerns the presence of antibiotics and other potentially harmful substances in fish which get regulated, but where no global agreements exist.

The focus has generally been on governance in the space of places: reducing the environmental impact of fish farming either by preventing it or by strictly controlling it. This chapter has shown the involvement of many different social actors in the search towards sustainable aquacultural practices. The result is a plethora of governance arrangements based on the space of places alone, partly as a failure by some proponents to recognise the flow character of aquaculture-based fish production and consumption. National government arrangements will however not be able to effectively control aquaculture production as this practice is increasingly capable of moving around the world linking into global supply networks. Direct control of fish farming through government-based regulations therefore requires world-wide arrangements as well as the willingness and capability from all governments to implement such arrangements. The complexities of fish farming, including technological change and different definitions of sustainability, as well as interference with wild capture fisheries make it rather unlikely that such global arrangements will become reality. A more fundamental problem is the interference between nation-state based regulation of localised environmental impacts and globalised trade which falls outside the control of the same government. Producer guidelines and codes of practice, such as those suggested by FAO, GAA and FEAP, may provide incentives to producers for improving their environmental performance and thereby supplement government regulation. However, this approach remains restricted to govern local practices and disconnected from expenditure and global trade. This way such codes may constitute an interesting step towards governance in the space of flows but require being supplemented by other forms of governance. Innovative new alternatives to government-based regulations are the establishment of consumer guides and the implementation of certification schemes. Both forms of governance are oriented towards consumer involvement with the intention to pressurise governments, producers and traders/retailers to provide fish in a sustainable manner. Consumer guides are place and time bounded because they provide information to consumers on a specific regional or national market and have to get adapted over time due to the changes in the environmental conditions surrounding fisheries and fish farming. Such guides provide rather general information, focussing on species and very little information on production practices, except for incidental references to 'farmed' fish. This way, consumer guides constitute a form of governance in the space of flows but differentiating only between general characteristics of fish species but not between different production practices. Consequently, consumer guides seem for the moment to aim primarily at national governments thereby reconstituting governance in the space of places. Certification schemes on the other hand are linked to specific production practices and local producers and as certified products can be marketed globally, this can be considered a governance in the space of flows. Linking certified fish consumption globally with environmentally improved practices at the local level, may constitute a driving force towards extending environmentally sound fish farming for example through further technological innovations.<sup>252</sup>



## Notes

- <sup>151</sup> Problematic is furthermore the difficulty that the particular risks involved in aquaculture sometime merge with the problems of capture fisheries in general and vice versa, particularly at the level of trade and consumption because there fish is rarely separated on the basis of its original production process.
- <sup>152</sup> Nearly 95 per cent of the people depending on fisheries for their livelihood live in developing countries (Aerni, 2001: 5).
- <sup>153</sup> The variations in growth rates can partly be explained by the differences between various animals with regard to the efficiency in converting grain into proteins. For cattle in feedlots, it takes roughly 7 kilograms of grain to produce a 1-kilogram gain in live weight. For pork, the figure is close to 4 kilograms per kilogram of weight gain, for poultry it is just over 2 while herbivorous species of farmed fish, such as carp, tilapia, and catfish, need less than 2 kilograms.
- <sup>154</sup> Different new preservation techniques have made this possible. Besides the traditional techniques of drying, salting and smoking, early 19<sup>th</sup> century canning was added and cooling in the second half of the 19<sup>th</sup> century, followed in the early 20<sup>th</sup> century by freezing (Anderson, 2003a).
- <sup>155</sup> 'Net export revenues from fish exports earned by developing countries reached US\$ 17.7 billion in 2001' (FAO, 2004a: 1). This is nearly twice that of the second major crop, which is coffee. For low-income food deficit countries alone, net export revenues were \$ 7.5 billion.
- <sup>156</sup> See Pillay (1992). Nevertheless consumer research has shown that 'although seafood is very widely acknowledged as the healthy option compared to other proteins, there are varying levels of understanding and knowledge about detailed health properties' (Gross, 2003: 411). Western consumers prefer carnivore fish more than herbivore (York and Gossard, 2004) and their rising income encourages 'away-from-home food expenditures and provides the discretionary income needed for purchases of higher valued prepared food products' (Harvey, 2003: 2). 'It appears that economic development spurs Asians to eat considerably more fish compared to other cultural regions' (York and Gossard, 2004: 300).
- <sup>157</sup> Countries are divided as follows in these four groups: West (Europe, N/S America, Australia and New Zealand), Asia (east), Africa (sub-Sahara) and Middle East (west Asia and north Africa).
- <sup>158</sup> For example, 'some roe herring harvested in Alaska is exported to China where the roe is extracted, processed and exported to Japan. The carcass is retained and utilised in China' (Anderson and Martínez-Garmendia, 2003: 45). The processing of fish into surimi (an intermediate product of fish protein concentrate developed in Japan) provides another example of the industrialisation of fish. Despite this trend towards increasing industrialisation (rationalisation and vertical integration) of the capture fishery industry, artisanal fishing and intermediary markets still do exist both in developed and in developing countries.
- <sup>159</sup> 'The gross tonnage in the world's fishing fleet grew 91 percent between 1970 and 1992' as a result of subsidies for vessel construction and operation (Hanna, 1999: 277). The situation is aggravated by large bycatch and poor post-harvest facilities. An estimated average of 27 million ton of fish are annually discarded from commercial fisheries, representing about 20 per cent of the total catch (Garcia and Willmann, 1999: 7).
- <sup>160</sup> The environmental impact of fish processing has not been the object of intensive study except that the waste produced by fish processing plants is characterised by 'their high organic load (protein and fat); thus their dumping to aquatic receptors involves large oxygen consumption' (River et al (1998: 218).
- <sup>161</sup> Aquaculture may range from small-scale owner-operated fish ponds to large-scale corporate farms (Pillay, 1992).
- <sup>162</sup> Main producer countries of fresh water fish are: 8.7 million ton carp (China), 0.7 million ton tilapia (different parts of the world), 0.13 million ton eel (Japan), 0.13 million ton trout (Norway, Chile, Scotland); and for salt water fish: 4.3 million ton shrimp (Thailand, China, Vietnam), 1.0 million ton salmon (Norway, UK, Chile), 0.12 million ton sea-perch and sea-bream (Italy, Greece, Spain and France) 0.04 million ton

turbot (Spain, France) (Luiten, undated).

- <sup>163</sup> Growing opposition to coastal fish farms led to a recent innovation in aquaculture: 'open ocean aquaculture', which is fish farming in the exclusive economic zone (3 – 200 miles off the coast), also allowing culturing species such as halibut and cod. This way some of the risks of current aquacultural systems are reduced or avoided such as the risk of eutrophication because the intensity will be lower. On the other hand, open ocean aquaculture is privatising part of the ocean on behalf of corporate fish farms and may lead to growing risks for fish escapes, transference of disease to wild fish, discharge of sewage and unsustainable use of marine resources (Belton et al., 2004).
- <sup>164</sup> Interestingly, 'aquaculture, which was once considered an environmentally sound practice because of its traditional polyculture and integrated systems of farming based on optimum utilisation of farm resources, including farm wastes, is now counted among potential polluters of the aquatic environment and the cause of degradation of wetland areas' (Pillay, 1992: vii). However, as 'much of the present-day opposition to development is caused by lack of correct information' (Pillay, 2001: 7), the author claims that many problems can be solved by providing the correct information to the general public.
- <sup>165</sup> See for example, 'the critics portray fish farming as an alarming environmental and health hazard, not a potential source of food for the world's rich and poor alike. But they glide quickly over the fact that modern aquaculture is at an early stage of development. (...) New technologies, new breeds and newly domesticated species of fish offer great hope for the future' (Economist August 9<sup>th</sup>, 2003: 19). And Harvey (2003: 1): 'while terrestrial-based livestock production has taken hundreds of years to convert over from small-scale subsistence production to today's large-scale operations, aquaculture operations have been trying to make the switch from wild harvest to large-scale farmed production in a matter of decades.'
- <sup>166</sup> The continuous rising average trophic level of fish raised in aquaculture for Western consumer markets is a worrying trend because this requires more wild fish for feeding (Goldberg et al., 2001).
- <sup>167</sup> Many observers ascertain a correlation between the local environmental impact of aquaculture and the intensity and scale of production, in particular when large numbers are concentrated in protected areas with insufficient water exchange (Tacon and Forster, 2003; Pillay, 1992; Folke et al., 1998). However, aquaculture also has to maintain a minimum water quality level to be productive and prevent massive damage. The exact minimum quality standards, particularly with respect to temperature and salinity, depend on the species cultivated. Further requirements are optimum levels for dissolved oxygen, pH, carbon dioxide, ammonia, nitrites, nitrates, hydrogen sulphide, pesticides and turbidity (Pillay, 1992).
- <sup>168</sup> In line with growing interest for animal welfare in general, the welfare of fish is also drawing increasing attention, although this depends on the specific species concerned. Several issues may be of concern in aquaculture, depending on the species involved and the particular techniques used: the density, feeding, transporting and killing of fish as well as the treatment of diseases (Eijk, 2001).
- <sup>169</sup> Pillay (1992: 68) reports concentrations of 430 g antibiotics per ton fish produced. He also observes that 'because of its broad spectrum of activity, chloramphenicol is favoured in mollusc, shrimp and prawn hatcheries'. In Norway the overall amount of antibiotics used in salmon aquaculture declined from 48,000 kg in 1987 to 680 kg in 1998, while salmon production grew dramatically. This decline in volume of antibiotics may however be partly due to the use of more potent antibiotics (Weber, 2003).
- <sup>170</sup> Since 1994, the EU completely forbids the presence of chloramphenicol in fish, but the detection limit with the accepted testing methodology was 5 ppb (part per billion) and exporting countries used this as the 'de facto' standard. However with the introduction of new testing technologies the detection threshold became 0.05 ppb and when the EU used these tests chloramphenicol was detected in shrimps coming from China and nitrofurans in shrimps from Thailand. Since these findings, the EU has begun testing 100 per cent of shrimp imports coming from Thailand, Vietnam and Myanmar. The Vietnamese vice-minister of fisheries called the EU's 'zero-tolerance' antibiotic residue policy unrealistic and a technical barrier to trade that intentionally obstructed food exports from Asian countries. He claimed that antibiotics are present in the majority of water streams all over the world due to past use, thus a zero-tolerance threshold is untenable.

In practice the accepted level depends on the current technology for analysis, so it would be better to establish a maximum residue limit. Nevertheless, Thai shrimp farmers bought testing equipment to ensure that their exports would no longer be rejected (<http://www.shrimpnews.com/Chloramphenicol.html> accessed 4 November 2003; <http://www.nfi.org/index.php?a=issues&b=International%20Trade&x=1571> (accessed 7 November 2003).

- <sup>171</sup> New and Wijkström (2002) claim there is no compelling evidence that farmed fish contain generally higher dioxin residues than wild fish. Nevertheless, the dioxin levels in fish vary according to the origin of the fish and their diet. Consequently, fish products from European origin contain much higher levels of dioxin than those originating from Chile and Peru.
- <sup>172</sup> After the BSE-crisis, see chapter 4, questions were raised whether mammalian Transmissible Spongiform Encephalopathy (TSE) agents could establish themselves in fish and spread through intra-species and intra-order recycling via feed and whether species adaptation to such agents could occur. The Scientific Steering Committee of the European Commission concluded that there is no evidence of such a risk. However, because theoretically some risks could exist, they advised that potentially TSE-infected feed should not be fed to other fish and that sourcing of fish by-products should not be performed from fish that have been exposed to potentially infected feed (European Commission, 2003). Furthermore, the introduction of GM-fish is the subject of hot debates about the potential risks caused by transgenic fish escaping to surrounding stocks. So far genetic transformation of fish has only been performed in laboratories and a few outside trials, but no commercial introductions have been established. The one exception is 'glowfish', which was produced in the US for ornamental purposes in 2003. (See Bartley and Hallerman (1995) and Maclean and Laight (2000).)
- <sup>173</sup> See Jenkins (2003) for a case study of Atlantic salmon and its decline in the state of Maine. Interestingly, already more than a century ago attempts were made to increase the number of salmon through active human interventions.
- <sup>174</sup> Salmon aquaculture as such already originated in 1857 in Canada, but large-scale salmon raising only exists since the 1960s when fenced fjords in Norway became used.
- <sup>175</sup> Norway is the leading farmed salmon producer by virtue of its advanced technology, nutrition and farm management, quality stocks, disease control, appropriate environment and facilitating regulations (Anderson et al., 2003b). While pen-raised salmon farming extended all around the world in the 1980s, Alaska placed a permanent moratorium on this technology 'because of environmental concerns and, more importantly, the risk of negative economic impacts on the (existing) Alaskan salmon industry' (ibid.: 64).
- <sup>176</sup> In the rapidly changing global salmon industry just a few multinational companies account for a growing share of the production and frequently they have strong ties with the feed industry (Nutra, Ewos/Cermaq and Ecofeed). For example, Nutra, the world's biggest farmed salmon producer since 2000, accounts for 16 to 20 per cent of global farmed salmon production and approximately 40 per cent of the world's salmon feed (Gilbertsen, 2003).
- <sup>177</sup> In order to inform consumer about the presence of colour additives in farmed salmon, three major grocery chains in the US have decided to use labels or signs. This was probably done under the pressure of lawsuits accusing these companies of misleading consumers ([www.just-food.com](http://www.just-food.com): dd. 2 May 2003).
- <sup>178</sup> WWF claimed that in 2002 more than 630,000 farmed salmon had escaped in Norway alone—more than the total number of the already-endangered wild Atlantic salmon spawning in its rivers. (Reuters, 12 August 2003). Research has shown however that escaped farmed fish were only 16 per cent as productive as wild fish when spawning in the wild (Goode and Whoreskey, 2003).
- <sup>179</sup> Such disease outbreaks may have devastating consequences, for example an outbreak of salmon anaemia in June 2003 caused the slaughtering of 28,000 salmon to prevent the disease from spreading (Just-Food news, 01/07/03).
- <sup>180</sup> Food safety authorities in Europe were quick to respond to this article in 'Science', stating that the observed levels remained within internationally recognised safety limits and that consumers should

therefore not be worried when they consume fish as part of a well-balanced menu. See: the Dutch VWA (press release 13 January 2004), the UK Food Standards Agency (9 January) and French AFSSA (9 January). A fish feed processing organisation claimed that 'in many cases, farmed salmon is safer than wild because you can't monitor what the fish are eating in the open environment' (Reuters, 12 January 2004).

- <sup>181</sup> NASCO has recognised the threats involved in salmon aquaculture and elaborated protocols (1992) prohibiting non-native strains and calling for the establishment of exclusion zones around wild rivers, but they are not binding (Goode and Whoriskey, 2003).
- <sup>182</sup> In the UK public debate on salmon farming was highly influenced by the ITV documentary on 7 January 2001 'The Price of Salmon', showing images of farmed salmon damaged by sea lice.
- <sup>183</sup> In the future salmon may be (at least partly) fed with vegetarian feed: soybeans and linseed oil (Andries Kamstra from the Dutch fisheries research institute RIVO, *Volkskrant* 29/04/03).
- <sup>184</sup> This chapter only applies the term shrimp, although in some countries a distinction is made between 'shrimps' and 'prawns', but as this distinction differs per country, the more generic term shrimp is preferred here.
- <sup>185</sup> 'For example, the growth of shrimp aquaculture was slowed down considerably (but did not stop) in the late 1990s by diseases such as 'white spot' (Asia, Ecuador, the US) and 'Taura Syndrome' (Ecuador), which took their toll on nascent aquaculture producers' (Anderson et al., 2003a: 27).
- <sup>186</sup> See Skladany and Harris (1995) for a brief overview of the history of the shrimp industry.
- <sup>187</sup> Thailand's well-established value-added industry contributes to its image as a reliable source in comparison with many other shrimp exporting countries.
- <sup>188</sup> American shrimp producers are contemplating anti-dumping actions against Thai shrimp producers because they claim that Thai shrimp was sold in the US market at 57 per cent below production costs, causing economic loss for US shrimp producers. The Thai producers however point to their high expertise and a more suitable environment (*Bangkok Post*, 10 January 2004).
- <sup>189</sup> Mangrove forests support a high diversity of marine and terrestrial life through food web interactions and act as refuges and nursery grounds for many species of fish, shellfish and crustacean of commercial value or essential for subsistence fishermen (EFJ, 2003a).
- <sup>190</sup> For example, in 1995 around US\$ 100 million was spent on chemicals for use in shrimp farming in Thailand alone. See Gräslund and Bengtsson (2001) for a detailed overview of the chemical substances used in shrimp farming in Asia and their potential environmental and health effects.
- <sup>191</sup> Sometimes shrimp fries are collected as a resource base for shrimp farming and this activity is accompanied by a large (sometimes 100-fold) by-catch of other fries that are decanted, often dead. However, recently improvements in culturing seed in artificial hatcheries are being made and applied particularly in Thailand.
- <sup>192</sup> The requirement of certain shrimp species for brackish water means that, over time, salts penetrate the water table, while water exchange practices associated with more intensive shrimp farms typically involve pumping in fresh water from surrounding rivers or groundwater supplies and subsequently pumping out wastewater from the ponds into canals, rivers and near-shore waters.
- <sup>193</sup> The collapse of shrimp farming in Taiwan and the abandoning of shrimp farms in Thailand, Indonesia and Japan, after only a few years of operation is 'largely the result of overcrowding and degradation of the local environment through spreading of diseases, acidification of soils, and pollution of water' (Folke et al., 1998: S67).
- <sup>194</sup> The rapid growth of shrimp farms has led to an economic boom in the coastal provinces in the Eastern and Southern regions of Thailand, but the shrimp industry has also been plagued by boom and bust cycles primarily caused by shrimp disease outbreaks in 1989/90, 1992 and 1994.
- <sup>195</sup> 'Open systems' shrimp farming close to the sea required high volumes of saline water, exchanging between 30 and 40 per cent of pond volume per day during the later growth stages to maintain the water quality. Despite the shift to 'closed systems', they still need to add fresh and salt water throughout the grow-out

phase to offset losses from water seepage and evaporation. Interestingly, the balance between fresh and salt water has changed when low salinity culture techniques were developed 'through the efforts of innovative small-scale farmers' (Flaherty and Vandergeest, 1998: 822).

- <sup>196</sup> The smaller family-owned and managed shrimp farms are more productive than the larger ones because their feed conversion rate is lower (i.e. require less feed for growing shrimps) than at larger farms (ASCC News Q 3/1992/Issue No 11; ASCC News Q 4/1994/Issue No 20).
- <sup>197</sup> The industries associated with shrimp farms include: the shrimp feed industry; the capture and supply of wild broodstock by fishermen; hatchery production of nauplii and shrimp seed; nursery operations; pond water quality and shrimp disease testing (laboratory services); manufacture and sale of shrimp farm equipment (e.g. paddlewheels and water pumps); live and pellet feed processing; cold storage plant construction; and shrimp processing and exporting.
- <sup>198</sup> CP owns feed and feed input (fishmeal, flour mills); provides laboratory services to growers; has an export trade company, processing factories, hatcheries, and corporate farms; and plays a major role in research and development (Lebel et al., 2002).
- <sup>199</sup> Shrimp processing industries in Thailand were employing some 60,000 workers during the mid-90's (Thailand Department of Fisheries) and the labour is particularly intensive, where young women work for long hours against low pay (Goss et al., 2000).
- <sup>200</sup> Consumers in these high-income countries demand convenience, are concerned with quality, want food that is varied and interesting, nutritious and healthy, and increasingly want their food to be produced in environmentally and socially ethical ways. See for an interesting case, the import prohibition by the United States of certain shrimp and shrimp products brought before the dispute-panel of the WTO by several Asian countries, the so-called 'shrimp-turtle' or TED case (Shahin, 1999; Charnovitz, 2002).
- <sup>201</sup> Huitric et al. (2002) observe that in Thailand landownership and landholding rights are considered the most important private property rights, a constitutional right. The legal strength of these rights has complicated the implementation of regulations that affect them. This seems to contradict the conviction of many observers that individual property rights are the best guarantee for sustainable use.
- <sup>202</sup> For example, very large variations were found between different studies in Thailand estimating the impact of the growth in shrimp farming areas on the reduction in mangrove forests whereby these estimates varied between 12.5 per cent and 64 per cent (Kaosa-ard and Wijukprasert, 2000).
- <sup>203</sup> Sediments also contain chemicals to control shrimp diseases, aquatic vegetation and other nuisance organisms whereby the presence of antibiotics is particularly worrying. Most farmers use especially oxytetracycline, prophylactically to prevent outbreaks of disease by distributing medicated feed of which over 95 per cent is not assimilated by the shrimp (Flaherty et al., 1999: 2052).
- <sup>204</sup> The total production area was limited to a maximum of 80,000 ha. and all shrimp farms larger than 8 ha. should be registered and allocate at least 10 per cent of the total area for a treatment pond. The BOD from water discharges must not exceed 10 mg/l and sediments must not be disposed in public areas.
- <sup>205</sup> These regulations had limited effectiveness also because authorities at the same time continued subsidising shrimp development and lifted the ban on logging mangrove areas.
- <sup>206</sup> The HACCP team of the Thai Department of Fisheries has developed a generic model for HACCP for aquaculture shrimp and adherence to these guidelines will allow shrimp farm to be HACCP labelled, which is a condition for export to EU and US. This model monitors especially the food safety risks, such as hygiene and the use of pesticides and antibiotics.
- <sup>207</sup> An advertisement claims that zero-exchange ponds produce ten times more shrimp than semi-intensive ponds and forty times more shrimp than extensive ponds. They also have almost zero impact on the environment (<http://www.shrimpnews.com/NewTechnology.html> accessed 4 November 2003). A disadvantage of these systems are the higher investments required.
- <sup>208</sup> Until that time, regulatory regimes were guided by the doctrine of the freedom of the seas and the inexhaustibility of the ocean fisheries (Allison, 2001).

- <sup>209</sup> Government measures to limit fishing activity contain state-regulated licence limitations, total allowable catches, closed seasons, closed areas and a host of technical measures related to the dimensions and design of fishing gear. This form of management places considerable demands on financial and human resources and government expenditures vary from 2 – 70 per cent (average 6 per cent) of the landed value of the catch in the OECD countries (Allison, 2001).
- <sup>210</sup> Therefore, Hanna (1999: 279) concludes, ‘the promotion of effective governance does not depend on a particular property rights regime but rather on an institutional environment that promotes these basic functions.’
- <sup>211</sup> The costs of compliance with sanitary and phytosanitary requirements that developing countries face when accessing developed country markets can be very high, in certain cases prohibitively so (Henson et al., 2000). A Code of Practice for the Products of Aquaculture is proposed by the Codex Alimentarius and in 1997, the Codex incorporated the HACCP to ensure the safety of fish for human consumption. These regulations were mainly developed in joint co-operation with the industry itself (Read and Fernandes, 2003).
- <sup>212</sup> Labelling, generally voluntary, but sometimes mandatory as well, has predominately been a European phenomenon (Roheim, 2003).
- <sup>213</sup> The EU is developing ‘tracefish’, a voluntary scheme to trace the history, application or location of fish, relating to its origin and its processing history. Tracefish aims at an information technology based scheme of chain traceability for the fish industry both for wild capture fisheries and for aquaculture (Denton, 2003). The scheme’s focus is on food safety risks which are hoped to be diminished through transparency. The required information can be distinguished into three categories: 1) the basic traceability information, 2) specific (legally required) information, and 3) commercially desirable information. The system does not look for perfect traceability (allowing a particular retail product to be traceable back to a single farm, but takes a pragmatic approach allowing traceability back to a finite number of farms.
- <sup>214</sup> China has developed a fish polyculture where silver carp and bighead carp are filter feeders, feeding on phytoplankton and zooplankton, respectively. The grass carp feeds largely on vegetation, while the common carp is a bottom feeder, living on detritus that settles to the bottom. Most of China’s aquaculture is integrated with agriculture, enabling farmers to use agricultural wastes, such as pig manure, to fertilise ponds, thus stimulating the growth of plankton (Frankic and Hershner, 2003).
- <sup>215</sup> Replacing fishmeal and fish oil with alternatives that are not dependent on the limited resources of the sea would be essential for sustainable aquaculture, as well as reduced seed collection from the wild through setting up hatcheries.
- <sup>216</sup> Such completely closed systems requiring only water supply to fill the system and replace evaporation may be especially applicable for hatcheries and other more small scale aquacultural systems (Pillay, 1992).
- <sup>217</sup> Onshore production can minimise problems that plague marine aquaculture operations, such as coastal habitat destruction and excessive nutrient pollution, which can cause algae blooms. It also reduces the risk of introducing non-native species through escapes and spreading diseases that fish in high-density confinement are prone to (Brown et al., 2003).
- <sup>218</sup> For more concrete examples: see STT (2003).
- <sup>219</sup> The FAO Code of Conduct for Responsible Fisheries, adopted in 1995, was expanded in 1997 to include aquaculture (Read and Fernandes, 2003). The Kyoto declaration (1997) provides additional pressure to reduce fishing capacity, to strengthen the scientific basis for multispecies and ecosystem management, to reduce incidental catch and to strengthen institutional co-ordination (Hanna, 1999). ‘With respect to the respective duties of (developing countries) government and aquaculturalists (formulated in legal institutional frameworks) to ensure that aquaculture is sustainable, it was noted that roles tend to be formulated in an indicative manner rather than in an imperative manner. The latter is more common in developed countries’ (Van Houtte, 2001: 106).
- <sup>220</sup> An example is the so-called Oslo-agreement signed in 1994 by seven member countries of the North

Atlantic Salmon Conservation Organisation (NASCO): the 'Convention for the Conservation of Salmon in the North Atlantic Ocean to minimise impacts from salmon aquaculture on the wild salmon stocks' through the well-considered siting of salmon aquaculture operations and by avoiding the spread of diseases and parasites and the escapes of farmed salmon endangering wild populations. The signatories agreed to provide annual reports about the measures taken.

- <sup>221</sup> Many national governmental regulations for aquaculture are still based on a traditional command-and-control approach: banning aquaculture at certain locations, defining maximum permissible concentrations, handing out licences, etc.
- <sup>222</sup> Specific taxation of the environmental impact of aquaculture is generally turned down because of the problems for implementation, the effects on competitiveness and the risk of creating disincentives to innovation (Bailly and Willmann, 2001).
- <sup>223</sup> Paul van Zwieten (personal communication). WWF has suggested to install fish farm-free zones and marine protected areas around coastlines in developing countries to protect vulnerable species and their environment.
- <sup>224</sup> For example, the code of conduct developed by the Federation of European Aquaculture Producers (FEAP) (see: <http://www.feap.info>) and ISO 14001 (Frankic and Hershner, 2003). So far no international criteria exist for organic labelling of aquacultural products (Bailly and Willmann, 2001).
- <sup>225</sup> See <http://www.gaalliance.org> (accessed 7 November 2003).
- <sup>226</sup> For example, Ocean Boy Farms in Florida, USA Marine claims that shrimps may be produced at a large scale without polluting the environment. Their inland shrimp farm uses another fish, the tilapia, to mop up the shrimps' waste. This land-based, integrated farming techniques are promising minimal environmental costs (Economist August 9<sup>th</sup>, 2003).
- <sup>227</sup> See <http://www.gaalliance.org/revi16.html> (accessed 11 April 2002).
- <sup>228</sup> The code of practice for shrimp farming covers nine topics: mangroves, site evaluation, design and construction, feeds and feed use, shrimp health management, therapeutic agents and other chemicals, general pond operations, effluents and solid wastes, and community and employee relations. Although the GAA Board of Directors at first aimed this code to become a certification system allowing eligible products to display an ecolabel, they decided this approach was too costly, complex and prone to liability cases. The Code therefore remained a voluntary and educational program: 'intended to serve as guidelines for parties wanting to develop more specific national or regional codes of practice or for formulating systems of best management practices for use on specific shrimp farms' (<http://www.gaalliance.org/revi16.html> (accessed 11 April 2002)).
- <sup>229</sup> The environmental standards contain specific prescriptions with regard to community issues (property rights and regulatory compliance, community relations and worker safety and employee relations), environmental issues (mangrove conservation, effluent and sediment management, soil/water conservation, post-larvae sources and storage and disposal of farm supplies) and food safety (drug and chemical management, microbial sanitation and for harvest and transport), while traceability is required ('Aquaculture facility certification, Guidelines for Standards' at <http://www.aquaculturecertification.org> (accessed 13 April 2004)).
- <sup>230</sup> In their publication 'Aquamedia' FEAP claims that the history of mankind has shown a progressively more efficient use of all resources involved in the provision of food, but that fish lags behind in its basic methodology. Fish farming can contribute to fill this gap provided it is sustainable. Aquaculture is a sustainable activity when the life-cycle is mastered, the growing process controlled, the environment respected and the final product can be marketed successfully. See: [http://www.aquamedia.org/environment/sustainability/default\\_en.asp](http://www.aquamedia.org/environment/sustainability/default_en.asp) (accessed 2 April 2004).
- <sup>231</sup> See for details: <http://www.ntva.no/rapport/aqua/report.htm> (accessed 21 April 2004).
- <sup>232</sup> The principle of human equity refers to obligation to secure the rights of indigenous people and the access of poor people to fish and prevent social problems caused by aquaculture.

- <sup>233</sup> The Codex incorporated in 1997 HACCP as an approach to ensure food safety of fish.
- <sup>234</sup> See [www.graigfarm.co.uk/fishorg.htm](http://www.graigfarm.co.uk/fishorg.htm) (accessed 30 March 2004).
- <sup>235</sup> To substantiate these comments most NGOs refer to India and Bangladesh. 'Most Bangladeshi NGOs would like shrimp cultivation to cease, due to its severe environmental and social impacts, although some think it has a potential to be beneficial, provided it is carried out in a way that takes into account the environment and local needs' (Roberts and Robins, 2000: 55).
- <sup>236</sup> Some NGOs, like Greenpeace, explicitly add the use of genetically modified organisms in aquaculture and the use of exotic/alien species to the list of environmental dangers.
- <sup>237</sup> Greenpeace (1997) argues for a global moratorium on new shrimp farms that fail to comply with sustainability criteria.
- <sup>238</sup> See Accion Ecologica (1996a); <http://www.earthsummitwatch.org/shrimp/positions/pov2a.html> (accessed 6 November 2003); <http://www.earthsummitwatch.org/shrimp/positions/pov3.html> (accessed 6 November 2003); <http://www.earthsummitwatch.org/shrimp/positions/isanetguayaquil.html> (accessed 6 November 2003).
- <sup>239</sup> The IUCN also maintains the IUCN Red List which names the plants and animals (including fish) that are threatened most, serves as a tool to set priorities for conservation action and provides baseline information for monitoring.
- <sup>240</sup> Fishmeal-fed farmed salmon have higher levels of PCBs because wild salmon tend to eat lower on the marine food chain and consume more krill and shrimp.
- <sup>241</sup> See: <http://www.davidsuzuki.org> (accessed 13 April 2004).
- <sup>242</sup> See: Friends of the Earth Scotland (2001) Salmon farming – The one that got away'. [http://www.foe-scotland.org.uk/nation/fish\\_report\\_summary.html](http://www.foe-scotland.org.uk/nation/fish_report_summary.html) (accessed 13 April 2004).
- <sup>243</sup> Audubon, 2002; website [www.audubon.org/campaign/lo](http://www.audubon.org/campaign/lo) (accessed 21 October 2003). See also the Monterey Bay Aquarium: 'You have the power. Your consumer choices make a difference' Monterey Bay Aquarium, Seafood Watch, West Coast Seafood Guide, Fall/Winter 2003.
- <sup>244</sup> [www.seafoodchoices.com/whoweare](http://www.seafoodchoices.com/whoweare) (accessed 16 April 2004).
- <sup>245</sup> See: Audubon, 2002; website [www.audubon.org/campaign/lo](http://www.audubon.org/campaign/lo) (accessed 28 October 2003).
- <sup>246</sup> Monterey Bay Aquarium, Seafood Watch, West Coast Seafood Guide, Fall/Winter 2003.
- <sup>247</sup> Environmental Defense, pocket seafood selector, updated 8/21/2002; website [www.environmentaldefense.org/sustainablefishing](http://www.environmentaldefense.org/sustainablefishing) (accessed 28 October 2003). The organisation states that 'because of the variations in production practices for some types of fish, our list is limited to only those fish for which harvesting or farming practices are predominantly environmentally sound or unsound'.
- <sup>248</sup> See: <http://www.goedevis.nl/visgids/beoordeling.html>. Interestingly, the organisation decided not to include animal welfare, because of lack of reliable information, and food miles, because the environmental effect depends largely on the means of transport chosen and not on the distance alone.
- <sup>249</sup> See: Blue Ocean Institute: 'Guide to ocean friendly seafood' at website: <http://www.blueoceaninstitute.org/seafood> (accessed 31 May 2004).
- <sup>250</sup> Rather general views are presented in some guides. For example 'thousands of fish concentrated in one area produce ton of faeces, polluting the water. Diseases can spread from fish in the crowded pens to wild fish. Antibiotics and other drugs used to control those diseases leak out into the environment, creating drug-resistant disease organisms. And if farmed fish escape their pens, they can take over habitat from wild fish in the area. (...) In Thailand, Ecuador and many other tropical nations, coastal forests of mangroves once sheltered wild fish and shrimp, which local people caught to feed their families. Mangroves also filter water and protect the coast against storm waves. Many mangrove forests have been cut down and replaced with shrimp farms that supply shrimp to Europe, Japan and America. After a few years, waste products build up in the farm ponds and the farmers have to move on. The local people are left with no shrimp farms – and no mangrove forests' ([www.mbayaq.org/cr/cr\\_seafoodwatch/sfw\\_ac.asp](http://www.mbayaq.org/cr/cr_seafoodwatch/sfw_ac.asp) accessed 28 October 2003). See also: Hammond et al., 2002, [www.seafoodchoices.com/whoweare](http://www.seafoodchoices.com/whoweare) (accessed 16 April 2004) and



<http://www.msucuk.org/action/gfginfo.htm> and <http://www.mcsuk.org/action/gfgtop25.htm> (accessed 13 April 2004). The dangers of genetically engineered is explicitly used to criticise fish farming, see [www.consciouschoice.com/food/consumerseafoodguide1401.html](http://www.consciouschoice.com/food/consumerseafoodguide1401.html) (accessed 28 October 2003).

<sup>251</sup> The Pacific Coast Federation of Fishermen's Associations suggests to extend MSC labelling and to include social criteria, developing as Fair trade label (Fishermen's News of March, 2003).

<sup>252</sup> The danger remains that the introduction of labels like MSC or ISO 14000 may lead to dual markets and two different fishing practices particularly in developing countries with sustainably managed export-oriented fisheries separated from fisheries those supplying domestic markets which no environmental control at all (Allison, 2001; p. 946).



## Chapter 7. Environmental governance of global food flows: Labelling as new arrangements?

*'Many grocery packages today include "eco-labels" that make attractive claims. Grocery shelves are bulging with food labelled "natural," "free-range," and "sustainable". But much of this label is just spin.'*

(Miller, Matthew L. (2004) Good label manners. Not all 'eco-labels' are created equal. Grist Magazine, 16 March 2004).

*'From the activist perspective, market differentiation through sustainability seems a grand strategy. It comes with a catch, though. Neither consumers nor retailers are willing to cover the extra costs associated with making the transition into sustainability. Instead, the tab is being pressed on to farmers.'*

(Fox, Tom (2000) Supermarket squeeze. Tomorrow Magazine. Vol. 10 (5): 22).

### 7.1. Introduction

Every day consumers find more labelled food products in their supermarkets. Labels claiming special health characteristics of the food item concerned or labels referring to special production circumstances such as being produced in an animal friendly or organic way. And other labels that indicate that special attention has been paid to the socio-economic circumstances of the food producers.

Such labels, drawing particular attention to the social and environmental consequences of food production, are relatively new but their number has grown rapidly over the last ten years. Many private companies, NGOs and consumer organisations have initiated or supported labelling schemes, because they consider this an attractive way to deal with consumer concerns. In reaction, some commentators claim that labels just confuse the customer, are not based on any real improved practice of food production and only represent some form of 'corporate green-wash'. The presence of such opposing views makes it interesting to take a closer look at food labels and to ask whether private-initiated labelling of food and certification schemes form an interesting innovative response to the challenges facing contemporary governance of food production and consumption.

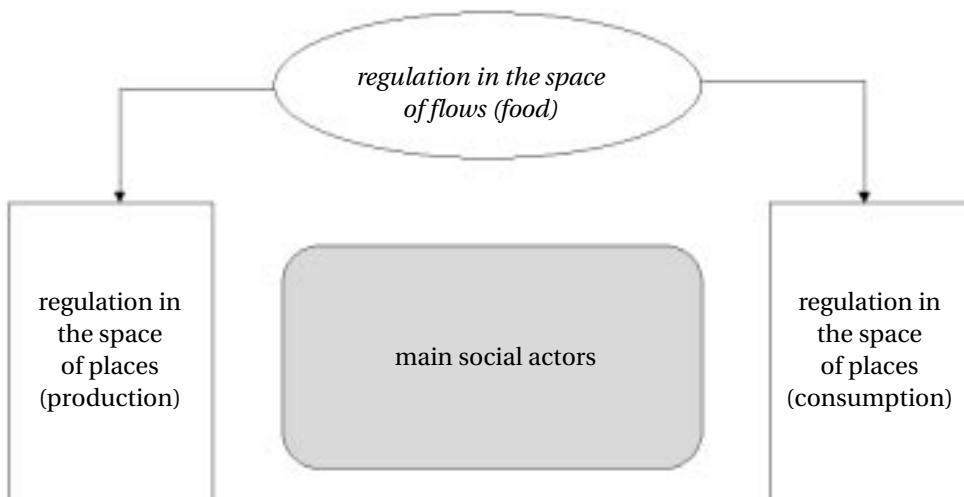
This chapter will start in section two, with formulating the problems of food governance in global modernity for which labels claim to be an adequate response. On the basis of this more theoretical review, different concrete certification and labelling initiatives will be reviewed. However, as all food labels have to function within the context of a global trade regime dominated by the World Trade Organisation (WTO), the analysis of the concrete initiatives will be preceded, in section three, by a description of the most relevant agreements within the WTO, i.e. the SPS and the TBT agreements. Then in section four two certification schemes initiated by private businesses: HACCP and ISO 14001 will be discussed. This section will be followed by the presentation of two NGO-initiated labelling schemes, starting with the Fair Trade label for coffee (section five) and then the Marine Stewardship Council (MSC-label) for fish (section six). These different certification and labelling schemes combined provide the basis for a review of the question to what extent these food labels may respond to some of the challenges identified in chapter 2. This review will be presented in the final section of this chapter.

## 7.2. Labelling and food governance in the global network society.

Labelling of food can be considered as one attempt among several others to respond to the challenge to develop a governance instrument that can be applied at the global level while simultaneously reducing the social, environmental or health impacts at the local level.

The recent process of globalisation in food provisioning brings new opportunities for food producers, along with new challenges to meet growing demands for quality and food safety. Capturing the opportunities to export high-value food products requires thus quality management from farm to table and meeting increasingly stringent food-safety standards in consumer markets (Unnevehr, 2001). Conventionally, food-quality standards were formulated by sovereign nation-states and based on different disparate culturally influenced local considerations about food. Globalisation, however, makes this option no longer feasible (Echols, 2001). A global definition of food quality and safety grounded on sound scientific research, which forms the basis of many contemporary food governance approaches, seems, however, to fail to give a large number of consumers the comfort it affords most businesses. Many consumers think that food should not be treated the same as 'a bar of soap', because 'food is more than nourishment and a great deal more than commerce' (Echols, 2001: 154). Consumers may, thus, be concerned not only about the food itself, but also about the conditions and the impacts of the production processes involved. The organisation of food production and consumption in the space of flows is at different moments and in different situations confronted with the particular dynamics of food production and food consumption in the space of places. Therefore, to understand how governance of food aims at dealing with its consequences in the context of the network society, we need to look into the interaction between dynamics at both levels and in particular at the role of different social actors. (See Figure 7.1.)

**Figure 7.1: regulation of food in global modernity**



Recent attempts to develop such governance mechanisms can in general be regrouped in two categories. The first category consists of efforts to strengthen global forms of governance building primarily on the powers and traditions of the nation-state. The second category includes ways to engage non-state actors in food governance regimes. Both kinds of efforts will be presented here briefly.

Enhanced global governance structures mostly follow the example of the nation-state, although the concrete suggestions may take different forms. Already for a longer time different observers have promoted the creation of some form of global state. A concrete model of strengthened global governance is to combine specialised institutions destined to regulate global trade politics with others focussed on dealing with specific environmental and social problems (Shaw, 2000). This would result in building specialised global institutions, replacing sovereign national states on some particular issues, like for example the International Whaling Committee (see section 5). This approach starts with the recognition that some environmental problems go beyond the capacities of national states and thus need effective supra-national institutions. These institutions should comprise a persistent and connected set of rules and practices prescribing behavioural roles, constraining activities, and shaping expectations (Haas, Keohane and Levy, 1993). The focus of such global regimes is on the governance of particular concerns in the space of flows under the control of specialised global governance structures. Other concerns are left to the responsibility of the different sovereign nation-states, allowing them to create different forms of governance in the space of places. The simultaneous presence of several specialised global institutions dealing with particular concerns makes it sometimes difficult to balance the different interests and concerns because there is no overarching structure able to make compulsory decisions. It seems nevertheless that for many observers the World Trade Organisation (WTO), charged with the regulation of global trade, is taking up this role.<sup>253</sup> Many civil society organisations criticise this role of the WTO and this was expressed very clearly in the large scale protests against the WTO, for example in Seattle (1999) and Cancun (2003).

Another group of initiatives to build more responsive global food governance regimes starts with the observation that under the current conditions of globalisation, nation-states are embedded in broader frameworks of governance. Politics in this context consist of multiple layers, from local to global, and involve multiple actors, from private firms to non-governmental interest groups (Mol, 2001). Under these circumstances, 'soft' instruments such as labels, standards, and certification schemes seem to be increasingly preferred to 'hard' instruments such as bans, moratoriums, limits or other legal requirements (Klintman and Bogström, 2004). Exemplary cases of such flexible governance instruments are certification schemes developed by private firms like HACCP and ISO 14001, particularly focussing on the safety and environmental impacts of food. Certification as a form of governance in the space of flows becomes however only possible if uniform definitions of quality and safety are available and can be determined objectively. Such an approach to governance fits in the science-based global regulation of food trade aimed for by the WTO (World Trade Organisation), through its Technical Barriers to Trade (TBT) and the Sanitary and Phytosanitary (SPS) agreements.

Although such certification schemes developed by private businesses are attractive from an economic perspective, their objective to develop a uniform global food governance in the space of flows while disregarding localised concerns and practices, remains problematic. Concrete practices of food production and processing may differ between various regions and cultures while their consequences for the environment and food safety may also diverge. Citizens and consumers in different corners of the world worry about the impact of food production on the environment and on health, as well as about its economic and social structuring (Klintman and Bogström, 2004). These concerns differ and evolve over time though. So, far from being 'scientifically neutral', governing them demands complex and extensive negotiations and debates involving divergent claims and ideologically diverse positions. NGO-initiated, or NGO-supported, food labelling schemes form the most recent initiative to deal with these problems. NGOs operating in international politics mostly focus on single issues and are in general expected to be much more flexible, faster and efficient than global state-like structures (Kleinwächter, 2003).

NGO-based initiatives are probably better integrated in networks that stretch from the global to the local and more able to cover different social, safety and environmental concerns. NGO-initiated labelling of food thus tries to respond to consumer concerns that are not dealt with through science-based governance in the space of flows alone.<sup>254</sup> These considerations apply in particular to NGO-initiated food labels providing information about production practices and not just about the content of the final product. This category of food labels preserves the identity of a particular food product throughout the food supply chain containing information about its origin and the environmental and/or socio-economic impacts involved. The reliability and transparency of these labels is considered to be guaranteed through the certification by independent and recognised third party organisations and the use of transparent, explicit and verifiable criteria (Roth and Zambon, 2001; Gallastegui, 2002; Goodland 2002).

NGO-based labelling initiatives, however, do not function in a vacuum but always in the context of a combination of global food governance and nation-state based governmental regulations. A more in-depth review of the ways in which different kinds of privately initiated food labelling and certification schemes operate may clarify how they deal with challenges facing food governance in the context of global modernity. In particular, how privately initiated food labelling and certification schemes relate to alternative efforts to create global governance in the space of flows alone and how NGO-initiated labelling schemes aim at combining different consumer concerns and at (re-)establishing consumer trust.

### 7.3. WTO and global food governance

Food labels function in a transforming governance context which was traditionally dominated by conventional nation-state based arrangements. Due to the process of globalisation, economic, social and political networks are transcending this traditional political structure more frequently and in more encompassing ways than before. In an attempt to try to counter-veil the erosion of their powers, nation-states are transferring selected powers to supra-national agencies and institutions, of which the WTO is a prime example. The WTO is responsible for a regulatory framework that increasingly orients international food trade and consequently also influences the context in which different labelling and certification schemes for food operate.

The WTO is the successor to the GATT (General Agreement on Trade and Tariffs) which was founded in 1945 to co-ordinate international trade and the relevant national regulations. The WTO is a membership organisation and has at the moment 148 member-countries, while still some 29 countries are negotiating their future accession.<sup>255</sup> The principal objective of the organisation is to facilitate international trade in support of global welfare. The WTO-approach to the governance of international trade is essentially based on economic considerations because the reduction of trade barriers is judged the best guarantee to allow countries to use their comparative advantages which will ultimately result in the optimal allocation of economic resources at the global level.<sup>256</sup> The case of food, which was only included in the WTO in 1995, forms an exception however because these economic considerations are supplemented with the need to secure the safety of food.

According to the WTO, food safety regulations at the global level should build on national food safety standards. These national standards are negotiated within the Codex Alimentarius Commission (see below) on the basis of generally accepted scientific evidence and then to be translated and reworked into global food safety standards. This approach to food safety regulation is an attempt to establish governance in the space of flows alone, because it is based on abstract principles, i.e. not related to specific considerations of place and time. Such global food

safety standards should define precise criteria for the presence of particular substances in food products, but not prescribe the ways in which food should be produced. Governing global food trade is, therefore, only acceptable within the WTO framework if it remains limited to characteristics of the product itself and is based on sound scientific evidence. Governing international food trade on the basis of characteristics of the production processes involved is not allowed if these practices do not result in changes in the products themselves. Applying the terminology used within the WTO, this means that governing international trade on the basis of 'non-product related production and process methods' is not acceptable. So, WTO-members are not permitted to distinguish between trade in food produced *with* special care for the social and environmental consequences and food produced *without* specific attention for those concerns. This regulatory approach is based on securing the global flows of food products and not on guaranteeing the specific characteristics of the places where food is produced or consumed. Following the WTO-guidelines, food products should be allowed to be traded anywhere around the globe because all necessary information can be observed in the product itself. These principles are formalised in and supplemented by two separate covenants within the WTO, the Sanitary and Phytosanitary (SPS) agreement and the Technical Barriers to Trade (TBT) agreement.

#### *The Sanitary and Phytosanitary agreement*

The SPS agreement was developed as part of the Agreement on Agriculture within the WTO in 1995 to distinguish between the justified use of trade-restrictive measures for human health and their unjustified use for reasons of protection. "The Agreement recognises the governmental and national interests in food safety regulation ("appropriate level of protection"), while significantly abridging sovereignty and rejecting cultural differences as a basis for regulation ("based on scientific principles")' (Echols, 2001: 93). The SPS agreement allows governments to develop and implement sanitary and phytosanitary measures affecting international trade as long as these measures are only applied for the necessary protection of human or animal health or plant life. Furthermore these measures have to be based on scientific risk assessment and not maintained without sufficient scientific proof. The conditions for the import of agricultural products should, according to the SPS agreement, preferably be harmonised in conformity with the guidelines from three international scientific standard-setting bodies: Codex (FAO/WHO Codex Alimentarius Commission) on human health, OIE (International Office of Epizootics) on animal health and IPPC (International Plant Protection Commission) on plant health. The SPS agreement encourages the mutual acceptance of food safety standards between WTO member states. Countries may impose higher standards than recommended by these bodies only if they are applied non-discriminatory and supported by sound scientific evidence (Mackenzie, undated).<sup>257</sup> If differences between exporting and importing countries in food safety standards lead to problems, the SPS agreement prefers a discussion between the countries concerned to settle the matter themselves. If they fail to solve the issue, a member-state can invoke formal arrangements within the WTO.<sup>258</sup> The WTO has established an internal dispute settlement procedure where a member-state may file a complaint against another member about a specific trade-related measure. Through consultations and panels the WTO attempts to settle such a dispute.<sup>259</sup> After the final judgement by the different dispute settlement bodies, the WTO remains however unable to force a member-state government to adapt its rejected laws and regulations. The organisation can only authorise those countries adversely affected to retaliate. In such cases, the WTO permits the aggrieved member to suspend trade concessions to the violating country, typically by raising tariff rates on the country's exports (Kastner and Powell, 2002).

Several aspects of the SPS agreement are not fully clear yet, but so far the interpretation of

the agreement has been dominated by the intention to facilitate global free trade as much as possible (Charnovitz, 2002a). The recent history of cases brought before the WTO dispute settlement bodies where the SPS agreement was concerned, seems to confirm the impression that the organisation only accepts the regulation of international trade when it fits into the space of flows and considers any other measure as unjustified and trade restrictive.<sup>260</sup> For example, the way the EU has interpreted and applied the precautionary principle seems unacceptable in the opinion of the WTO (see the beef hormone case: Princen, 2002 and Neumayer 2001), because a WTO-member is only allowed to call upon this principle temporarily in case of lacking clear scientific evidence for definitive decision-making. This interpretation of the agreement and the resulting consequences for consumer health and for developing countries has been severely criticised (Silverglade, 2000). The SPS agreement tends to reduce food safety standards to an acceptable international norm in stead of developing a consistent level of excellence. These critics claim that the SPS-agreement can therefore not be regarded as a public health agreement but as a business-oriented trade arrangement intended to reduce regulatory obstacles and facilitate international trade. Furthermore, another comment is that the SPS agreement does not adequately provide for special consideration of the needs of developing countries.<sup>261</sup> Finally, in applying the SPS agreement, the WTO relies extensively on decisions by the Codex to provide an undisputed scientific base, but in light of this new role, the proceedings of the Codex itself have repeatedly become political battlegrounds.

### *The Codex Alimentarius Commission*

The Codex Alimentarius Commission has become a key player in the governance of global food trade because of the explicit reference to this structure in the SPS-agreement. The Codex is an international body installed in 1962 by the Food and Agriculture Organisation and the World Health Organisation, both members of the United Nations structure. The intention of this structure is to set international health, labelling and other food standards and thereby to increase food safety and promote fair practices in food trade on the basis of scientifically sound standards (FAO/WHO, 1999; Hooker, 1999).<sup>262</sup> In 2003, the Codex had 164 members, all sovereign national states. Decision-making within the organisation takes place on the basis of consensus using the best available scientific knowledge. Since its foundation, the organisation has provided guidelines to national food safety regulations in many countries on a voluntary basis, but its guidelines and standards became much more important after the inclusion of agriculture and food into the WTO framework by 1995. This decision was based on the assumption that the Codex would provide neutral, scientific information, as the inclusion of other than scientific considerations falls outside its mandate. Thus, for example, 'Codex standards have no direct role in such areas as environmental protection, animal welfare or the protection of endangered species unless such issues directly affect food safety' (Boutrif, 2003: 86). This refusal by the Codex to include non-scientific considerations is, on its turn, criticised by several observers who claim that food governance should necessarily introduce value judgements and economic and social concerns as well. The dominant position of the Codex in global governance of food trade however, effectively excludes this possibility. The basic assumption in the Codex that science will ultimately provide undisputed grounds for decision-making about the safety of food is also contested as awareness about scientific uncertainty is increasing (Consumer Union, 1998). Finally, it seems that the key role given to the Codex in the SPS agreement results in a growing politicisation of its internal decision-making process (Motarjemi et al., 2001). Governments and their delegations participating in different Codex committees become increasingly aware of the potential impact of their decisions and therefore seem to be inclined to take particular interests into account.



### *The Technical Barriers to Trade agreement*

The Technical Barriers to Trade (TBT) agreement covers technical regulations (mandatory provisions), as well as standards (voluntary provisions) and establishes general provisions applicable to both. The TBT agreement was already adopted in 1979 within the GATT, to warrant that national product standards and technical regulations would not create unnecessary barriers to international trade. This arrangement covers industrial as well as agricultural products and contains rules with regard to the technical regulations of all products.<sup>263</sup> WTO-members have agreed to treat imported products not less favourably than 'like products' that are domestically produced.<sup>264</sup> The agreement advises member-states to use internationally agreed technical standards and regulations whenever they exist, like those developed by the International Standardisation Organisation (ISO).<sup>265</sup> Countries are nevertheless allowed to develop their own regulations under the condition they inform other member-states if they expect considerable trade effects or in case these technical regulations are essentially different than existing ones. Member-states may apply their own standards and regulations as long as they are based on sufficient scientific evidence and fulfil the criteria of objectivity, non-discrimination and proportionality and employ two basic principles. First the principle of equivalence, which encourages countries to accept each other's technical regulations when they seem different, but are similar in essence: substantially equivalent. Secondly the principle of mutual recognition, which stimulates countries to accept the results of each other's assessment procedures to avoid double testing. Because of these arrangements is the TBT agreement the most relevant regulatory guideline for eco-labelling within the WTO member-states, because they must ensure that their regulations and standards are not more trade restrictive than necessary to fulfil a legitimate objective (Appleton, 1999).

Comments on the influence of the TBT-agreement on global food governance focus on the restricted interpretation that seems to be given to it by the dispute settlement bodies. The complaint lodged by the US against the EU about its GM-food regulation procedure may provide further information about the question whether the mandatory labelling of GM food should be considered an unjustified trade barrier according to the TBT agreement (Sheldon, 2002). (See chapter 5.) Furthermore it remains unclear to what extent environmental labelling of a product can be based on a life-cycle-analysis (LCA) because an LCA explicitly includes the environmental impact of a product during the production stages (Motaal, 1999). Nevertheless, overall it seems that with regard to eco-labelling, the TBT agreement is considered more flexible than the SPS-agreement. This has become clear in the well-known examples of the dolphin-tuna case and the asbestos case disputed under the relevant WTO-procedures (Neumayer, 2001).

In combination with the SPS-agreement, this TBT-agreement forms a key part of the broader WTO based framework for international food trade governance. They clearly represent an attempt to develop forms of governance that are as much as possible oriented towards governance in the space of flows. Interestingly these governmental regulatory arrangements are supplemented by different kinds of privately initiated governance tools that allow more room for governance in the space of places.

### **7.4. ISO and HACCP as private regulatory tools**

The WTO and its specific agreements provide not only the general basis for nation-state based regulation of food but form also the background for private forms of governance. Two interesting tools for the governance of food production and consumption that rely on markets and on market-based strategies as governance in the space of flows are the certification schemes ISO 14001 and HACCP.

ISO 14001 is a general standard for the environmental performance of industrial activities, not limited to food production, developed by the International Organisation for Standardisation (ISO). The standard is being adopted by a growing number of private companies, particularly large corporations.<sup>266</sup> As a certification scheme, ISO 14001, formally adopted in 1996, was developed as a global standard in line with the ISO's overall objective to introduce technical standards to facilitate international trade. The focus of this scheme can be found in support to organisational choices and process management practices with the intention to secure the necessary environmental quality (Krut and Gleckman, 1998).<sup>267</sup> The certification of firms with ISO 14001 falls under the responsibility of independent certifying agents who are accredited by national boards that are member of the ISO. The acquisition of ISO 14001 certification by many firms world-wide has made it a recognised international indicator for high environmental performance. Consequently certified firms are more and more requiring their suppliers to be certified as well, thereby securing the environmental performance of the supply chain as a whole (Boudouropoulos and Arvanitoyannis, 1999). The WTO recognises ISO standards as compatible with its regulatory requirements for global trade and many governments furthermore consider certification with ISO 14001 as sufficient proof for the environmental performance of a firm that is legally required. ISO standards are often considered weaker than other environmental standards, particularly those developed by NGOs (INNI, 2002). Nevertheless, ISO 14001 will in the future most likely just become more important in business, policy and trade. First, because the current success of the ISO 9000 certificate can be considered a clear indicator for the potential future use of ISO 14001. Secondly, because the contemporary trend of the state forfeiting its traditional regulatory role to the private sector creates an ISO-friendly environment. And thirdly, because trade relations are increasingly reliant on international, certifiable codes for quality assurance. Although not specifically intended for food, ISO 14001 gets specifically important for food products because it represents the environmental element in a tri-partite assurance scheme wherein ISO 9000 for food quality and HACCP for food safety constitute the other two (Wall et al., 2001).

HACCP (Hazard Analysis of Critical Control Points) was introduced in the late 1960s as a voluntary approach by private firms to reduce food risks. This certification scheme functions in a way which is comparable to the ISO practices.<sup>268</sup> Over the years, particularly in the 1980s and the 1990s, HACCP became increasingly recognised and widely endorsed as a tool to eliminate identified food hazards or at least reduce them to an acceptable level (Walker et al., 2003).<sup>269</sup> Separate production processes can be HACCP-certified, but a final food product can only be certified with HACCP if all processes involved have received certification as well.<sup>270</sup> This is the main reason why retailers, especially in Western countries, are requiring their suppliers to implement a HACCP system to control the food risks throughout the supply chain. HACCP certification takes place via independent certifying agencies accredited by national boards. The growing use of HACCP as a sanitary standard in international trade led the Codex Alimentarius Commission to adopt general guidelines (1993) and incorporate HACCP into food hygiene codes (1995), however without providing detailed guidance on the implementation of this approach (Hathaway, 1995). Although initially developed as a voluntary tool for private firms to reduce food risks, the implementation of HACCP is nevertheless currently recognised by several European and the US governments as a fulfilment of their legal obligations to control food safety in a structural manner (Unnevehr and Jensen, 1999; Segerson, 1999).<sup>271</sup>

The proliferation of these private initiatives, ISO 14001 and HACCP, correspond to the wider development towards the facilitation of global food trade supported by the WTO though the promotion of forms of governance that fit into the space of flows.<sup>272</sup> Critical comments on these certification schemes point in particular at difficulties in the establishment of consumers trust,

at the position of small producers in developing countries and at the lack of evidence for a concrete reduction in the environmental impact of food processing firms.

Creating consumer trust in the safety and quality of food should, according to the WTO-oriented approach to food regulation, be aimed at through building trust in abstract institutions, particularly in science and national governments. Private certification schemes such as ISO 14001 and HACCP rely mainly on scientific procedures as well, although they furthermore point at the global character of their standards, and the independence of the certifying bodies (Unnevehr and Jensen, 1999). It is however rather debatable whether this approach will suffice to convince consumers in the context of the global risk society, see chapter 2. One may particularly doubt whether a food safety regime that is limited to science and technology and that excludes local and cultural differences as well as other consumer concerns will be successful (Echols, 2001). In addition, firms not always communicate their ISO and HACCP certification to the consumers through labelling of their food products, which makes it more a management tool than a strategy towards establishing consumer trust. Private firms, nevertheless, sometimes use the HACCP certificate to provide visible evidence more in general for their active engagement in preventing food hazards.<sup>273</sup>

Establishing global food safety norms on the basis of scientific evidence may have serious social and economic consequences for firms, who have difficulties in complying with them (Otsuki, Wilson and Sewadeh, 2001; O'Hara and Stagl, 2001; Moonen, 2004). For example, HACCP seems to have been developed from the perspective of large food companies, which makes its effective utilisation in small businesses, in developing but also in developed countries, a considerable challenge (Walker et al., 2003; Taylor, 2001). The necessary infrastructure and technical knowledge to fulfil specific requirements may be lacking while, in addition, the costs of certification may constitute insurmountable problems.<sup>274</sup> As a consequence these firms are forced either to refrain from exporting food or to become dependent on multinational firms. Sometimes multinational enterprises are willing to provide the necessary funds and control systems in their general effort to ensure safety throughout the food chain (Unnevehr and Jensen, 1999).

A particular weaknesses of ISO 14001 and HACCP certification is their focus on internal management procedures only without defining clear standards for products and processes.<sup>275</sup> Thus, certification in itself does not reveal much about the actual environmental and food safety impact except that a company's performance is conform its legal obligations (Ammenberg et al., 2001).<sup>276</sup>

These privately initiated arrangements for food governance are mainly oriented towards governance in the global space of flows and intended to assure the safety and quality of food products in general. Consequently, they are confronted with particular problems which are specific to the space of places of production and consumption, in particular the possible environmental and socio-economic problems associated with food production and particular consumer worries about food. Thus different kinds of governance arrangements are needed to include concerns that are not restricted to observable traits of the food product itself. The answer to this challenge may possibly be found in a combination of governance in the space of flows with governance in the space of places of production and of consumption. Interesting attempts to create such innovative governance tools are the labels initiated by NGOs, such as the Fair Trade coffee label and the Marine Stewardship Council (MSC).

## **7.5. Fair Trade Coffee; including environmental and social consequences of global trade**

Around 125 million people in over 50 developing countries grow coffee, mainly organised within

peasant households on farms of less than ten hectares. Coffee has been traded internationally for centuries and is integrated into global chains and networks, linking producers in countries like Brazil, Colombia and (since a few years also) Vietnam with consumers in Europe, USA and Japan.

Until 1980, national states played a vital role in promoting the production of coffee through credit-based input schemes, extension services, national systems of quality control and pan-territorial pricing. International trade was dominated by a small number of large trading companies based in the US and Europe. Simple quality conventions combining price with certain crude physical crop-properties formed the major mechanism linking suppliers with these international traders. Through the active involvement of producer-country's governments, a global regulation of the international coffee trade became formally established through the International Coffee Agreement (1962-1989).<sup>277</sup> The character of this global governance arrangement started to change, however, by 1990. During that time, the producer cartel collapsed while government support to coffee-producers in developing countries was considerably reduced forced by the implementation of structural adjustment programs. Until today, despite several attempts no promising innovative forms of government-based global coffee trade governance replacing the International Coffee Agreement, have been identified or implemented.<sup>278</sup> The institutional framework of the international coffee market is moving away from a formal and relatively stable system in which the producers participated towards a system that is more informal, inherently unstable and buyer dominated (Ponte, 2001). The disappearance of global regulatory arrangements as well as the simple quality-price matrix reinforced the already existing asymmetrical distribution of power in the coffee supply chain. Farmers in the producing countries saw their position weaken while three global residues of power (importers, roasters and retailers) strengthened their position (Fitter and Kaplinsky, 2001).<sup>279</sup> The coffee-price for farmers showed a declining trend, which became quite dramatic over the last ten years resulting in the lowest coffee price in real terms on the world market for a 100 years.<sup>280</sup> In the early 1990s, coffee-producing countries earned around US\$ 10-12 billion while the value of coffee sold by retailers was about US\$ 30 billion. By 2002, the value of retail sales exceeded US\$ 70 billion but coffee-producing countries only received US\$ 5.5 billion (Osorio, 2002a).

International coffee trade has developed into a complex and very dynamic global flow, in which private contracts between producers, traders, roasters and retailers dominate. The producer-trader-networks involved display a great diversity and, in combination with a growing differentiation of consumer tastes, they make the simple matrix that linked crop quality and price disappear. Complex standards are proliferating because the degree of differentiation in coffee blends and prices has grown significantly over the last years<sup>281</sup>. Contemporary quality standards for coffee are more voluntary and less mandatory based, while they pay more attention to production and processing methods and less to objectively verifiable product attributes (Ponte, 2002). A reason for this growing interest in production and processing methods is that while coffee-farming had little environmental impact in the past, recent efforts to increase productivity seem to lead to a considerable increase in pollution and a loss of biodiversity. Latin America, especially, has witnessed a shift from traditional shade-grown production to 'sun' coffee or 'mono-culture shade' coffee (UNCTAD and IISD, 2003). This intensification of coffee production required an increased use of pesticides, fungicides, and fertilisers and a reduction of biodiversity, especially with regard to the number of different bird species. The impact on biodiversity is particularly sensitive because coffee is often grown in areas of high biodiversity importance and high vulnerability (ibid.). Furthermore, the introduction of mono-culture coffee production systems meant aggravating soil erosion and deforestation problems. Thus the development of international coffee trade into a complex and dynamic global flow of food went

together with several negative local social and environmental consequences. This transformation simultaneously made governance at the places of production more difficult. Forced by limited financial resources and under pressure from the IMF to refrain from interference with trade, governments in developing countries were increasingly less able to play an active role in the organisation and regulation of international coffee trade.

These negative consequences of the globalising coffee-chain formed the driving force behind the creation of a fair trade coffee label.<sup>282</sup> The first fair traded coffee was produced in Guatemala and exported to the Netherlands in 1973 and thirty years later, nearly 200 coffee co-operatives representing 675,000 farmers, more than 70 traders and around 350 coffee companies are involved. In 2000, 64,100 ton of fair traded coffee (still only around one per cent of the global coffee production) were sold with a retail value of \$393 million, mainly in Europe.<sup>283</sup> North American fair trade coffee sales in 2000 amounted to only 10,400 tons for a retail value of \$64.4 million, but this market is growing rapidly (Ponte, 2002: 24).

The standards for fair trade coffee are defined by the Fairtrade Labelling Organisation International (FLO) and include social, economic and environmental criteria (FLOI, 2003).<sup>284</sup> (See Box 7.I for these criteria.) The fair trade coffee label strives at the establishment of a system of international coffee trade based on fair conditions for farmers and workers in disadvantaged parts of the Third World.<sup>285</sup> Organised farmers in developing countries are guaranteed a minimum price for their coffee, independent of the world market price while direct and long-term partnerships are built between the producer-organisations and the importers providing a basis for financial, technical and organisational support.<sup>286</sup> Roasters and retailers buying coffee from small farmers' organisations, which are registered with FLO, also have to fulfil specific requirements before this coffee can be labelled as fair trade and sold in conventional shops or through alternative trade channels.

#### Box 7.I

##### *Fairtrade criteria for coffee*

To be able to label coffee with the Fairtrade mark the coffee buyer or roaster must meet the following criteria, accept external control on compliance with these criteria and pay a licensing fee:

- \* Purchase all green coffee directly from producer organisations listed in the International Fairtrade Coffee Producers' register and give them long term (1 – 10 year) contracts.
- \* Fix the purchasing price in accordance with the standard conditions of trade set by the fair trade organisation including:
  - a minimum price for the coffee and a premium of 5 cents per pound of coffee (15 cents per pound for organic coffee) if world market prices are higher than the minimum prices set.
  - the roaster or buyer must facilitate access to crop finance for producers at the beginning of the harvest, under Fairtrade conditions, at regular international interest rates, for up to 60 per cent of the value of the contracted coffee, until the coffee has been shipped.

To be listed on the Fairtrade Register, coffee producing organisations must meet several criteria, including:

- \* The organisation is independent and democratically controlled by its members, the majority of whom are small scale coffee producers.
- \* The organisation is open to new members and no form of discrimination is practised.
- \* The organisation is committed to improving the quality of their coffee, to diversification of the production to reduce dependence on a singular crop, support social development, apply sustainable production techniques which respect ecosystems, use natural resources sustainably and minimise the use of chemical inputs.

(Source: Robins and Roberts, 1998.)

The consumer price for fair trade coffee is higher in comparison with conventional coffee to cover the additional social and environmental costs (<http://www.maxhavelaar.nl>). Although, initially the fair trade label was based on social and economic criteria alone, more recently environmental considerations were included as well. A substantial part of fair trade coffee (36 per cent of the total in 2000) is already simultaneously labelled organic and fair trade. Furthermore, contrary to the past, the fair trade standards now do include environmental criteria for the coffee producers, like integrated crop management and specific guarantees for shade-grown production (Blowfield, 1999; Abbott, Roberts and Robins, 1999).<sup>287</sup>

The fair trade label is a voluntary label and thus developed independently of national and international governmental regulations. For example, although the European Commission expressed its sympathy for these initiatives, the European Union can support fair trade only through financing promotion campaigns because its obligations within the WTO do not seem to permit other kinds of support.<sup>288</sup> Fair trade coffee, therefore, remains a private labelling initiative operating within the already existing major global distribution circuits. Contrary to some other alternative trade initiatives, fair trade does not necessarily aim at establishing a completely separate supply chain linking producers and consumers. So, on the one hand, fair trade coffee remains part of the global flow of coffee including existing trade regulations while on the other hand it builds new social relationships between the coffee producers and consumers next to their economic relationship of buyer and seller. The strategy underlying these new relationships is to provide certain categories of coffee with a specific meaning for the consumers (with regard to ecology, solidarity, fairness, etc.) (Renard, 1999). Fair trade coffee builds on domestic and civic norms, values and mentalities around trust and global responsibility. The label was developed because consumers in Western countries were concerned about the negative effects of the coffee trade on farmers' incomes in developing countries and about the harmful consequences of modern coffee production techniques for the environment. Consumers, buying fair trade coffee, are provided with 'personal relationships with farmers (through images, publicity, educational materials), trust and security in socially-responsible value claims and the elusive feel good factor' (Raynolds, 2002: 415). The specific characteristics of this relationship are strengthened because it is NGO's, supposed to act in the interests of the farmers in developing countries and not private companies, that are in control of the fair trade label. This way, otherwise similar products in impersonal markets become distinguishable, inviting consumers to take these differences into account in their purchasing decisions.<sup>289</sup>

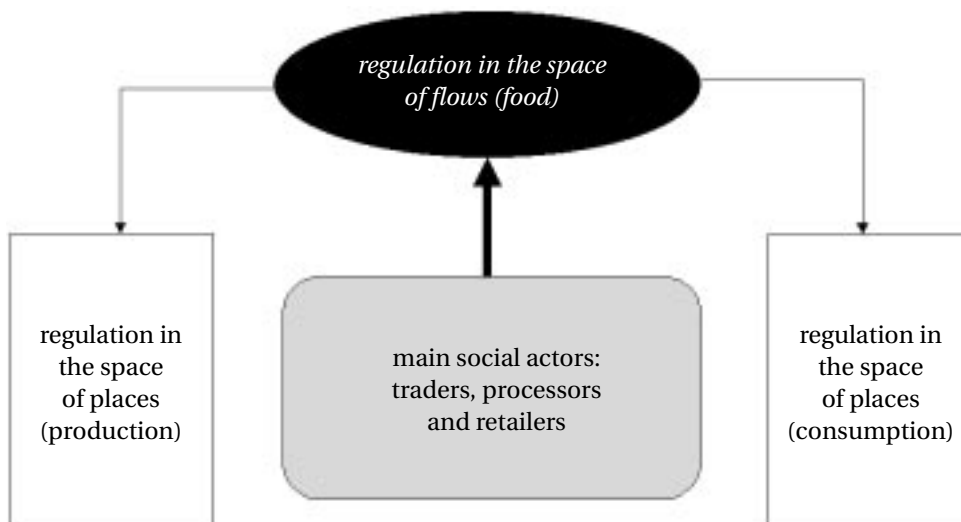
Social practices regarding coffee production are also changing because market transactions, although still guided by commercial norms and practices, are now clearly influenced by other arrangements as well. On the one hand, quality standards are inflexibly and rigorously monitored also for fair trade coffee, while delivery schedules and purchasing contracts remain based on conventional industrial standards.<sup>290</sup> But, on the other hand, fair trade prices are based on the notion of 'a fair return', covering the production costs supplemented with a social premium for development purposes. Social and cultural objectives are thus included in the organisation of global trade together with the existing economic objectives. The FLO requirement that the coffee producers are collectively organised is intended to strengthen traditionally existing civic norms, values and conventions. In addition, coffee producers' organisations are provided with technical expertise and market information via the fair trade networks, constituting a support to also strengthen their position on conventional markets. A stronger position in the conventional coffee market is particularly important because, although producer groups may be fair trade certified, this does not guarantee selling coffee under fair trade conditions because consumer demand remains insufficient compared to the total supply of fair trade coffee. For example in Central America on average only 15 – 20 per cent of the coffee production from

registered co-operatives is sold under fair trade conditions and the remaining 80 – 85 per cent still has to be sold under conventional trading conditions (Roozen and Van der Hoff, 2001: 290).<sup>291</sup>

In brief, the example of fair trade coffee shows the reality of a governance arrangement that establishes meaningful links between the places of production and consumption without necessarily dissolving global flows. Labelling coffee on the basis of social and environmental criteria by an NGO is a way to regulate coffee production and to link this to the coffee consumer without disregarding the governance in the space of flows. It offers an interesting innovative arrangement combining contributions from civil actors, private firms and governmental and multilateral institutions while simultaneously bringing social and environmental considerations into the governance of global trade next to the well-known economic considerations. Another interesting aspect of this label is the active participation of the producers (and to a lesser extend of the consumers) in translating general criteria for sustainable management to the specific local context. A drawback of fair trade labelling concerns the costs involved, because calling in certifying agencies for the certification process requires substantial funds. Even when NGOs take this responsibility, the certification process demands a large investment in time, which may create a problem for food producers in developing countries. As the weakest point, however, in the fair trade label initiative until today can be considered its limited direct effect because fair trade coffee only accounts for just one per cent of the global coffee trade.

Therefore, in order to increase the impact and to stimulate forms of global coffee trade that effectively include environmental and social considerations, different future options are discussed by several social, political and economic actors. Different considerations and governance options can be summarised under three viewpoints, using the theoretical framework elaborated above. According to the first viewpoint, fair trade coffee should be considered as just an additional niche-market next to other existing ones in a highly differentiated consumer market. This approach would not result in any alternative form of governance in the space of places, but instead limit regulation to the conventional coffee network itself, to governance in the space of flows, as is shown in figure 7.2.

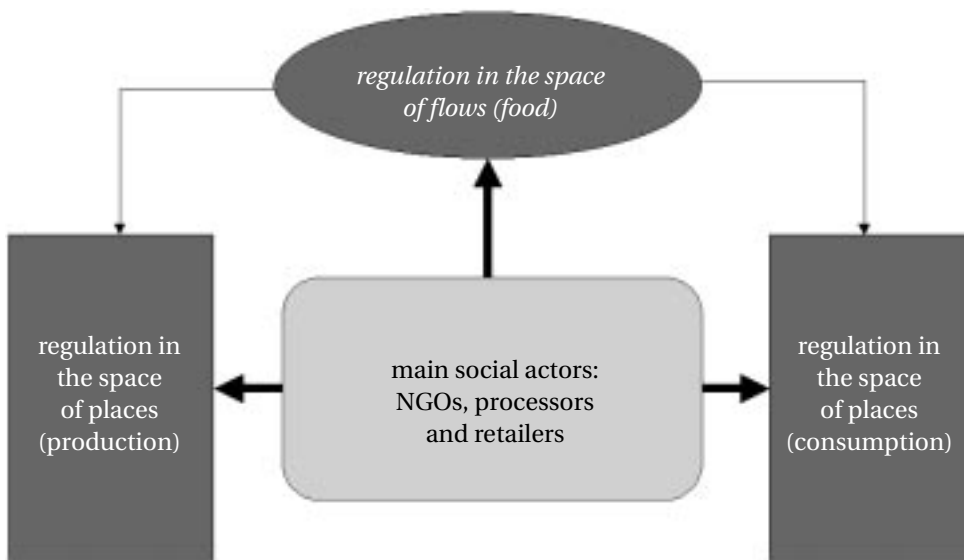
**Figure 7.2: regulation of coffee in the global market**



According to this approach the involvement of forms of global governance should remain very limited, while the governance of (potential) social and environmental consequences involved in the production of coffee should be limited to the national states and market parties.

The second viewpoint perceives fair trade coffee as fundamentally different from other niche markets because it is based on values of solidarity, ecology and fairness linking southern producers with northern consumers—contrary to conventional relationships dominated by market-based exchanges. According to this view, fair trade coffee does partly escape the logic of markets, but continues to function to a certain extent within the conventional coffee networks, while trying to find difficult compromises between ethical principles and the market (Renard, 1999; Whatmore and Thorne, 1997; Raynolds, 2002).<sup>292</sup> This view is visualised in figure 7.3 where global governance is dominated by the environmental and social interests at the place-bounded practices of production and consumption, while governance in the space of flows remains subordinated to these interests. This view has the advantage of creating an alternative network between the coffee-producers and consumers, but shows the disadvantage of remaining limited to a rather small part of the global coffee market. The central actors supporting this view on the future governance of fair trade coffee remain the Fair Trade NGOs.

**Figure 7.3: faire trade based regulation of the global coffee market**

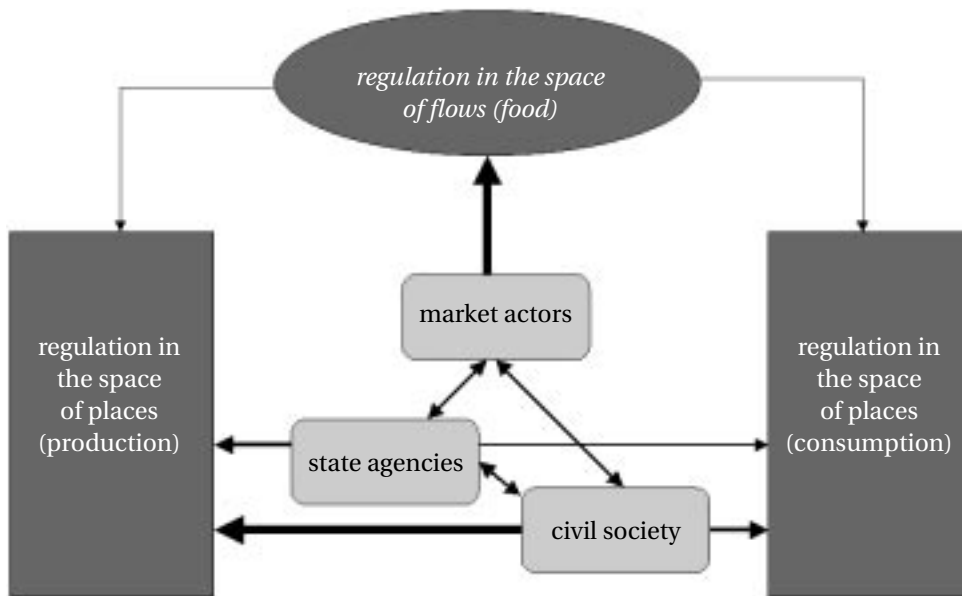


The third option views fair trade as an example for the necessary reorganisation of the international coffee market as a whole, an objective that can be achieved in two different ways. First by including fair trade principles in the WTO regulations to achieve lasting and global social and environmental improvements. This suggestions stems from the observation that only a global commodity institution managing the market can really solve the social en environmental problems (Oxfam, 2002b).<sup>293</sup> Whether such a global government-like agreement would dispose of the necessary flexibility to maintain the global flow of coffee while facilitating social and environmental governance arrangements and practices at the local level, remains a disputed question. A second option, which is shown in figure 7.4, brings environmental and social interests into the governance in the space of flows itself through the direct involvement of private



actors in collaboration with state actors. This way, different networks are brought together, existing economic networks are combined with civil society and governmental networks creating complex linkages within the space of flows between products and prices on the one hand and information, communication and participation on the other. The combined efforts of national governments, multilateral institutions such as WTO and UNCTAD, private firms and NGOs (or civil society in general) could result in a dynamic process of global governance and include ways of providing consumers with information about production circumstances throughout the coffee network. Concretely this would require the labelling all coffee traded globally to provide consumers with reliable information about production circumstances. Such a label would enable consumers, through their shopping behaviour, to indirectly influence the way in which their coffee is produced. In combination with government regulations in the space of places, both of production and consumption, this approach could encompass a much larger part of global coffee trade.

**Figure 7.4: global trade regulation of coffee**



Several observers, claim that this way of combining governance in the space of flows with governance in the space of places forms the most promising option to more fully integrate environmental and social considerations in the global coffee trade, not only through formal legal arrangements and certain limited private labelling schemes, but through collaboration between the different actors concerned.<sup>294</sup>

## 7.6. Marine Stewardship Council (MSC): global environmental governance

As already explained in the previous chapter, fish has become, in relative terms, the most globally traded food product. Despite a substantial growth in the global marine fish production from 20 million ton in 1950 to over 120 million ton in 1997, there is general consensus that fish stocks are declining because of over-fishing.

The environmental problems caused by over-fishing can be divided in the depletion of fish stocks, the reduction of biodiversity and the destruction of habitats. Some 70 per cent of the worlds' commercial fisheries are now considered fully or over-exploited and only 4 per cent are regarded as under-exploited.<sup>295</sup> Such over-fishing is reducing existing fish stocks, which will inevitably result in lower catches. The levels of by-catch (non-target fish catch) have reached threatening levels as well (some 29 million ton world-wide), contributing to a further loss of biodiversity. Pollution through processing activities at sea and habitat degradation through trawling and the use of prohibited fishing methods (e.g. using cyanide or dynamite) add to the environmental worries caused by over-fishing. These problems resulting from fisheries at sea are aggravated by other activities such as public and industrial waste discharge, tourism, and offshore oil and gas exploitation. The destruction of coastal zones, wetlands and mangrove areas by the growing aquacultural activities is impairing the role of these areas as natural spawning grounds and nurseries for the replenishment of marine stocks (Garcia et al., 1999). Over-fishing result in lower catches and revenues, a process that weakens in particular the position of the ten million small-scale fishermen, fishing for subsistence as well as providing for local markets in developing countries. As the competition from, often foreign-based, commercial fishing vessels is increasing, the number of conflicts between these small-scale (artisanal) fishermen and industrial fishing companies catching large quantities of fish is growing as well. These large fishing companies seem to bare little responsibilities for the sustainability of local fish stocks because they move easily from one fishing area to another. At the same time, however, their behaviour may result in the destruction of local fisheries when fish stocks are depleted and the food security of coastal populations undermined.

These trends combined lead to an increasing pressure on the available natural resources and a demand for governance to safeguard the remaining fishing resources for the future. Universally, scientists and politicians conclude that improved fisheries' management to conserve marine biodiversity is becoming essential.<sup>296</sup> As fish trade is globalised while both fish stocks and fishing boats move easily across national borders, such sustainable fisheries' management needs to be organised globally.<sup>297</sup> Global governance of fisheries has to combine environmental considerations with social as well as economic interests because fish is the primary source of proteins for 950 million people and offers employment to more than 35 million people (Garcia and Willmann, 1999). Regulating fisheries, however, is complicated because fish is an open access resource. 'Fishing grounds are unrestricted 'commons' areas, and the ownership of a fish is not allocated until the moment of its capture' (Stone, 2002: 290). This particular characteristic of fisheries is the main reason why their governance has remained very limited for a long time. Until the establishment of the 200-mile exclusive economic zones in 1977, oceans formed a common pool resource where everyone had equal fishing rights.<sup>298</sup> However, even after the creation of these exclusive economic zones, the problems of over-fishing and conflicts regarding access to certain fish stocks remained. Multilateral governance seemed indispensable and initially, FAO-sponsored, international commissions were created, charged with managing a specific species (for example the International Whaling Commission) or a specific area (Peterson, 1993). Global governance started with the UN Convention on the Law of the Sea (1982), but until today this convention is implemented only to a very limited extent. (See Annex 3 for further details.) The 1992 UN Conference on Environment and Development underlined the need to create more effective fisheries' and coastal areas' management regimes. In reaction, the FAO (voluntary) Code of Conduct for Responsible Fisheries (1995) and the UN Fish Stocks Agreement (1995) formulated certain guidelines for the protection of existing fish stocks.<sup>299</sup> However, despite these different initiatives for global governance of fisheries, their effects remain rather modest as some governments do not seem very committed while several others

lack the capacity to put these guidelines into practice. An additional problem is the limited participation from NGO's and other stakeholders (Peterson, 1993).<sup>300</sup> Furthermore, fisheries' issues have generally remained relatively low on governments' agendas and have also attracted little public attention from others than those directly involved.<sup>301</sup> Therefore, fish has become a globally traded food product and can be considered a global flow, but continues to lack a systematic global governance arrangement. However, because this global flow is unsustainable, as is almost unanimously agreed upon, a new way of globally governing the production and trade of fish is needed.

Some analysts consider the abolition of fishery subsidies as the only real solution to the problem of over-fishing. During the Johannesburg 2002 Conference on Environment and Development, fishery subsidies and non-tariff barriers were identified as the main factors leading to depletion of fish stocks.<sup>302</sup> 'Subsidies to fishing encourage inefficient producers to remain in the market and this results in depletion of fisheries' (Gowdy and Walton, 2003: 7). Equally, within the WTO several members pleaded for the reduction of fisheries' subsidies to spread economic and environmental benefits among its members during the 2001 meeting in Doha.<sup>303</sup> Some other national governments, in particular the Japanese, are opposing this thesis as they claim that inadequate fisheries' management is a more important factor leading to over-fishing than subsidies.<sup>304</sup> In addition, not all subsidies should necessarily be considered as having the same pernicious consequences. Some subsidies should be distinguished from trade-distorting ones because they may be regarded as beneficial both for fish stocks and for the livelihoods of fishing communities (Dommen, 1999). Reducing the fishery subsidies in the absence of a consistent global and local governance will most likely only strengthen the global flow character of international fish trade and will probably not reduce the negative social and environmental consequences.

The establishment of the Marine Stewardship Council (MSC) can be considered an interesting new initiative to improve fisheries management through more directly linking fish production with fish trade. Unilever and WWF took the initiative to establish the MSC in 1997, based on the assumption that all actors involved in catching fish in a specific area will probably have a common interest in guaranteeing the future of this fishery and thus in developing a common and coherent sustainable management plan. WWF considered improving the sustainability of fisheries with the use of a specific label an interesting opportunity for supporting sustainable development in general and a reinforcement for other already existing certification schemes in particular.<sup>305</sup> Unilever realised that the future of its commercial fishing activities would be jeopardised in the foreseeable future if the threat from over-fishing was not reversed. Initiated by these two global non-state actors, the MSC has since 1999 evolved into an independent, global non-profit organisation responsible for the labelling of sustainable fisheries using its own (MSC-) label.<sup>306</sup> The objective of the MSC is to bring environmental, commercial and social interests together in sustainable fisheries.<sup>307</sup> The organisation acknowledges that, although a transition to a more responsible and sustainable fisheries' exploitation will initially lead to a period of reduced catches, a sustainable management plan will ultimately result in a growth of the fish stocks and therefore in better yields. The MSC initiative tries to achieve this transition by harnessing 'consumer purchasing power to generate change and promote environmentally responsible stewardship of the world's most important renewable food source' (MSC-website). In order to reward environmentally responsible fishery management and fishing practices, a product label is developed on the basis of general standards for sustainable fisheries. Until August 2004, ten fisheries did receive the MSC-label, of which four can be found in the UK and the other six in the US, New Zealand, Australia, Mexico, South Africa and Scotland. Fifteen others were undergoing the certifying process: US (6), Australia (2), UK (2), Chile, Canada (2),

EU/Norway and Sweden. Finally, another group of 30 fisheries remained in different phases of the certification procedure. Certifying a particular fish stock can be a complicated process because of the many different interpretations of sustainable fisheries that need combining. These difficulties are clearly shown in the example of the New Zealand Hoki (See Box 7.II).

#### Box 7.II

##### *An example of the complications involved in MSC-labelling: the Hoki-case*

The New Zealand Hoki is a fishery labelled by the MSC-labelling organisation as a sustainable fishery while Unilever is selling its product as fish fingers (Iglo). From 2005 onwards, Unilever intends to sell only MSC-labelled fish but this aim can only be realised if sufficient certified fish is available (Deere, 1999). As the New Zealand Hoki represents a major global fish stock its labelling is considered crucial. Granting the MSC-label to the Hoki fishery has nevertheless been heavily criticised by the New Zealand Royal Forest and Bird Protection Society. Their main objection concerns the killing of seals and albatross by the Hoki fishery. Interestingly enough, although invited to do so, this NGO refused to participate in the certification process itself and criticises the final result afterwards. The MSC-labelling organisation replied to this criticism that the labelling was conditional and that several corrective actions will have to be taken by the actors involved in the fishery to retain its certification in the future. In addition, the MSC-labelling organisation claims that without the certification process many of the issues brought up by the New Zealand Royal Forest and Bird Protection Society would still be unresolved. The MSC-labelling organisation thus concludes that the label is not developed to confirm that a fishery is already sustainably managed, but that the actors involved in the fishery are engaged in taking a series of corrective actions towards sustainability that otherwise would not have been taken.

(Source: Seaweb, 2001.<sup>308</sup>)

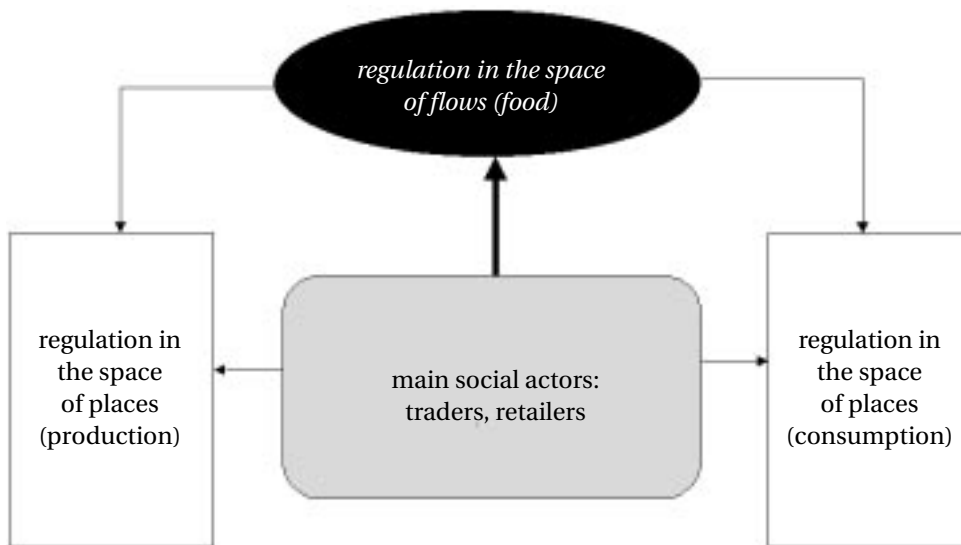
MSC-labelled fisheries have to apply certain management arrangements on the basis of the following three general MSC principles. First, a fishery must organise itself in such a way that it does not lead to over-fishing or to depletion of the exploited fish population. Secondly, a fishing operation should allow for the maintenance of the structure, productivity, function, and diversity of the ecosystem on which the fisheries is dependent. Finally, a fishery should be subject to an effective management system that respects local, national, and international laws and standards while incorporating institutional and operational frameworks that lead to a responsible and sustainable use of the resource. Guided by a certifying agent, who is accredited by MSC, these general principles are translated into a concrete and detailed management plan for a specific fishery. In this plan all actors concerned agree on the amount, the way and the timing of catching fish, as well as on the implementation of certain accompanying measures to protect the fish stock. All relevant stakeholders have to participate in the process in order to achieve public and consumer trust in the label. So, for example, certifying agents have agreed to actively contact the environmental NGO's concerned and request their participation in the process. The MSC-labelling organisation considers support from these environmental NGO's vital 'if our programme is to offer industry the credibility they expect' (MSC, 2002: 1).<sup>309</sup> A striking feature in the labelling process is that governments do not have a special position in the certification process and are considered just a participant among many others. National governments take up the same position as the fishermen or the retailers. The MSC-label allows consumers to buy fish caught with care for the environment, which is guaranteed by an independent private organisation. The MSC-labelling organisation is preparing future public information campaigns to inform consumers about the environmental impact of labelled fish-products and to encourage retailers to sell fish-products that come from sustainably managed and MSC-labelled fisheries. As, until now, the market for MSC-labelled fish remains largely restricted to exclusive restau-

rants and shops and has not yet entered the mass markets for fish, communication to the general public remains rather limited. Entering mass markets for fish consumption, using mass media, would require the availability of larger quantities of certified fish and therefore the certification of more fisheries than is currently the case.

The MSC-label is a strictly environmental label and does not include additional social or economic criteria because the organisation considers that otherwise labelling in developing countries would become too complicated. Inclusion of criteria that demand a higher social and economic performance than required by the national legislation would bring these sustainable fisheries in an even further unfavourable economic position with respect to unsustainable fisheries. Even without such social and economic criteria, MSC-labelling proves to be already very difficult in developing countries because the available information about the fish stocks and fishing practices in these countries is often insufficient for the development of a sustainable management plan. In addition, the lack of local capacity obliges many developing countries to hire expensive foreign certifying agencies. Therefore, although the MSC-label could be an incentive to implement environmental improvements also for developing countries, these countries can fulfil the conditions only with great difficulties.<sup>310</sup>

The MSC-label can be interpreted as a concrete alternative to the seemingly dominant discourse in institutions like the WTO, where thinking about a global governance of fisheries seems to remain limited to a plea for ending fishing subsidies by national governments. When, according to this view, also the access to fishing resources would be arranged through private ownership instead of public ownership, sustainability in fisheries would increase (Edwards, 2003). This approach would leave the governance of particular fishing practices and of global trade in fish as much as possible to the market and the market actors concerned (cf. Figure 7.5).

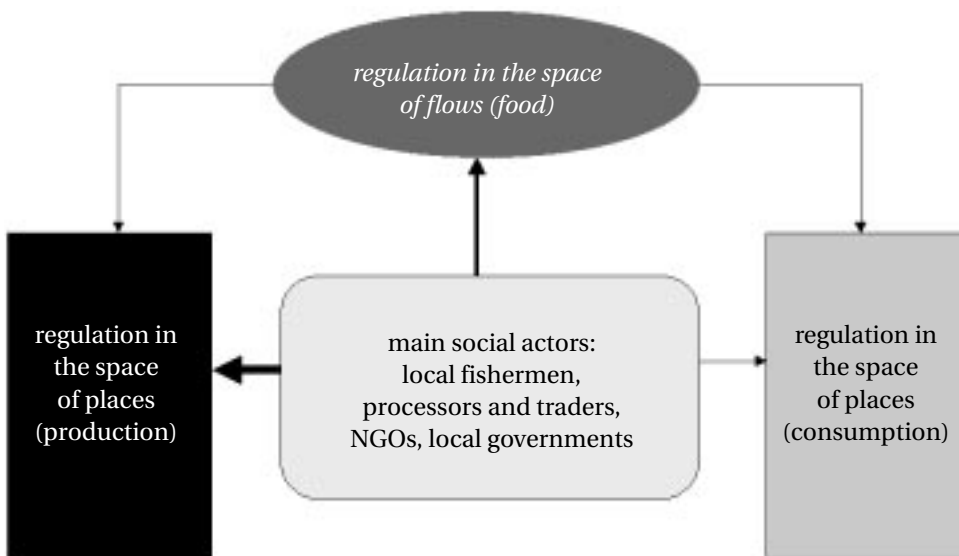
**Figure 7.5: regulation of fish in the global space of flows**



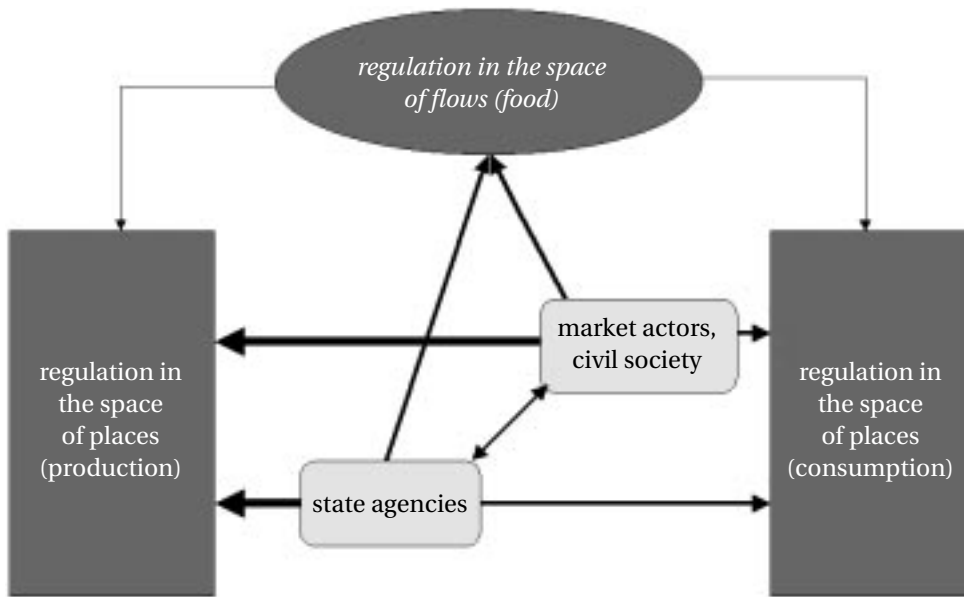
The MSC-label offers an alternative to this view by developing a form of governance which actively engages all actors concerned in the production of fish. Interestingly, the formal role of nation-states and governmental institutions in the certification process for the MSC-label remains limited, as they are considered as just one among many other stakeholders. This choice

is made to underline the private character of the MSC-label. Nevertheless, national governments have the legal obligation to protect the fish stocks within their exclusive economic zones and to co-operate with other governments in the management of shared fish stocks on the high seas (Deere, 1999). In practice though, governmental institutions remain essential to provide the necessary scientific data as the basis for fisheries management plans while in some cases, governments even finance the MSC-certification process itself. The MSC-label can nevertheless be interpreted as an interesting attempt to develop environmental governance within the local space of place (the fishery) in combination with governance in the global space of flows. The MSC-label has an explicit focus on reducing the environmental risks involved in catching fish without ignoring the importance of providing food for a global food market. The producers are actively involved in translating the general criteria of the label to concrete practices that fit into the local context. Currently, consumer involvement in the MSC label remains limited because the MSC-labelling organisation suggests that first a substantial growth in the production of sustainably labelled fish is needed before it can become worthwhile to approach consumers on a broader scale. (Figure 7.6 visualises these particular characteristics of the MSC-label.)

**Figure 7.6: regulation of fish using the MSC-label**



Some commentators criticise the MSC-label for its lack of attention to social concerns and for its limited effectiveness in improving the environmental performance of fisheries more in general. If a label for sustainable fisheries would combine social considerations with the existing environmental ones, this might result in a more intense involvement of consumers. This alternative could also try to include not only the exclusive, already more sustainable, fisheries but the still less sustainable, although improving, fisheries as well. Building on the example of the fair trade coffee label, a more inclusive regulatory arrangement could be developed such as a fair trade fish label, as suggested by the Pacific Coast Federation of Fishermen's Associations (Grader et al., 2003). This inclusion of experiences from different labels is visualised in figure 7.7.

**Figure 7.7: global regulation of fish in the space of flows and the space of places**

Although this alternative model for the governance of global fish production and trade is developed in an approach similar to the Fair Trade coffee label, it needs to pay comparatively more attention to governing the space of place of production because of the diversity in fishing circumstances and practices and the obligation to include all actors concerned.

### 7.7. Conclusion

Private food labels and certification schemes represent a particular approach to the challenge of regulating global food trade while dealing with the local environmental and social consequences at the same time. The conceptual model developed on the basis of Castells' analysis of globalisation proved helpful to identify the particular role of labels in global food trade. Current approaches to the regulation of food trade are dominated by WTO-guided perspectives, which aim at governance in the space of flows alone. These approaches are limited to the extent in which they can include social and environmental consequences. In reaction, several private firms and NGOs are increasingly introducing other regulatory instruments to overcome this limit. These instruments, such as food labels and certification schemes, intend to deal with the place-bounded impacts of global flows of food without necessarily ending up in some form of de-globalisation. The concrete examples presented in this chapter have made clear that privately initiated food labels and certification schemes can include care for the social and environmental effects of global food production and trade. Private certification schemes, such as ISO 14001 and HACCP, are mostly applied internally within the food processing firm or the food supply chain as a whole to ensure its environmental performance and guarantee the safety of food. These certification schemes mostly fit in the aspiration to develop a governance in the space of flows, because of their general and procedural approach. Moreover the certification itself is rarely communicated to the consumers directly in an effort to re-establish consumer trust.

NGO-initiated labels, such as Fair Trade and MSC, form a particular category of food labels because they seem more qualified to create the necessary consumer trust in food. Nevertheless also the NGO-initiated food labels have to function in a regulatory context dominated by the WTO-guided approach towards food governance in the space of flows. For the moment it remains unclear how both approaches will interact in the future, but it is unlikely that over time the different NGO-initiated food labels will simply be incorporated into official governmental regulations as suggested by Wessells (1998). As it is also improbable that consumer concerns about the environmental and food safety impact of food will diminish in the near future, it is more likely that new forms of collaboration between governments, private firms and NGOs will emerge.

## Noten

<sup>253</sup> For example, whether the WTO, as a supranational institution, should include environmental and social considerations in their mission or whether these should be assigned to other supranational institutions is heavily debated (Mol, 2003; Esty and Ivanova, 2002). A critical issue concerns the extent to which global institutions are representative and accountable to the 'people worldwide' (Griffin, 2003).

<sup>254</sup> Large retailers are necessarily sensitive to the demands of NGOs, especially those that attract media attention (Freidberg, 2003).

<sup>255</sup> Data on 13 October 2004. For update see the WTO website: <http://www.wto.org/index.htm>.

<sup>256</sup> The WTO itself claims that the economic case for an open trading system based on multilaterally agreed rules rests largely on commercial common sense. Furthermore, supported by evidence, since the existence of the GATT tariffs on industrial products have fallen steeply and world economic growth averaged about 5 per cent per year. World trade grew even faster, averaging about 8 per cent during the period (WTO, 2003).

<sup>257</sup> Although several aspects of the SPS agreement remain not fully clear the agreement has until now been interpreted rather restrictively to facilitate global free trade. See for example the dispute between the US and the EU about the use of growth hormones in beef Charnovitz, 2002a/b; Cameron, 1999; Echols, 2001; Kastner and Pawsey, 2002). Another example is WTO's is the dispute about the import ban imposed by the United States on tuna imports from Mexico. The US took this decision because fishermen catching tuna were killing dolphins at the same time because they swim together. The US government was ordered to ban the tuna imports from Mexico by the federal court because a California based environmental group, Earth Island Institute, sued the US government to enforce the congressional mandate under US Mammal Protection Act (MMPA). The MMPA, enacted in 1972, required the US government to curtail the incidental killing of marine mammals by commercial fishermen. In addition to imposing limits on US fishermen, the MMPA required the secretary of commerce either to certify that foreign governments were taking steps to prevent the killing of marine mammals and if they didn't to prohibit the import of tuna products from the offending countries. The federal court agreed that the US administration was not upholding the law and ordered that Mexican tuna should be banned from the country. Mexico argued that its right to sell tuna in the US had been violated and asked the GATT to arrange the matter. In September 1991, the GATT panel concluded that the US was in violation of its obligations because the GATT doesn't allow trade measures based on production practices. In addition, protection of human or animal life or the conservation of exhaustible natural resources could not justify the US ban (Appleton, 1999).

<sup>258</sup> See for details about these procedures: the WTO-website; Vogel, 1995; Neumayer, 2001.

<sup>259</sup> 'Article 3 (2) of the WTO Disputes Agreement states the Dispute Settlement Body is designed to provide security and predictability to multilateral trading, to preserve the rights and obligations of WTO-members under the various agreements and to clarify the existing provisions in accordance with public international law' (Anderson, 2002: 11)



- <sup>260</sup> The way the different panels have interpreted both the SPS and the TBT agreements is contested by several observers who consider the explanation given too restrictive from an environmental point of view. Environmental measures are not accepted even when they are clearly not intended to protect trade interests (Neumayer, 2001).
- <sup>261</sup> In general, in developing countries, 'the effectiveness of implementation of SPS requirements is constrained by available funds and technical skills' (Nyangito, 2002: 10). For example, recent EU's SPS requirements force additional costs upon all exporters of fruit and vegetables from developing countries, as a consequence some of the smaller producers and outgrowers are being deterred from any exporting to the EU (CTA, 2003).
- <sup>262</sup> The codex alimentarius currently comprises over 300 standards, guidelines and other recommendations relating to food quality, composition and safety (Boutrif, 2003).
- <sup>263</sup> Trade barriers are particularly important in agricultural trade because 'agricultural exporters may be required to demonstrate that native plant species or human health are not endangered by their products, while simultaneously complying with standards that stipulate everything from ingredients to packaging materials' (Roberts et al., 1999).
- <sup>264</sup> WTO members have sometimes questioned the extent to which the TBT agreement allows for the likeness of "products" to be extended to cover the likeness of "ppms", i.e. the extent to which products may be differentiated based on product criteria that do not affect their characteristics (Motaal, 1999).
- <sup>265</sup> Appleton (1999) comments the lack of active participation by many developing countries in these standard-setting bodies, which may result in the formulation of standards that are difficult to maintain in lesser developed countries.
- <sup>266</sup> ISO 14001 is one in a larger group of environmental management standards developed by ISO: the ISO 14000 family (1996). ISO 14001: environmental management systems, ISO 14004: general guidelines for environmental management systems, ISO 14010: guidelines for environmental auditing, ISO 14011: procedures for environmental auditing, and ISO 14012: qualification criteria for environmental auditors ((ISO, 1998).
- <sup>267</sup> The general objectives of ISO 14001 are (Boudouropoulos and Arvanitoyannis, 1999):  
to support environmental protection in balance with socio-economic needs;  
the environmental management system can be integrated with other management requirements as found in the ISO 9000 series for example;  
in order to achieve environmental objectives, the environmental management system should encourage organisations to consider implementation of best available technology where appropriate and where commercially viable.  
The standard does not state specific environmental performance criteria.
- <sup>268</sup> HACCP is a systematic approach for food industries to the identification, evaluation and control of food safety hazards. HACCP's approach is based on the prevention of known food hazards through monitoring the production processes in real-time, using physical and chemical measurements in stead of the traditional microbiological testing of samples. Seven principles are involved in this program (NACMCF, 1997):  
assess the hazard, list the steps in the process where significant hazard can occur and describe the prevention measures;  
determine critical control points (CCP) in the process;  
establish critical limits for each CCP;  
establish procedures to monitor each CCP;  
establish corrective actions to be taken when monitoring indicates a deviation from the CCP limits;  
establish verification procedures for the HACCP system; and  
establish record-keeping and documentation procedures to verify that the HACCP system is working correctly.  
The basis for this approach is found in sound scientific knowledge.

- <sup>269</sup> The initial initiatives were taken by private firms producing branded products, because in these cases food-borne illnesses could easily be traced to a particular source (Unnevehr and Jensen, 1999).
- <sup>270</sup> The costs for certification according to HACCP vary between EURO 1.600,- and EURO 16.000,- depending on the scale of the company and the type of activities ([Http://www.voedselveiligheid.nl](http://www.voedselveiligheid.nl)).
- <sup>271</sup> For example: HACCP is obligatory in the Netherlands since 1995 for the producers of meat and fish, and for retailers and restaurants. The animal fodder industry is applying HACCP on a private initiative. The Ministry of Agriculture, Fisheries and Nature management is aiming to introduce HACCP for primary producers and slaughterhouses (LNV, 2002).
- <sup>272</sup> In the context of globalised food trade there seems to be greater potential for voluntary (or market-based) approaches of food safety than for environmental protection where the possible damage are not borne by the users of the products. 'The efficiency of both the output and the safety decisions of the firm hinges on the information available to both consumers and producers and the likelihood that firms would actually be held liable for damages resulting from a contamination episode' (Segerson, 1999: 67).
- <sup>273</sup> Despite its growing popularity as the principal instrument for food safety, originally HACCP was never intended to become the exclusive regulatory tool for food safety, because even if the instrument is introduced following the best standards it is still prone to human error and failed execution. Therefore, there must always be additional controls in place for food manufacturers (Adams, 2002). Many elements in HACCP are based on a systematic application of traditional parameters of good management practices and national regulatory hygiene requirements rather than an assessment of food-borne risks to the consumer (Hathaway, 1995).
- <sup>274</sup> This may also be the case for small firms in developed countries: a Dutch potato-firm has obliged all its suppliers to become HACCP-certified and those without certificate will receive Euro 0,2 less per kg potato. The costs, Euro 240,- will be covered by the firm during the first year, but after that the suppliers themselves will have to pay. In this case the amounts are not very large, but it may have further financial consequences because on-farm processes will have to be adapted and it has direct consequences for the way the farmer is organising his production process (Oogst, 2001).
- <sup>275</sup> The legitimacy of private company-based forms of regulation is a critical issue as well and although this can be established pragmatically through the quality of the end result, it remains unlikely this solution will satisfy all concerned (Papadopoulos, 2003).
- <sup>276</sup> This comment is confirmed by the observation that there seems to be 'an inherent conflict between two necessary conditions for effectiveness in voluntary, market-driven instruments: the need for strong environmental standards and the need for widespread participation of producers' (Gulbrandsen, 2004: 95).
- <sup>277</sup> The first International Coffee Agreement (ICA) was signed in 1962 by most producing and consuming countries. Under the ICA regulatory system (1962-1989) a target price (or a price band) for coffee was set and export quotas were allocated to each producing country. When the indicator price calculated by the International Coffee Organisation (ICO) rose over the set price, quotas were relaxed; when it fell below the set price, quotas were tightened. Over the years, the ICA system became increasingly undermined by free-riding and endless discussions over quota while simultaneously the volume of the coffee traded grew, the market got increasingly fragmented and the presence of non-member coffee importing countries grew (Ponte, 2001/2002).
- <sup>278</sup> Organisations like the umbrella organisation of coffee producing countries, the Association of Coffee Producing Countries (1993) and the International Coffee Organisation have not been very successful in developing new forms of global regulation. The recent (September 2004) adherence by the US to the International Coffee Organisation might change the situation although uncertainty remains (ICO; letter from the executive director, September 2004).
- <sup>279</sup> Three international traders—Neumann, Volcafé and Cargill—control around one-third of the world-market in coffee. Four large roasters are dominating the world market for coffee processing: Kraft Foods/Philip Morris, Nestlé, Sara Lee and Procter & Gamble. Recently retailers have gained a more

prominent role in the western coffee markets.

- <sup>280</sup> The rapid increase in coffee production in Vietnam is the main driver for the growth of global coffee production. The country's coffee exports rose by 400 per cent during the 1990s and Vietnam is now the world's second-largest coffee exporting nation.
- <sup>281</sup> Ponte (2002) distinguishes seven environmental and socio-economic standards, both voluntary (NGO-based) and private (enterprise initiatives). UNCTAD and IISD (2003) identify two additional private eco-labels for coffee. In general, standards are likely to have re-distributive effects because larger estates are often better able (through their financial resources and managerial and technical know how) than small farmers to respond to specific demands. It is particularly easier for buyers to have contact with only one person/firm for a large quantity of coffee and not being forced to contact many farmers each with small quantities.
- <sup>282</sup> The coffee-hulling process, which largely takes place in the production areas, also has considerable negative environmental impacts. 'Wet processing techniques, which are used for approximately 40 per cent of the global production, generate large quantities of polluted wastewater.' (Wastewater with a BOD of up to 150 g/l. (UNCTAD and IISD, 2003: 5).) Drying the coffee beans after hulling requires large quantities of timber and contributes to deforestation. See also Dünckmann and Mayer (2002).
- <sup>283</sup> The total production capacity of the co-operatives in the fair trade register is estimated at 363,000 tons.
- <sup>284</sup> The national members of FLO in several western European countries daily manage and promote the label while FLO is monitoring this process as a whole (Oxfam, 2002a).
- <sup>285</sup> Since 1988 more than 26 million has been transferred to coffee farmers above world market prices from sales in the Netherlands alone (Roozen and Van der Hoff, 2001: 143).
- <sup>286</sup> Max Havelaar guarantees the following minimum prices for coffee: arabica-coffee 126 dollar cents per pound (456 grams) and rubusta-coffee 112 dollar cents per pound (Roozen and Van der Hoff, 2001: 142 and 145).
- <sup>287</sup> FLO has developed generic fair trade standards and they contain standards on social development, economic development, environmental development and labour conditions (FLOI, 2003). Most consumers assume that ethically produced goods have a positive human and ecological impact (Blowfield, 1999).
- <sup>288</sup> EU member states should take their WTO obligations into account when they consider introducing regulatory mechanisms based on fair trade concepts. But to the extent that fair trade initiatives remain private initiatives and operate through voluntary participation, fair trade is consistent with a non-discriminatory multilateral trading system (European Commission, 1999).
- <sup>289</sup> Fair trade labels strive to re-establish consumer trust in the origins and content of their food, attesting that items have been produced outside the agro-industrial system responsible for recent food scares and widespread environmental degradation. Consumers buy fair trade products for reasons of health, environment, animal welfare and to support people in developing countries (Browne, 2000).
- <sup>290</sup> The use of these quality standards and the certification process itself may reflect existing North/South power relations, although producer groups are involved in setting the certification standards.
- <sup>291</sup> For example the export co-operative La Central in Honduras is exporting 9,200 tons of coffee, but only 7 per cent is fair traded because market demand is limited. (Interview with Tatiana Lara, consultant at La Central.)
- <sup>292</sup> Reynolds (2002) claims that the market success of Fair Trade labelled products is also tied to the deployment of industrial conventions rooted in formal standards, inspections, and certifications and public conventions based on the increasing recognition of Fair Trade labels. Fair Trade shortens the social distance between Southern producers and Northern consumers and this is realised in a continued tension and with recurrent conflicts between: (1) traditional commercial and industrial conventions, rooted in price competition, bureaucratic efficiency, product standardisation, and formal certification, and (2) alternative domestic and civic conventions, rooted in trust, equality, global social and environmental responsibility, collective effort, and societal wide benefits. Reynolds also underlines the difference between

fair trade and other voluntary certification schemes attempting to regulate ecological and production conditions internationally because these schemes fail to engage in alternative patterns of economic co-ordination and instead rely on commercial conventions.

- <sup>293</sup> See for example the sustainable commodity initiative launched by UNCTAD and IISD to improve the social, environmental and economic sustainability of commodity production and trade by developing global multi-stakeholder strategies on a sector-by-sector basis. Identification of strategies for the coffee sector belongs to the first phase of this initiative (UNCTAD and IISD, 2003).
- <sup>294</sup> However, if such a form of regulation is to become reality in the future, the WTO should accept the inclusion environmental and social concerns as an integrated aspect of global trade regulation deserving particular attention by market partners, governments and civil society organisations.
- <sup>295</sup> The concept of 'fisheries' refers to a combination of the stock of a certain fish species in a specific area with the fishermen trying to catch (part of) this stock.
- <sup>296</sup> Technological innovations have a radical impact on the human fishing capacities. For example: 'in an hour, one factory ship could haul in as much cod (around a hundred tonnes) as a typical boat of the sixteenth century could land in a season' (MSC: Fish Facts).
- <sup>297</sup> Registration of fishing vessels under the jurisdiction of certain countries (certain flags) who do not or can not comply with international regulations is an example of this globalisation process. In the past this practice already existed to evade taxes and labour requirements, but now evasion of environmental regulations is becoming a new reason for this practice (Garcia and Willmann, 1999).
- <sup>298</sup> Countries had jurisdiction over just a narrow band of water outside their coast, usually three nautical miles wide.
- <sup>299</sup> The centrepiece in the (voluntary) FAO code of conduct for responsible fisheries (1995) is the creation of exclusive use rights combined with political institutions and economic instruments to protect the resource base (Garcia et al., 1999).
- <sup>300</sup> Scientific advice is playing a central role in policy initiatives; see the shift from measures based on 'maximum sustainable yield', via 'optimal yield' to 'multispecies management' (Peterson, 1993).
- <sup>301</sup> For example, within the WTO fish was explicitly excluded in the Uruguay Round and therefore there are no specific WTO regulations on fish like they exist for agriculture.
- <sup>302</sup> Governments present at the Earth Summit in Johannesburg, 2002, reached an agreement, although not legally binding, to restore fish stocks to a sustainable level by 2015 (Reuters, 30/8/2002).
- <sup>303</sup> The FAO estimated an economic waste due to these subsidies of US\$ 54 billion (Stone, 2002: 293).
- <sup>304</sup> See for example a submission, on 24 April 2003, by Japan to the WTO Committee on Trade and Environment (WT/CTE/W/226) protesting against automatic prohibition of certain fisheries subsidies. Japan claims that the possible effects of subsidies on resources depend on the specific resource status of the fisheries concerned and on the existing fishery management regimes.
- <sup>305</sup> The following operational principles have been identified by a panel of experts to integrate trade, development and environmental policies, (WWF, 1999):
- Efficiency;
  - Equity;
  - Ecosystem Integrity;
  - Good Governance;
  - Stakeholder Participation and Responsibility;
  - International Co-operation.
- <sup>306</sup> Other labels in fisheries are: 'mark of origin', 'dolphin safe', 'organic seafood', 'marine aquarium council (MAC)' and ISO 14000 (Deere, 1999).
- <sup>307</sup> The definition developed for **sustainable fishing** is: fisheries conducted in such a way, that:
- it can be continued indefinitely at a reasonable level;
  - it maintains and seeks to maximise, ecological health and abundance;

it maintains the diversity, structure and function of the ecosystem on which it depends as well as the quality of its habitat, minimising the adverse effects that it causes;  
it is managed and operated in a responsible manner, in conformity with local, national and international laws and regulations;  
it maintains present and future economic and social options and benefits;  
it is conducted in a socially and economically fair and responsible manner.

<sup>308</sup> See also Greenpeace Germany's (2000) statement about MSC that no fisheries should be certified that also catches endangered species like is the case with New Zealand Hoki. Greenpeace states that the MSC criteria are much too weak to really contribute to sustainable fisheries.

<sup>309</sup> The participation of WWF is used by MSC as an argument against the criticism that standards are too low or that the certificate is given too easily.

<sup>310</sup> WWF is elaborating a methodology for community based fisheries certification (see WWF website). Community based fisheries certification maximises the use of local knowledge and is based on partnership with the local fishing communities. (See the WWF Endangered Seas Campaign 2000.)



## Part 3: Conclusions





## Chapter 8. Conclusions.

*‘Erst kommt das Fressen dann kommt die Moral.  
Erst muss es möglich sein auch armen Leuten,  
Vom grossen Brotlaib sich ihr Teil zu schneiden.’*

(Bertold Brecht (1928) in the ‘Denn wovon lebt der Mensch’ from ‘Die Dreigroschenoper’)

*‘Taking action: voting with forks.’*

*Our overabundant food system, a result as well as a cause of our flourishing economy, gives most of us the opportunity to make a political statement every time we eat – and to make a difference.’*

(Marion Nestle (2002) *Food Politics. How the industry influences nutrition and health.* Berkeley, University of California Press: 372)

### 8.1. Introduction.

This study began by observing that, in the context of global modernity, the organisation of food production and consumption is changing. These changes have two important consequences, new food-related risks and concerns are emerging while conventional nation-state-based regulatory practices can no longer deal satisfactorily with food risks and concerns, either old or new. Consequently, innovative arrangements are needed to respond to the challenges facing food governance in global modernity. Such innovative arrangements have to respond to different kinds of risks and concerns to achieve an environmentally effective and socially just governance of global food provisioning. Identifying such innovative governance arrangements and comprehending them better conceptually provided the main objectives for this study. The theoretical basis used to perform this task was to a large extent provided by Castells’ concept of the network society, introduced to facilitate the understanding of food production and consumption in global modernity. The central question that guided the empirical research was therefore to identify innovative governance arrangements that deal more effectively with contemporary food-related concerns than the conventional nation-state based regulations do. The ways in which such innovative arrangements would be able to combine global food supply and local impacts in a sustainable manner were studied in different cases. Effective contemporary governance arrangements might be expected to involve different social actors in multiple ways, and therefore particular attention was paid to the changing role of the nation-state, market parties and civil society organisations. The case studies were also intended to expand the existing insights into the way contemporary governance arrangements deal with multiple definitions of food quality, enable producers and consumers to choose food produced with the inclusion of particular concerns and establish consumer trust in food.

The four case studies provided clear indications of the emergence of innovative arrangements, exemplified in the plethora of new initiatives in food governance taken by different social agencies, initiatives that both supplement and compete with conventional nation-state-based food regulations. This final chapter is intended to reflect on the main conclusions of this research. The chapter starts by summarising the outcomes of the empirical chapters. The next section builds on these outcomes and aims to improve the theoretical understanding of these phenomena by making use of the sociology of flows. After the changing roles of several social agents in innovative global governance arrangements have been discussed, the chapter concludes with an epilogue providing some suggestions for future research.

## 8.2. Key changes in food governance: conclusions from the case studies.

Chapters 4 to 7 presented the results of the four case studies that clearly illustrated the fundamental changes taking place in food provisioning in global modernity. Moreover, these case studies evidently indicated the difficult challenges facing contemporary food governance arrangements and provided examples of different initiatives taken to respond to these challenges.

Globalisation is becoming a driving force in changing food production and processing practices in many parts of the world. Despite the fact that the international food trade still represents only a limited part of global food production, the impacts of this globalisation process are nevertheless radical. As demonstrated in chapter 6, for example, Thai shrimp farming may continue being organised within the local system of land ownership and regulated by local and national politics and may continue applying the locally available technology. At the same time, however, the actual shrimp production practices in Thailand cannot be understood without referring to the dynamics in shrimp markets around the globe and the international politics on food safety. Changes in Thai shrimp farming practices today are, among many other developments in different parts of the world, are closely linked to the falling shrimp production in Ecuador, to the growing worries among shrimp processing and trading firms about their image among consumers and to consumer actions in the Netherlands protesting the destruction of mangrove forests.<sup>311</sup>

As a result of the process of globalisation, contemporary food production and consumption practices are changing, while the risks and concerns associated with these practices are also beginning to display novel characteristics. In the BSE crisis, analysed in chapter 4, governments in Western Europe were confronted with the unexpected side-effects of modernisation in beef production and processing. Another example is the uncertainty about the possible effects of GM-food production and consumption, particularly in the longer term, which made the public debates on GM-food regulation rather complex (see chapter 5).

While the potential effects of contemporary food risks seem to be increasing, the capacities of national governments to deal effectively with them seem to be diminishing. Science no longer seems able to find definitive and undisputed solutions to new emerging food problems and to provide unambiguous guidance to government regulations. As a consequence, the search for alternative solutions to particular contemporary food problems has undermined the previously existing certainties framed in standard nation-state and science-based risk politics. In the case of BSE, a complex and dynamic process of interaction between different national and EU-level regulations started to provide solutions. One of the striking consequences of this development was the introduction of the precautionary principle in EU food regulation which fundamentally changed the role of scientific evidence and allowed the introduction of non-scientific considerations in regulatory arrangements. It was in particular this precautionary principle that afterwards resulted in the intensive debates with US authorities on how to regulate GM-food. By offering the possibility to refer to the precautionary principle, the EU obscured the previously clear relation between science and politics.

In addition, the problem of simultaneously balancing economic interests, food safety and environmental concerns raised difficult challenges for contemporary politics. Moreover, besides the problem of defining clear political guidelines regarding food, national governments are no longer able to fully control contemporary food risks. Today, food risks may be the result of particular food production and processing practices occurring at large distances in space and time. Inversely, regulations in one country may lead to unexpected consequences in other parts of the world. For example, the public and political discussions between the USA and the EU on GM-food regulation resulted in intense conflicts about the presence of genetically modified

maize in food aid provided to the starving populations of countries in southern Africa.

All case studies showed the growing involvement of non-state actors in the debates on food governance arrangements in global modernity. However, the solutions to contemporary food problems suggested by these non-state actors varied largely. Some commentators, for example, considered the BSE crisis an indication of the fundamental flaws in the modern industrial way of food production for which only de-modernisation could provide an adequate solution. Others suggested that further modernisation through adaptations in production and processing practices and more intensive official control through labelling and traceability of beef would provide the safety assurances needed. On the basis on such different suggestions, non-state actors are becoming involved in contemporary governance arrangements in different ways. The food labelling schemes initiated by NGOs (see chapter 7) contributed to the development of innovative arrangements. Such schemes allow the inclusion of characteristics of food production and trade practices in regulation which go beyond labelling product characteristics only, as is the case in most governmental regulations.

The globalisation of food production and consumption, the emergence of new food risks, the limits to conventional nation-state-based regulation and the growing involvement of non-state actors in different debates and practices form a complex challenge to food governance in global modernity. As a consequence, these transition processes have evoked a confusingly large variety of responses. A clear example of this confusion is the diversity in attempts to govern aquaculture (see chapter 6). The worldwide declining fish stocks endanger future fish catches at sea, but if and under what conditions aquaculture will be able to fill the gap between consumer demand and the supply of fish remains unclear. While some NGOs are protesting against modern aquaculture in general because they consider it an unsafe and unsustainable activity, other NGOs are trying to encourage the consumption of fish from more sustainable origins by introducing consumer guides. At the same time, aquaculture producer organisations are introducing different codes of conduct to contribute to sustainable fish production, while national governments take decisions on spatial planning for aquaculture to ensure more sustainability. The situation becomes even more confusing because of the realisation that, for producers, fish from aquaculture may be clearly distinguishable from fish produced through catchment fisheries, while these different categories merge into one global flow of fish for most consumers.

This case of aquaculture makes perfectly clear how confusion is further complicating already seriously debated contemporary food governance arrangements. Past certainties about regulating food seem to have disappeared and it seems that all consistency in regulatory arrangements is disappearing as well. How can we make sense of this confusion in which all coherence between levels, actors and responsibilities seems to have disappeared and a growing variety of different governance arrangements is being introduced? How can these more intense and more diversified challenges and tasks for governance be organised against the background of diminishing state power? How can governance arrangements cover multiple qualities and risks related to more diverging food flows distantiated in time and space while including more actors from different backgrounds (North – South, consumers, producers, NGOs, etc.) in the regulation processes?

### **8.3. Governing food in global modernity: theoretical reflections.**

One of the reactions to this confusion and to the potentially negative consequences of globalising food provisioning is to stop this trend and to redirect this modernisation process towards different forms of local food provisioning. This way the fluidity of the global food supply will be

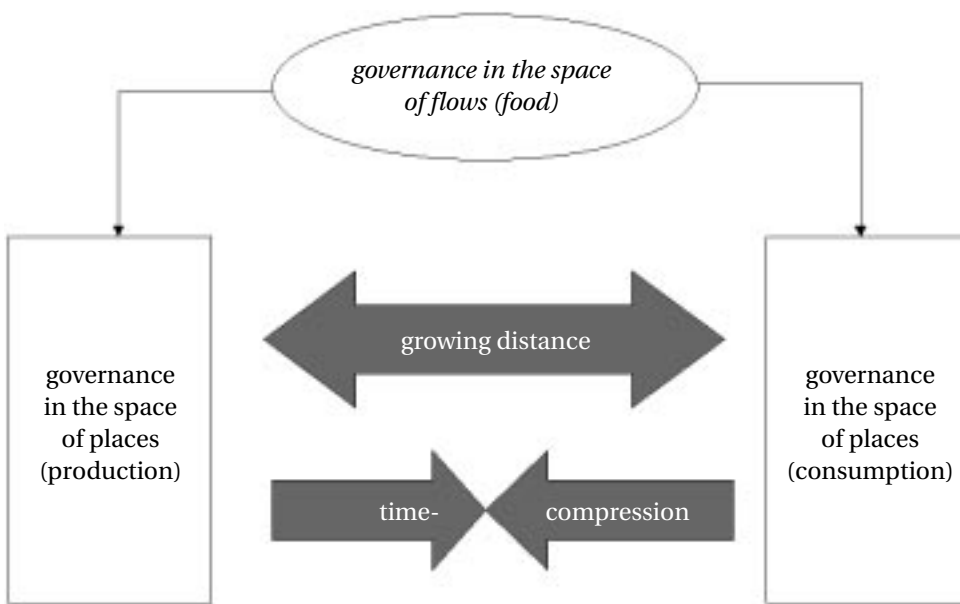
replaced by the specificity of locally or regionally organised food production and consumption. The creation of short food supply chains would re-establish direct contacts between producers and consumers and should thereby reduce the environmental impacts of globalised food production and consumption. In addition, a process of regionalisation would stimulate (regional and seasonal) diversity in food products and reduce the need for conservation technologies.

Regionalisation does, however, not necessarily provide the only adequate response to the negative impacts of globalising food provisioning. First, as large quantities of food are already traded globally, re-creating short food supply chains does not seem to be a realistic option for the foreseeable future. It remains quite unlikely that consumers in richer countries will be prepared to forego many of the food products they are able to consume today. Secondly, suggestions for the creation of short food supply chains seem biased towards the food producers and mainly intended to counter the trend towards declining farmers' incomes, while the genuine inclusion of consumer interests is questionable. Building personalised trust requires intensive face-to-face interaction between producer and consumer, and it seems rather unrealistic to expect consumers to routinely spend the time needed for such interaction with all the different producers involved in provisioning their food. Finally, a fundamental problem in designating short food supply chains as the sole response to the complex problems resulting from the global food supply is the conflation of rather diverse concerns (environmental, food safety, socio-economic, ethical, animal welfare) into the one dimension of space only.<sup>312</sup> The distance between man and nature is growing through the process of industrialisation and the formation of increasingly complex food supply chains in global modernity. But in suggestions for localisation, this social-theoretical distance is equated with the physical distance between the food producer and consumer.<sup>313</sup> Therefore, the intuitively attractive identification of localisation and de-modernisation as the only adequate response to the problems of globalising food provisioning can be seriously questioned.

If regionalisation is not necessarily the only or the best response to the challenges of the global food supply, other solutions have to be identified, solutions that are capable of effectively contributing to more sustainable and socially just global food provisioning. Governing globalised food supply, or global food circuits (Vander Meulen, 2000), necessitates more than simply adding a new global-level arrangement to the existing local and national ones. Although the nation-state is not becoming redundant, state agencies alone, be it at the national or international level, cannot sufficiently fulfil this task by themselves (Held et al, 1999; Held, 2004). As the discussion in chapter 7 on food regulations developed within the WTO-framework for global food trade has made clear, such arrangements are severely restricted in the kind of concerns that can possibly be included, while they are also limited in the possibilities for public participation. State-based solutions are not able to respond adequately to the complex interaction taking place between practices organised in the space of flows at the global level and the different particular practices structured in the local space of places. Thus, if de-modernisation or localisation is insufficient and if global government arrangements in the space of flows alone are too restricted, alternative new arrangements are required. During the 1980s and the 1990s, the diminishing governance capabilities of the nation-state were explained through the increasing strength of market actors vis-à-vis state actors resulting from globalisation. As discussed in chapters 2 and 3, however, to better describe contemporary practices of global actors like TNCs and the incapacity of nation-states to balance their power, new social science concepts and research methods are necessary, a sociology of global flows going beyond societies (Urry, 2000). Adequate governance arrangements have to acknowledge that in the global space of flows, food provisioning becomes increasingly disembedded from the place- and time-boundedness of local space and more and more re-embedded in global flows without direct reference to distan-

ces in space and time (Castells, 1996; 1997; 1998; Urry, 2003). At the same time, such governance approaches will have to recognise that most food production practices, as well as certain food consumption practices, remain structured within the space of place. Therefore, governing the particular material and local impacts of food production and consumption should not be structured in the space of flows alone. Dynamics at both levels can not be disconnected because there is ongoing interdependence, exchange and interrelationship in terms of both the material flows and the networks involved in governing these flows. Furthermore, global food flows should not be objectified because they meander via (although are not necessarily fully controlled by) purposeful social actors (Gille, forthcoming). Therefore, adequate innovative governance arrangements have to manage material and informational flows of food at the global level and, at the same time, relate these global flows to the specific material and social impacts of producing, processing, retailing and consuming food involving different social actors. Governing food in the global network society is therefore necessarily more complicated than in the past because it has to involve a larger variety of social actors and deal with more and different concerns. (See Figure 8.1)

**Figure 8.1: combining food governance in the global space of flows with the space of places**



Consequently, governance arrangements in global modernity have to combine the two distinctive ways in which time and place are structured in order to contribute to more sustainable and socially just food provisioning at the global level. For this reason, such arrangements have to both manage the material and informational flows at different levels simultaneously and involve the relevant social actors.

An interesting category of such emerging innovative global governance arrangements aims at providing standardised information about the production practices involved. These arrangements try to combine governance in the space of flows with governance in the space of places with the help of certification and labelling schemes. This way the information about production practices is provided is not necessarily limited to product-related characteristics but can also address other producer and consumer concerns. These governance arrangements build on

transparency about the production process, traceability of the product throughout the supply chain and verifiability of the standards and criteria applied.<sup>314</sup> Food labels create connections between different (producer and consumer) concerns and between different (governmental and non-governmental) actors, enabling the building of trust. Diversified (different in priorities and culturally specific) consumer concerns are dealt with by sub-political arrangements. This way food labels link the space of flows and the space of places and define different scapes. The examples of the Fair Trade coffee and MSC labels, as analysed in this study, underline the growing importance of these arrangements. Authority and power in such approaches are distributed indistinctly and located among producers, processors, traders and consumers along the supply chain. Although labelling and certification schemes can function only within the existing context of nation-state based regulations, large private firms, such as supermarket chains and transnational food processing firms become more and more central actors in these initiatives.<sup>315</sup> Besides private firms, international NGOs claiming to represent producers and consumers are also becoming driving forces behind different certification and labelling schemes. This way, such arrangements contribute to a situation in which nation-states no longer have complete authority over the international food trade (Schaeffer, 1995; Dicken et al., 2001).

A further elaboration of such governance arrangements aims at creating direct linkages between the space of flows and the space of places. Detailed information about the food production practices involved is provided to consumers while additional possibilities for communication between food producers and consumers are established. This approach essentially tries to establish a new way of building trust within the space of flows through direct interaction between consumers and producers with the help of modern forms of communication.<sup>316</sup> The effectiveness of these approaches is limited by the costs involved and the restricted range of (mostly unprocessed) food products that can possibly be covered. In addition, such approaches require willingness among consumers to deal with food consumption not on the basis of routinised practices only, but sometimes to take conscious, reflexive, decisions.

These examples provide evidence of the range of innovative arrangements possible, presented and discussed throughout this study, aiming at combining governance in the space of flows and the space of places. The rapid spread of food labelling practices, presented in the case studies on MSC labelling and NGO-initiated consumer guides suggests a further proliferation of such arrangements in the coming years.

#### **8.4. Changing roles of social actors in innovative governance arrangements.**

These different categories of innovative governance arrangements that contribute to sustainability in global food circuits point at the changing roles of the different social actors involved. In particular, the roles of nation-states, consumers, and scientists in the governance of the global food supply seem to be changing.

Despite recent institutional reforms (Lang, 2004), individual nation-states can no longer adequately deal with contemporary food problems. Although constitutional states remain essential, at least to provide legal security, nation-states are often unable to autonomously impose independently taken decisions. Increasingly, problems do cross borders and, even when they at first seem domestic, they may ultimately prove insoluble within the national borders. The case study of BSE demonstrated how national authorities in the UK tried to solve the problem internally by introducing a national regulation based unequivocally on science-based advice. The crisis spread however to other countries in Western Europe, forcing the governments in these countries to solve the problem collectively within the European Union. Further, developing

independent national solutions was excluded because of the requirements of the common market within the EU. Increasingly, nation-states are forced to refrain from independent decision-making in the case of contemporary food concerns and to take up roles as mediator and facilitator to help develop adequate governance arrangements. As shown in chapter 5, the EU did change its original science-based approach to GM-food regulation into a much more open approach in which wider public concerns could be introduced. In addition, as in several other countries, the Dutch government also initiated a public debate on GM-food to address popular concerns through an organised exchange between different actors and their considerations. In the case of MSC labelling, nation-states did facilitate the certification process, but they were considered to be only one actor among several others when the process itself was implemented. The importance of the roles of mediator and facilitator for nation-states becomes even greater in the growing need to operate through international networks to create effective governance arrangements. The density of such networks may be strong, as in the case of the EU, or less so, as in the case of the WTO or the CBD.

Furthermore, innovative food governance increasingly involve non-state actors, resulting in non-exclusive, non-hierarchical, post-territorial, adaptive and flexible arrangements (Goverde and Nelissen, 2002; Karkkainen, 2004). Civil society organisations constitute an interesting category among these non-state agencies.<sup>317</sup> NGOs are capable of building trust between different actors in the food chain over long distances in time and space. Thereby NGOs are complementing, and sometimes even replacing, nation-state actors in legitimising particular food chains and policies. NGOs initiated the public debates in the EU on the import of GM-food from the US, and international environmental NGOs, such as Greenpeace and Friends of the Earth, incited consumer boycotts and public protests. As these protests fitted in with existing consumer concerns about food safety and resounded broadly in the media, these NGOs exercised a clear influence, resulting in essential changes in the regulatory arrangements for GM-food within the EU. The involvement of civil organisations in global governance arrangements for food will probably only increase as global government institutions on their own will be unable to fill the growing gap between global flows of food and nation-state regulatory mechanisms. Civil society involvement may, however, take different forms and not be necessarily institutionalised in dense and formal governance networks.

Another interesting category of non-state actors engaged in innovative governance arrangements are the consumers. This involvement shows that citizenship and consumerism should no longer be regarded as opposing practices and discourses.<sup>318</sup> Today no clear boundaries can be easily drawn around what is 'public' citizenship and what is 'private' consumerism. In their consumer role, critical citizens practice new forms of action, outside the formal political arena within the 'sub-political' sphere (Beck, 1992). As the case of Fair Trade coffee, (chapter 7), made clear, critical food consumers use their shopping-bag power to make conscious choices in their everyday lives, thereby directly addressing the organisation of the market and combining public and private aspects of altruism. A particular category of coffee is provided to the consumers with specific meanings (regarding ecology, solidarity, fairness, etc.). Through such a label, new social relationships are built between the coffee producers and consumers that go beyond the economic relationship of buyer and seller.<sup>319</sup> Consumer engagement in governing the global food supply is thus not only based on product prices or 'objective' information about the composition of the food product but it comprises much more intangible issues such as 'trust' and 'quality'. Different groups of consumers deal differently with these dimensions, making one homogeneous and universal governance arrangement regarding consumers and food elusive.

Finally, innovative contemporary food governance arrangements are characterised by ambivalence and ambiguity with regard to the risks involved (Grove-White, 1999; Halkier, 2001). This

uncertainty is, at least in part, the consequence of the changing role of science in global modernity. The complexity and 'invisibility' of certain food risks require the use of science to guide contemporary governance arrangements and consumer behaviour.<sup>320</sup> However, science does not offer the clear guidance for government regulations and consumer behaviour that is traditionally expected from it. Even when a widely accepted scientific agreement seems to exist, as in the case of BSE, reality may tragically prove otherwise. The absence of general scientific agreement about potential, sometime long-term, risks involved, as in the case of GM-food production and consumption, makes science-based governance arrangements even more problematic. Scientists may differ in their views on the existence and eventual consequences of the risks and on the question of whether to include socio-economic or ethical considerations in food policy making. Interestingly, the GM-food case also showed that the impact of science increasingly depends not on scientific research on its own but on the discursive and regulatory networks in which scientists have become included. In such networks scientists have to engage actively with other state- and non-state actors to effectively influence particular governance arrangements.

### 8.5. Epilogue.

Globalisation in food production and consumption is not simply an up-scaling of the food provisioning practices of the past. The process of globalisation in general is not just adding another layer to social reality, but it is fundamentally transforming a wide variety of social practices at different layers. Simply adding another level of governance will therefore not solve the problems related to food production and consumption in global modernity. Different layers in the social reality of global modernity are mutually connected and, besides their internal dynamics, interaction between them also takes place. This study has showed the usefulness of the concept of flows to understand these interactions regarding food. However, more empirical research and further conceptual clarification is needed to better comprehend and analyse current and future dynamics in global food governance arrangements.

An empirical challenge is to further identify and study innovative government arrangements dealing with global flows of food. This way our understanding of different ways to balance the interests of state and non-state and of market and non-market actors, operating different levels, can be improved. Furthermore, the ways in which governance arrangements can deal with the wide diversity and variability in food-related concerns among consumers could be further examined. How are hierarchies established among these concerns and how are they co-ordinated within the food chain? Particular attention should be paid to identify ways in which consumer concerns are dealt with that can not be expressed through the market mechanism because of lacking buying power.

Another interesting future task is to further elaborate the actor-orientedness in the sociology of flows. Arrangements intended to govern global flows of food are constantly infused with the interests and cultures of affected actors at various levels. Different flows of food exhibit different dynamics, enabling the facilitation and/or blockage of flows by social actors in different ways. Further study of these differences between flows and how different (networks of) social actors deal with them would facilitate the inclusion of analysing power relations in the sociology of flows.

Finally, a last but very important future task is to better understand the relationships between changing social practices occurring simultaneously at the global, regional, national and local levels. The concept of 'global attractor' (Urry, 2003) might provide a helpful tool to this end. A



global attractor would operate as a sort of centre of gravity within social practices. An interesting research question would then be whether 'the European virtual green consumer' is becoming a global attractor influencing food production practices and governance arrangements in several parts of the world at the same time.

## Notes

- <sup>311</sup> In November 2004, Milieudefensie (Friends of the Earth, The Netherlands) and Novib (Oxfam, The Netherlands) launched a public campaign called 'Het tragische verhaal achter de tropische garnaal' ('The tragic story behind tropical shrimp'). Through this campaign these organisations ask consumers to put pressure on their supermarkets, fishmongers and restaurants to assure that the shrimps they sell are produced with respect for 'man and the environment'.
- <sup>312</sup> Even in the case of short food supply chains, distance may be problematic, as the research done by Teng et al (2004) made clear. The distance between farmers markets and home impeded consumers from buying cheese at these markets.
- <sup>313</sup> Moreover, justifying short food supply chains with the reduction of energy use, because less transport is required may effectively result in increasing the overall environmental impact of food production and consumption as a lifecycle analysis might show. For example, when comparing different supply chains, including the energy, the fertiliser and the pesticides applied in agriculture may lead to different conclusions about the sustainability of particular supply chains. 'Food miles' alone cannot be considered the distinctive indicator for the sustainability of food provisioning.
- <sup>314</sup> In order to be successful certification schemes should be objective, based on measurable crop-specific standards, developed on the basis of a consultative process with considerable transparency and room for public comment and discussion and furthermore be driven by major actors in the market chain (governments, retailers and manufacturers (Clay, 2004; Gulbrandsen, 2004). The absence of global harmonisation and co-ordination may lead to competition between different schemes.
- <sup>315</sup> This concentration of power over the food system is becoming a remarkable phenomenon, whether one looks nationally, regionally or globally (Lang, 2004). The central role of these large private corporations should, however, not cause us to lose sight of the limits to their power in global modernity. The absence of formal and legal structures at the global level, for example complicates the operations of large multinational corporations because, despite their power, they are never sure they cannot be criticised/commented upon by other social actors. For example, their image can be damaged very rapidly by effective NGO campaigns (Beck and Willms, 2004; Lang, 2004).
- <sup>316</sup> See, for example, information provided by webcams such as seen on <http://www.petersfarm.com/NL/>. Other examples are coffee that can be traced back to the producers on the basis of the (end of sale) date: <http://www.ah.nl/perla/herkomst.jsp?id=209786&trg=perla/herkomst>. A last example is the tool developed to trace the complete supply chain for clothing produced under sustainable and fair trade conditions: [http://www.ontmoetdemakers.nl/start\\_flash.html](http://www.ontmoetdemakers.nl/start_flash.html).
- <sup>317</sup> The formation of a global civil society is not restricted to the citizens of the developed Western societies, but today includes many individuals and organisations from the South as well (Sassen, 2004; Dwivedi, 2002; Dalton et al., 2003). Although *the* global civil society remains a fuzzy and contested concept, it can be comprehended as a sphere of ideas, values, institutions, organisations, networks and individuals located between the family, the state and the market and operating beyond the confines of national societies, politics and economies (Anheier et al., 2001b; Diamond, 1996; Anheier et al. 2001a; Lipschutz and Fogel, 2002; Tews et al. 2003).
- <sup>318</sup> Conventional national citizenship is being undermined by the emerging global network society but it is not being simply and fully replaced by global citizenship. It seems that a wide variety of different citizenships is

coming about (c.f. citizenships of flows, Urry, 2000b). Citizenship is thus no longer restricted to the domain of formal politics alone and may involve other practices as well, representing an enlargement of the modern political repertoire (Held, 1987/2004). The rights and duties of citizenships in the space of flows can be instantiated through global arrangements, but also in many everyday decisions from consumers, such as about what food to buy (Halkier, 1999; Held, 2004).

<sup>319</sup> Consumer behaviour is not determined by factual knowledge alone. Neither, though, by changes in (relative) prices on their own, because many socio-cultural elements other than economic considerations play a role in everyday decision-making by consumers. For example, more information about GM-food did not automatically change the opinion of Dutch citizens during the national debate on this topic.

<sup>320</sup> This problem is particularly aggravating national regulation because there seems to be a gap between the narrowly reductionist, one-product-at-a-time focus of most of the national regulatory frameworks and the broader, more analytically-elusive concerns of the wider public (Grove-White, 1999).

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## APPENDICES

Appendix 1: Interviews and studies

Appendix 2: The most important arguments used by proponents and opponents of GM-foods

Appendix 3: International environmental instruments influencing fisheries.



## Appendix 1: Interviews and studies

- Connie Valkhof, Fair Trade Assistance, engaged with training of local NGOs in developing countries. 17 January 2001. On the organisation of fair trade.
- Klaas Tamminga, policy advisor Netherlands Ministry of Foreign Affairs (DGIS), Dutch delegation to CGIAR (January 2001). On possibilities and importance of GM-technology for food security and economic development in developing countries.
- Rianne Fokke Policy advisor Novib/Oxfam Netherlands (May 2001). On the Oxfam campaign 'Make Trade Fair', in particular the strategic options for coffee trade.
- Tatiana Lara (consultant) from La Central de Cooperativas Cafetaleras de Honduras). 20 December 2001; on national and international coffee trade and fair trade.
- Kees Lankester, independent consultant on fisheries & policies, involved in the preparation of the MSC-label. 10 May 2002; on MSC labelling practice and future perspectives.
- Garlic Pickles Group No 1 Mrs. Thip (president) and Mrs. Mayuree (vice-president) (21 June 2002). Mae-Pong sub district, Doi Saket district, Chiang Mai province, Thailand.
- Ministry of Health. Province of Chiang Mai, Thailand. (27 June 2002) On food processing, food safety and the environment and regulation.
- Meat processing factory "Wi Yon". Chiang Mai, Chiang Mai province, Thailand (26 and 28 June 2002). Manager and owner, on food processing, food safety and the environment and regulation.
- Kriangkrai Lerttammongtham, director of Kriangkrai fruits, (pickled fruits and sweetened pickled fruits) Rimitai sub-district, Mae Rim district, Chiang Mai, Thailand (5 July 2002). On food processing, food safety and the environment and regulation.
- Nattavadi Sudsanoh, manager of Palmax Company (fruit processing and exports) in Lampoon Province, Thailand (2 July 2002). On food processing, food safety and the environment and regulation.
- Ms. Sudarat Chiang Mai Consumer Organisation, Chiang Mai province, Thailand (5 July 2002). On food processing, food safety and the environment and consumer concerns and involvement.
- Anne van Schaik (Milieudefensie/FoE-Netherlands) and Anuradha Mittal (Institute for Food and Development Policy/FoodFirst), 16 April 2004. Debate on GMO, WTO and regulation.
- Stefan Durwael (General director Fair Trade organisation Netherlands 1977 – 2004), 25 May 2004, on fair trade labelling of coffee and global coffee trade.
- Paul van Zwieten (fish and aquaculture expert, Wageningen University) 4 June 2004, on shrimp farming in East-Kalimantan.
- Marcel Vernooij (head global affairs, Department of International Affairs, Ministry of Agriculture, Nature and Food Quality) 9 June 2004, on global regulation of food.
- Leo van Mulekom (Programme officer East and Southeast Asia, Novib – Oxfam Netherlands) on shrimp farming in Southeast Asia. 9 June 2004
- Monique de Lede (Campaigner globalisation and environment, Milieudefensie/Friends of the Earth Netherlands), on shrimp trade between Southeast Asia and the Netherlands, 2 July 2004.

### Supervised student research:

- Thijs Bosker (2001) 'Waarop vertrouwt u?!' Een onderzoek naar vertrouwen en consumer-concerns in de agrosector. Wageningen, MSc-thesis. (On trust and consumer concerns in the food sector).
- Nanke Stein (2002) NGOs versus GMOs. The influence of global civil society on political decision making on the food safety aspect of GMOs. A comparative study between Europe and the United States. Wageningen, MSc-thesis.
- Kanang Kantamaturapoj (2003) Food safety and environmental management systems in Thai food industries. Wageningen, MSc-thesis.

Monica Obiols (2004) Thailand's tropical fruit exports: adapting to international market standards.

Wageningen, MSc-thesis.

Olga Dvorkova (2004) Ukrainian wheat – production, trade, potential. Wageningen, MSc-thesis.

## Appendix 2: The most important arguments used by proponents and opponents of GM-foods.

### **The following considerations are used in the public debate on GMOs and indicative for the breadth of issues involved.**

*Several potential benefits of GMOs are identified by proponents (Batie and Ervin, 2001):*

1. yields will grow through improvements in plant efficiencies,
2. costs of labour and agriculture inputs (including irrigation water) will reduce,
3. food quality will be higher and value-added products can be produced,
4. the environment will benefit because more friendly methods of managing weeds and insect pests, and/or increasing yields will be applied,
5. hunger will be reduced because of the higher yields, improved storage and reduced costs of food. This is important for the middle term (2020) as the demand for food will increase substantially.
6. pressure on the remaining limited resources of natural habitats will reduce because of the increasing yields on existing croplands.
7. better adaptation to consumer/processor requirements, (pharmaceutical crops): protein, starch, and oil composition and content as well as micronutrient (such as vitamin, minerals) can be improved (Falk et al., 2002).
8. GM foods can be stored for longer periods.
9. GM crops may be fitting better into specific circumstances protecting crops from either biotic or abiotic stress.

### **Opponents on the contrary argue, that the following risks exist:**

*Potential human health effects,*

1. new combinations of genes may have unintended effects on the human body, such as producing unexpected toxins (McGarity and Hansen, 2001).
2. new allergenic proteins may be created (McGarity and Hansen, 2001).
3. the use of antibiotic marker genes might increase antibiotic resistance in disease-causing organisms (Millstone/Lang, 2003, p. 43).

*Potential environmental effects,*

4. gene flow from GM crops into adjacent crops of the same or related species, creating unwanted pollution and it seems difficult to determine the appropriate distance needed (Myhr and Traavik, 2002).
5. reduction of biodiversity, via limitation in the genetic variety within a certain crop and via damage to insects and to soil organisms (Myhr and Traavik, 2002).
6. Superweeds: hybridization may occur between GM crops and wild plants and as a result, weedy relatives of commercial plants can acquire the transferred traits, making them more competitive (Löfstedt et al., 2002, p. 388).
7. resistance making certain pesticides and alternative practices impossible (i.e. the Bt-technique is used by organic farming, but when resistance is growing because of GM-crops using Bt, organic agriculture may be severely handicapped (Batie and Ervin, 2001, and Cummins and Lilliston, 2000)).

*Potential socio-economic effects,*

8. organic food-producers may run into problems because they can no longer guarantee their food free from GMOs.
  9. farmers may become more dependent on a limited number of large agro-companies that provide the GM seed and the pesticide or fungicide matching with it.
  10. the inventors (discoverers) of specific GM-traits can apply for patenting, but the existing crop produced by generations of farmers are considered a public resource freely accessible.
- Finally, ethical concerns also play an important role in public debates on GMO's notably the question whether humans are allowed to interfere with nature ('playing God').

## Appendix 3: International environmental instruments influencing fisheries.

(Based on Tsamenyi and McIlgorm, 1999, pp. 8-9)

### A. Binding instruments directly influencing fisheries.

1. Law of the Sea Convention (LOSC), 1982 (Imposing obligations on parties to adopt management measures to achieve a sustainable use of fisheries resources.)
2. Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas, 1993. (Empowering parties to impose stringent conservation requirements on national fishing vessels fishing on the high seas, such as gear and bycatch restrictions.)
3. Agreement for the implementation of the Provisions of the United Nations Convention on the Law of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, 1995. (Provides for the conservation and management of straddling fish stocks and highly migratory fish stocks on the high sea; and in limited circumstances, it also applies to fisheries management in the EEZ.)

### B. Binding instruments indirectly influencing fisheries.

1. Convention on Wetlands of International Importance. Especially as Waterfowl Habitat (RAMSAR Convention), 1971. (Preventing the loss of habitats through encouraging the wise use of all wetlands.)
2. Convention Concerning the protection of the World Cultural and Natural Heritage (World Heritage Convention), 1972. (The conservation of natural and cultural areas of outstanding universal value through their inclusion on a World Heritage List and a List of World Heritage in Danger.)
3. Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), 1973. (Prevent the over-exploitation of endangered species of flora and fauna by means of import and export permits identified in the appendices to the Convention.)
4. Convention for the Conservation of Migratory Species of Wild Animals (Bonn Convention), 1979. (Protect species of wild animals that migrate across national boundaries.)
5. Convention on Biodiversity (CBD), 1992. (The conservation of biological diversity and the promotion of the sustainable use of its components. In 1995 the Jakarta Mandate specifically addressed the relationships between conservation and fishing activities and established coastal and marine biodiversity as one of the first substantive sectors to be considered.)

### C. Non-binding instruments influencing fisheries.

1. Agenda 21 (UNCED), 1992. (Chapter 17 requires the international community to address environmental issues that affect the marine environment in a comprehensive manner).
2. FAO Code of Conduct for Responsible Fishing, 1994. (Giving guidelines for responsible approaches to fishing.)
3. Kyoto Declaration, 1995. (Identifying the critical link between food security and the sustainability of fisheries which contribute to the income, wealth and food security of all people.)





## Samenvatting

### Inleiding

Op dit moment vinden fundamentele veranderingen plaats in de wijze waarop onze voedselproductie en – consumptie is georganiseerd. Het proces van globalisering wordt gezien als een drijvende kracht achter deze veranderingen. Ondanks dat slechts een gedeelte van de totale voedselproductie internationaal wordt verhandeld, zijn de effecten van dit globaliseringsproces ingrijpend. Deze transformatie heeft twee belangrijke consequenties, ten eerste ontstaan nieuwe (zorgen rondom) voedselrisico's, terwijl daarnaast de mogelijkheden voor de nationale overheden om bevredigend met dergelijke (oude en nieuwe) voedselrisico's om te gaan in toenemende mate ontoereikend blijken te zijn. Innovatieve arrangementen zijn vereist om te reageren op de huidige uitdagingen voor het reguleren van voedselrisico's. Dergelijke innovatieve arrangementen moeten om kunnen gaan met verschillende risico's en zorgen rondom voedsel en tevens bijdragen aan een effectieve en rechtvaardige mondiale voedselvoorziening. Het doel van deze studie is daarom dergelijke innovatieve arrangementen te identificeren en beter te begrijpen.

De zorgen rond de milieueffecten, sociale impact en veiligheid van voedselproductie en –consumptie lijken steeds belangrijker te worden in het alledaagse leven van de westerse consument. Verschillende milieuproblemen hebben de afgelopen 30 – 40 jaar aanleiding gegeven tot onrust onder het publiek en herhaaldelijk geresulteerd in belangrijke veranderingen in de productie en consumptie van voedsel. Sommige problemen waren nauw verbonden met de primaire voedselproductie, terwijl andere te maken hebben met de gevolgen van industriële voedselverwerking en -transport. Bekende voedselrisico's, zoals salmonella en e-coli, lijken in intensiteit toe te nemen terwijl nieuwe voedselrisico's, zoals BSE en genetisch gemodificeerd voedsel, verschijnen. Bovendien lijken de publieke zorgen met betrekking tot het gebruik van pesticiden, de impact van het wereldwijde transport van voedsel op het klimaat en het welzijn van dieren serieuzer te worden. De globalisering van de voedselketens wordt veelal beschouwd als de voornaamste oorzaak voor deze problemen. Daarbij wordt er op gewezen dat de groei in de internationale voedselhandel er bijvoorbeeld toe heeft geleid dat problemen die in het verleden slechts lokaal of regionaal voorkwamen, zich nu binnen enkele uren over grote gebieden kunnen verspreiden zoals bleek bij de vogelpest in Azië (2004) en de MKZ in het Verenigd Koninkrijk (2003). Verder kunnen fouten tijdens de productie en verwerking van voedsel ingrijpende gevolgen hebben, zoals de ontdekking van dioxine bij kippen (1999) en van MPA (medroxyprogesteron-acetaat) bij varkens (2002) duidelijk maken.

De zorgen onder het publiek over de impact van veranderingen in voedselproductie en -verwerking op het milieu en de gezondheid betekenen een toenemende druk op de overheid om effectievere vormen van regulering te introduceren. Tegelijkertijd neemt de macht van de grote industriële voedselverwerkende bedrijven en supermarktketens toe, waardoor de speelruimte voor nationale overheden om een eigen voedselveiligheidsbeleid te ontwikkelen afneemt. De conventionele benadering van milieu- en voedselveiligheidsproblemen is gebaseerd op een centrale rol voor de nationale overheden en wordt in een aantal gevallen aangevuld met internationale overeenkomsten. Nationale wet- en regelgeving wordt over het algemeen geïntroduceerd en geïmplementeerd in combinatie met het opzetten van gespecialiseerde instituties voor monitoring en controle. Deze traditionele benadering van voedselrisico's lijkt echter niet langer in staat om op adequate wijze te reageren op de huidige publieke zorgen. Zo lijkt het erop dat

de zekere basis voor het conventionele voedselrisicobeleid die tot recent werd verschaft door de (natuur-)wetenschap, niet langer het onaantastbare vertrouwen van het publiek geniet. Ondanks dat de opvatting dat het beleid moet veranderen breed wordt gedeeld, bestaan er sterk uiteenlopende opinies over de manier waarop een toekomstige regulering er uit moet zien met als gevolg een proliferatie van verschillende en soms tegenstrijdige oplossingen. Het resultaat is het opkomen van diverse, concurrerende vormen van regulering die verschillen in de schaal waarop ze functioneren (locaal, nationaal, regionaal, globaal) en in de zorgen die worden meegenomen (gezondheid, milieu, ethiek, etc.). Deze innovatieve vormen van regulering verschillen eveneens in de mate waarin zij gebruik maken van het marktmechanisme, of van officiële wet- en regelgeving en in hoeverre zij de consument er actief bij betrekken. Deze situatie geeft aanleiding tot verschillende vragen, zoals hoe moeten reguleringen die zich ontwikkelen buiten de conventionele arrangementen worden geïnterpreteerd? En, moeten de conventionele beheersarrangementen, gebaseerd op de natiestaat, volledig vervangen worden door andere vormen van regulering wanneer zij niet langer in staat zijn om op adequate wijze om te gaan met de huidige publieke onrust over voedsel? Of kunnen conventionele beleidsarrangementen nog steeds een belangrijke rol spelen wanneer zij worden aangevuld met nieuwe mechanismen? Wat is de rol van wetenschappelijke argumenten, publieke zorgen en betrokkenheid van burgers in de besluitvorming rond nieuwe beheersarrangementen? Kunnen verschillende kwesties (milieu, gezondheid, ethiek en sociale rechtvaardigheid) worden gecombineerd in omvattende vormen van regulering? Hoe kunnen innovatieve reguleringen van voedselproductie en -consumptie de dynamiek op het globale niveau combineren met die op het lokale niveau? Binnen dit scala aan belangrijke vragen, concentreert deze studie zich op het identificeren van innovatieve beheersarrangementen rond voedsel, op de vraag op welke wijze zij effectief kunnen omgaan met de bestaande en nieuwe zorgen rondom de milieu- en veiligheidsimpact van voedsel en welke rol verschillende maatschappelijke actoren hierbij spelen.

Deze studie is voor een belangrijk deel gebaseerd op de sociale theorie van Manuel Castells die met behulp van het concept 'netwerk samenleving', een adequate beschrijving geeft van de huidige, gemonialiseerde samenleving. Het begrip netwerk samenleving verwijst naar de nieuwe wijze waarop 'tijd' en 'ruimte' zijn georganiseerd en de centrale rol die (communicatie-)netwerken tegenwoordig spelen in de wereldwijde economie. In tegenstelling tot de situatie in het verleden speelt afstand in tijd en ruimte in de huidige samenleving steeds minder een rol, zoals duidelijk wordt in het functioneren van het wereldwijde systeem van financiële transacties. Bij de productie en consumptie van voedsel blijven de specifieke lokale natuurlijke, culturele en sociaal-economische omstandigheden echter nog steeds van bijzondere betekenis. De regulering van voedsel wordt daarom geconfronteerd met de complexe uitdaging om globale en lokale dynamiek met elkaar in verband te brengen. Met behulp van vier casestudies zijn verschillende processen geanalyseerd waarin deze spanning tussen globaal en lokaal tot uiting komt en op welke wijze getracht wordt haar op te lossen.

Deze casestudies, waarvan de resultaten zijn gepresenteerd in de hoofdstukken 4 tot en met 7, illustreren duidelijk de fundamentele veranderingen in de organisatie van de voedselvoorziening tijdens het proces van globalisering en maken tevens duidelijk dat verschillende initiatieven worden ondernomen om antwoorden te vinden op de complexe uitdaging voor regulering die daarvan het resultaat is.

## **De BSE-crisis in West Europa**

Hoofdstuk 4 beschrijft de BSE crisis in West Europa en laat zien dat BSE (de 'gekke koeien ziekte')

een typerend voorbeeld is van een nieuw soort voedselcrisis en van de overgang naar nieuwe vormen van voedselveiligheidsbeleid. De meeste nationale overheden reageerden in eerste instantie met behulp van hun conventionele risicobeleid op deze crisis hoewel zij werden geconfronteerd met nieuwe risicodimensies, wetenschappelijke onzekerheid, brede maatschappelijke onrust en de uitdaging een balans te vinden tussen de belangen van de economie en die van de volksgezondheid. In de verschillende West-Europese landen werd de institutionele reactie daarnaast sterk beïnvloed door specifieke, nationale omstandigheden. Het resultaat was dat de lokale politiek-maatschappelijke definitie van 'het BSE-probleem' sterk verschilde ondanks de eenduidigheid van de definitie in technisch-wetenschappelijke zin. In het Verenigd Koninkrijk werd BSE vooral gezien als een gezondheidsprobleem zowel van dieren als van mensen, in Nederland als een technisch probleem, in Frankrijk als een economisch probleem in combinatie met een gebrek aan vertrouwen in de overheid, terwijl BSE in Duitsland het bewijs vormde voor het falen van de moderne voedselproductie en van het landbouwbeleid als geheel. Terwijl de BSE-crisis zich verspreidde van het Verenigd Koninkrijk naar andere landen in West Europa, ontwikkelde zich dan ook een complex en dynamisch interactieproces tussen de praktijken van verschillende nationale overheden en het beleid op het gemeenschappelijke niveau van de Europese Unie. Hoewel de BSE-crisis (nog) niet heeft geresulteerd in een fundamenteel nieuwe vorm van regulering van voedselveiligheid, kunnen wel duidelijk enkele innovatieve elementen worden geïdentificeerd:

*Institutionaliseren van consumenten bescherming:* hoewel veel politici tijdens de BSE-crisis beweerden dat 'ons voedsel nog nooit zo veilig is geweest als tegenwoordig', zagen zij zich onder publieke druk toch genoodzaakt actie te ondernemen. De bescherming van consumenten ontwikkelde zich tot een centrale doelstelling van het landbouw- en voedselbeleid, geïnstitutionaliseerd via het opzetten van onafhankelijke instituten naar het voorbeeld van de FDA (Food and Drug Administration) in de Verenigde Staten, of via het herdefiniëren van de taken (en soms tevens de naam) van het Ministerie van Landbouw.

*Het voorzorgsprincipe:* de BSE-crisis vormde de aanleiding voor een toenemend beroep op het voorzorgsprincipe: geen veranderingen accepteren wanneer belangrijke vragen over mogelijke risico's nog onbeantwoord zijn.

*Heroriënteren van het moderniseringsproces:* BSE kan worden beschouwd als de consequentie van een proces van modernisering in de landbouw waarbij onvoldoende aandacht is besteed aan mogelijke neveneffecten van bepaalde innovaties. Om mogelijke risico's voor het milieu of de volksgezondheid als gevolg van dergelijke neveneffecten te voorkomen zou het moderniseringsproces meer reflexief moeten worden georganiseerd.

*Wetenschap en beleid:* de volgende elementen in de BSE-crisis leidden tot nieuwe discussies over de verhouding tussen wetenschap en beleid:

- De maatregel om risicomateriaal uit de runderen te verwijderen tijdens het slachtproces was wetenschappelijk gezien correct, maar doordat de praktijk in het slachthuis sterk afweek van de situatie in een laboratorium, niet effectief. Er bestaat een groot verschil tussen de werkelijkheid van laboratoria waar wetenschappelijke kennis wordt geproduceerd en de concrete werkelijkheid waardoor maatregelen gebaseerd op die kennis moeten worden toegepast. Bij het gebruiken van wetenschappelijke informatie in het beleid moet met deze kloof rekening worden gehouden.
- De meeste wetenschappelijke experts proberen op objectieve basis de relatieve kans op een bepaald risico vast te stellen. De conclusie dat het risico op een infectie met salmonella veel groter is dan op het oplopen van vCJD als gevolg van het consumeren van met BSE-geïnfec-teerd rundvlees bleek echter niet erg geruststellend bij het brede publiek. Burgers beoordelen risico's namelijk niet alleen op basis van statistische berekeningen, maar betrekken hier ook

andere overwegingen bij zoals de vraag of een risico het gevolg is van (niet-) handelen van de overheid en in hoeverre een risico irreversibel is. Er bestaat dus een groot verschil tussen de benadering van risico's door leken en die door wetenschappelijke experts.

- De beleidsaanbevelingen met betrekking tot BSE werden geformuleerd door een kleine groep, nauw aan de overheid verbonden, experts die gevoelig bleek voor economische en politieke overwegingen bij hun conclusies. In reactie op deze situatie benadrukken sommige wetenschappers en politici tegenwoordig de noodzaak van een meer strikte scheiding tussen wetenschap en beleid en de opdracht aan politici om actief te zoeken naar verschillende, inclusief afwijkende, wetenschappelijke opinies over een vraagstuk en te accepteren dat zij besluiten moeten nemen terwijl kennis over mogelijke risico's soms onvolledig en onzeker is.

### **Genetisch gemodificeerd voedsel als uitdaging voor globale regulering.**

In hoofdstuk 5 wordt het publieke en maatschappelijke debat over het beleid rond genetisch gemanipuleerd (GM) voedsel geanalyseerd. Het beleid rond GM-voedsel heeft zich in de periode tussen 1990 tot 2003 ontwikkeld van een technisch vraagstuk voor een kleine groep ambtenaren in de Verenigde Staten tot een wereldwijd publiek debat waarin veel verschillende dimensies een rol spelen. Deze evolutie is vooral gedreven door consumentenzorgen in Europa en door nationale en internationale milieu-NGO's.

GM-voedsel is tot een thema geworden van maatschappelijk debat waarin vele verschillende aspecten van voedselrisico's en risicobeleid in de globale moderniteit samen komen. GM-technologie maakt het traditionele heldere onderscheid tussen natuur en cultuur (of technologie) minder duidelijk en compliceert de onderscheiden rollen van wetenschap en politiek in het besluitvormingsproces. De mogelijke, negatieve effecten van de moderne voedselrisico's lijken toe te nemen, terwijl de mogelijkheden voor nationale overheden om ze effectief te beheersen slechts lijken te verminderen. Wetenschap blijkt niet langer in staat om definitieve en onbetwiste oplossingen te verschaffen voor de nieuwe voedselveiligheidsrisico's of om ondubbelzinnig richting te geven aan overheidsregulering. Het beleid met betrekking tot GM-voedsel vindt plaats in een situatie van fundamentele onzekerheid omdat betrouwbare wetenschappelijke kennis over de lange termijn effecten van het gebruik van GMO's voor de volksgezondheid en het milieu niet beschikbaar is. Bovendien ontbreken de kaders om de mogelijke risico's voor het milieu en de volksgezondheid af te wegen tegen de eventuele positieve bijdrage van GM-technologie aan de toekomstige wereldwijde voedselvoorziening. De introductie door de Europese Unie van het voorzorgsprincipe in de regulering van GM-voedsel resulteerde dan ook in een harde confrontatie met de autoriteiten in de VS. Door de mogelijkheid te openen om beleid te baseren op het voorzorgsprincipe, compliceerde de EU de traditionele duidelijke relatie tussen wetenschap en politiek uit het verleden. Het politieke conflict tussen de VS en de EU en het publieke debat in Europa over de regulering van GM-voedsel hadden daarnaast ook directe consequenties in andere delen van de wereld. Zo werd de traditioneel onbetwiste praktijk van voedselhulp aan de hongerende bevolking in Zuidelijk Afrika in 2002 onderwerp van heftige controverse omdat de voedselhulp gedeeltelijk bestond uit GM-maïs.

Gedurende de afgelopen vijftien jaar zijn nationale overheden steeds minder in staat gebleken op onafhankelijke wijze reguleringen te ontwikkelen. Elk land moet tegenwoordig haar internationale verplichtingen, vervat in een toenemend aantal multilaterale verdragen, meenemen in haar regelgeving. Zo resulteren de verplichtingen binnen de wereldhandelsorganisatie (WTO) in een voortdurende druk om handel in voedsel te liberaliseren, onder meer door regelgeving rond voedselveiligheid alleen te baseren op karakteristieken van het product zelf. De regulering

van GM-voedsel op basis van het productieproces wordt daarmee als onnodig beschouwd zolang wetenschappelijk onderzoek niet onomstotelijk heeft bewezen dat dit proces als zodanig riskant zou zijn. Verschillende groepen voedselproducenten en consumenten zijn het echter niet eens met deze benadering en streven naar het betrekken van de wijze waarop voedsel is geproduceerd, de (mogelijke) impact op het milieu en de (mogelijke) sociale gevolgen in de regulering van GM-voedsel. Beide benaderingen van de regulering van GM-voedsel worden gesteund door wereldwijde politiek-maatschappelijke netwerken, gevormd door (informele en wisselende) coalities van nationale overheden, wetenschappers en maatschappelijke organisaties. De identiteit van deze netwerken is gebaseerd op een discours over de (eventuele) risico's rond GM-voedsel, over de rol van wetenschap en technologie in het omgaan met deze risico's en over het belang van internationale voedselhandel. In hoeverre het debat tussen beide netwerken zal resulteren in een coherent internationaal beleid of in verschillende vormen van regulering valt moeilijk te voorspellen, maar de analyse van het maatschappelijke debat over GM-voedsel heeft wel duidelijk gemaakt dat de zorgen van consumenten niet ongestraft kunnen worden genegeerd.

### **Visserij, visteelt en duurzaamheid**

Hoofdstuk 6 behandelt de casestudie naar visteelt, of aquacultuur. De wereldwijde vraag naar vis neemt toe terwijl de toekomst van de visserij op open zee bedreigd wordt door de wereldwijde afname in de visstand. Het is onduidelijk in hoeverre en onder welke voorwaarden visteelt in staat zal zijn deze toenemende kloof te overbruggen. Zo neemt de teelt van zalm en garnalen sterk toe, terwijl tegelijkertijd de kritiek op deze praktijken vanwege het gebrek aan duurzaamheid eveneens groeit. Vooral de noodzaak om deze vissoorten te voeden met dierlijk (vis) eiwit en de negatieve consequenties voor het lokale milieu (aantasting van mangrovebossen en vervuiling van oppervlaktewater) zorgen ervoor dat visteelt regelmatig onder vuur ligt. Deze problematiek heeft niet alleen een lokaal karakter maar is eveneens globaal. Zo hebben bijvoorbeeld voedselveiligheidsrisico's, vooral vanwege het gebruik van verboden conserveringsmiddelen, per definitie een wereldwijd karakter als gevolg van de globalisering in de vishandel. Verder is de garnalenteelt in Thailand weliswaar georganiseerd via lokale systemen van grondeigendom en gereguleerd door lokaal en nationaal beleid en gebruik makend van lokaal beschikbare technologie. Maar de huidige praktijk kan niet goed begrepen worden zonder verwijzing naar de dynamiek in de mondiale garnalenmarkt en het internationale voedselveiligheidsbeleid. Zo zijn veranderingen in de Thaise garnalenteelt bijvoorbeeld nauw verbonden met de dalende garnalenproductie in Ecuador, de toenemende zorgen bij verwerkende bedrijven over hun imago bij de Westerse consument en de protestacties van internationale NGO's tegen de vernietiging van mangrovebossen.

Het globale karakter van de productie, handel en consumptie van vis en de enorme diversiteit in vissoorten en productiepraktijken compliceren het reguleren van visteelt. Deze situatie wordt nog verder geproblematiseerd door het bestaan van tegengestelde visies op de toekomst van de visteelt, met aan de ene kant het idee dat voortgaande technologische vernieuwing zal leiden tot gesloten en beter gecontroleerde systemen en aan de andere kant de visie dat slechts geïntegreerde systemen gebaseerd op traditionele praktijken, die ecosystemen nabootsen, werkelijk duurzaam kunnen zijn. De verschillende visies op de toekomst van de visteelt vertalen zich in een grote diversiteit aan reguleringspraktijken. Zo wijzen sommige NGO's moderne vormen van visteelt als zodanig af omdat zij dit in essentie als een niet-duurzame activiteit beschouwen, terwijl andere NGO's proberen de consument te stimuleren om vis van meer

duurzame herkomst te consumeren. De verwarring wordt nog groter doordat producenten weliswaar een duidelijk onderscheid maken tussen vis afkomstig van visserijen en vis geproduceerd via visteelt, terwijl beide categorieën voor de meeste consumenten samenvloeien tot een globale stroom van vis.

Het bestaande overheidsbeleid richt zich veelal op het reduceren van de lokale impact van visteelt, door ofwel deze praktijk te verbieden ofwel strikter te controleren. Nationale overheden zijn echter nauwelijks in staat om op deze manier visteelt effectief te beheersen omdat deze praktijk zich voortdurend over de wereld verplaatst als onderdeel van globale netwerken van voedselvoorziening. Effectieve regulering van visteelt via regelgeving door overheden vereist daarom wereldwijde arrangementen evenals de bereidheid en de capaciteit van alle betrokkenen om deze arrangementen ook werkelijk te implementeren. De complexiteit van visteelt, in het bijzonder de technologische veranderingen, de verschillende definities van duurzaamheid en de overlap van visserij op open water, maken het onwaarschijnlijk dat dergelijke globale arrangementen op korte termijn werkelijkheid worden. Richtlijnen en gedragscodes, zoals door verschillende producentenorganisaties gesuggereerd, kunnen weliswaar aanzetten tot het verbeteren van milieuprestaties en daarmee overheidsregulering aanvullen, maar blijven meestal beperkt tot het reguleren van lokale praktijken en los staan van de globale dynamiek. Andere, nieuwe vormen van regulering richten zich op het actief betrekken van de consument met de intentie om overheden, producenten en handelaren onder druk te zetten om meer aandacht te besteden aan het duurzaam produceren van vis. Zo verschaffen consumentengidsen bijvoorbeeld informatie aan consumenten over de duurzaamheid van bepaalde vissoorten binnen een specifieke regionale of nationale markt zonder overigens veel informatie te verschaffen over de gebruikte productiepraktijken. Certificeringprogramma's schrijven bepaalde concrete productiepraktijken voor en dragen bij aan de voortbrenging van gecertificeerde producten die wereldwijd kunnen worden verkocht.

De proliferatie van officiële en vrijwillige vormen van regulering binnen de visteelt maakt duidelijk hoe complex de uitdaging is om de milieu- en gezondheidsrisico's verbonden aan de internationaal georganiseerde voedselproductie en -consumptie te reguleren.

### **Het labelen en certificeren van voedsel**

De laatste casestudie, gepresenteerd in hoofdstuk 7, beschrijft de toename in het labelen van voedsel. De voorgaande casestudies geven aanwijzingen voor de groeiende betrokkenheid van diverse maatschappelijke actoren bij het tot stand brengen van beheersarrangementen voor voedsel in de context van globale modernisering. De meeste bestaande beheersarrangementen worden op dit moment gedomineerd door het perspectief zoals gedefinieerd door de WTO en zijn gericht op het stimuleren van de wereldhandel. De mate waarin zij sociale en milieu overwegingen kunnen betrekken is daarmee beperkt omdat zij gedwongen zijn zich slechts te baseren op productkarakteristieken. In reactie hierop introduceren privé bedrijven en NGO's in toenemende mate andere vormen van regulering. Verschillende van deze initiatieven streven naar regulering van de wereldwijde voedselhandel in samenhang met het beheersen van de milieu- en sociale gevolgen op lokaal niveau.

Teneinde de milieuprestaties te verzekeren en de veiligheid van het voedsel te garanderen passen particuliere bedrijven in toenemende mate wereldwijde certificeringschema's zoals ISO 14001 en HACCP toe binnen de voedselketen. Deze certificeringschema's passen in het streven van bedrijven naar het ontwikkelen van globale standaards voor onderlinge communicatie. De certificering zelf wordt echter zelden rechtstreeks gecommuniceerd naar de consument. Daar-

entegen zijn labels geïnitieerd door NGO's, zoals Fair Trade en MSC, veel meer direct gericht op de consument vooral op het creëren en versterken van hun vertrouwen in de labels. Dergelijke labels maken het mogelijk meer karakteristieken van de voedselproductie, -verwerking en -handel dan alleen de productkenmerken te betrekken in beheersarrangementen.

Het is de complexe interactie tussen overheden, bedrijfsleven, NGOs en consumenten die het labelen van voedsel tot een fascinerend proces maken. De verantwoordelijkheden lijken te verschuiven, meerdere aspecten van het productieproces worden meegenomen en het vertrouwen van de consument neemt een centrale positie in. Tegelijkertijd maken de meeste labels een voortgaande globalisering in de organisatie van de voedselproductie en -consumptie mogelijk.

## Conclusies

Deze vier casestudies maken duidelijk dat verschillende reacties mogelijk zijn op de mogelijke negatieve consequenties van het globaliseringsproces in de voedselvoorziening. In het slot-hoofdstuk wordt getracht om op basis hiervan het huidige maatschappelijke debat met betrekking tot dit vraagstuk in kaart te brengen en enkele lijnen voor de toekomst uit te zetten.

Sommige waarnemers beschouwen de recente crises rond de veiligheid van voedsel als een aanwijzing voor het bestaan van fundamentele problemen in de huidige industriële wijze van voedselproductie, waarvoor alleen de modernisering een adequate oplossing vormt. Regelmatig wordt daarom voorgesteld het proces van globalisering te heroriënteren in de richting van regionale voedselvoorziening. Het creëren van korte ketens zou de directe relatie tussen voedselproducent en voedselconsument kunnen herstellen en de milieubelasting van de globaal georganiseerde voedselvoorziening reduceren. Op deze manier wordt het fluïde karakter van de globale voedselvoorziening vervangen door de specifieke kenmerken van een regionaal georganiseerde voedselproductie en -consumptie.

Regionalisering is echter niet noodzakelijkerwijs het enige adequate antwoord op de negatieve impact van de globaal georganiseerde voedselvoorziening. Op dit moment worden wereldwijd al grote hoeveelheden voedsel verhandeld, waarmee de suggestie om regionale voedselketens te herstellen op korte termijn niet erg realistisch lijkt. Daarnaast is het onwaarschijnlijk dat de moderne westerse consument bereid zal zijn af te zien van veel producten, afkomstig uit verre landen, die hij dagelijks op zijn bord (kan) vinden. Het is evenmin erg realistisch te verwachten dat consumenten bereid zijn de hoeveelheid tijd te investeren die vereist is voor het tot stand brengen van persoonlijke relaties met de verschillende voedselproducenten. Een fundamenteel probleem bij het aanwijzen van korte voedselketens als de enig mogelijke oplossing voor de negatieve impacts van de globaliserende voedselvoorziening is ten slotte, dat heel verschillende dimensies (milieu, voedselveiligheid, sociaal-economisch, ethisch, dierenwelzijn) samen worden gebracht in een dimensie namelijk de fysieke afstand tussen de producent en de consument. Door alleen naar deze afstand te verwijzen verdwijnen andere vraagstukken echter niet tegelijkertijd.

Wanneer het creëren van korte voedselketens niet noodzakelijkerwijs het enige of beste antwoord is op de uitdagingen van de globaal georganiseerde voedselvoorziening, is het belangrijk om andere oplossingen te vinden die effectief kunnen bijdragen aan een meer duurzame en rechtvaardige voedselvoorziening. Het reguleren van globale voedselvoorziening vereist meer dan het toevoegen van een nieuw niveau van regulering als aanvulling op de bestaande arrangementen op lokaal en nationaal niveau. Innovatieve beheersarrangementen zijn noodzakelijkerwijs gebaseerd op de erkenning dat voedselvoorziening tegenwoordig steeds minder gebonden is aan bepaalde tijd en ruimte en meer en meer is georganiseerd in globale voedsel-

ketens. Adequate vormen van regulering moeten de globale stromen van informatie en voedsel omvatten maar deze tegelijkertijd verbinden aan specifieke materiële en sociale impacts op lokaal niveau bij de productie, verwerking, handel, distributie en consumptie. Het reguleren van voedsel in de globaliserende netwerkmaatschappij zal daarom complexer zijn dan in het verleden omdat het meer en meer diverse zorgen betreft en daarnaast diverse maatschappelijke actoren bij de organisatie en uitvoering zal moeten betrekken.

Nieuwe, globaal georganiseerde, beheersarrangementen zijn vaak gebaseerd op het creëren van transparantie binnen het productieproces, traceerbaarheid tijdens de gehele voedselketen en controleerbaarheid van de gebruikte standaards en criteria. De snelle verspreiding van het labelen en certificeren van voedsel, zoals aangetoond in de casestudies over visteelt en labeling, vormt een aanwijzing voor de maatschappelijke behoefte aan dergelijke nieuwe beheersarrangementen. Beheersarrangementen geïnitieerd door NGO's of het particuliere bedrijfsleven kunnen bijdragen aan regulering in een situatie waarin overheden niet langer volledige controle hebben over de internationale voedselhandel. Deze arrangementen hebben een non-exclusief, niet-hiërarchisch, postterritoriaal en flexibel karakter terwijl hun diversiteit het gevolg is van de verscheidenheid aan zorgen bij de consument. Voedsellabels creëren verbanden tussen verschillende zorgen (zowel bij producenten als bij consumenten) en de relevante productiepraktijken van voedsel. Bovendien betrekken deze initiatieven verschillende maatschappelijke actoren op een actieve wijze bij dit proces. Ten slotte maken zij het mogelijk om op innovatieve wijze consumentenvertrouwen in voedsel op te bouwen vooral door het brede vertrouwen te benutten dat NGO's blijken te bezitten.

In deze transitie naar nieuwe vormen van regulering verandert de rol van de consumenten doordat het strikte onderscheid tussen burger en consument verdwijnt. In hun rol als consument kunnen burgers politieke keuzes maken via het kopen of niet kopen van bepaalde producten en daarmee kunnen zij politieke actief worden buiten het officiële domein van de traditionele politiek.



## About the Author

Petrus Jacobus Maria Oosterveer was born in 1955 in Voorschoten (The Netherlands). He finished his secondary education (VWO) at the Bonaventura College in Leiden in 1974, after which he started his study Rural Sociology at Wageningen University. He did majors in Rural Sociology, Rural Spatial Planning and Agricultural Economics.

After graduation in 1982, he started working at the Volkshogeschool in Bergen (The Netherlands). After several years of working free-lance in the field of (adult) education, he moved to Benin (West-Africa) where he supervised local farming systems research (1987 – 1988). His engagement with the field of international development co-operation continued in 1989 when he starting working for the Dutch organization SNV in Rwanda, but his contract was interrupted in 1990 by beginning of the civil war in this country. Between 1991 and 2000, he worked for Novib (Oxfam-Netherlands) most of the time as a program-officer for Central Africa. In 2000 he returned to Wageningen University and was based at the Environmental Policy Group. Besides teaching in different fields of social sciences, he also managed a project on 'Agro-industrial Transformations towards Sustainability; Southeast and East Asia in Global Perspective', collaborating with university institutes in Thailand and Malaysia. In 2005 he was appointed staff member at the Environmental Policy Group at Wageningen University.

