Transparency in the Food Chain

Policies and Politics

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TRANSPARENCY IN THE FOOD CHAIN

POLICIES AND POLITICS

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Agni Kalfagianni
January 2006

1

POLITICS FOR TRANSPARENCY IN THE FOOD CHAIN

1.1 Problem definition and the focus of the dissertation

This dissertation is about the policies and politics for transparency in the food chain. Transparency, the openness and communication of information about food products and processes, has attracted increasing attention by politicians as well as the general public after a number of food scares found their way into the food system. Salmonella in chicken, dioxins and sewage in feed, swine fever, and more dramatically Bovine Spongiform Encephalopathy (BSE) have exposed the functioning of the modern food system as inconsiderate to animals, catastrophic to the environment and indifferent to human health and safety. The failure of the authorities to respond to the crises quickly and effectively has revealed the complexity of today's food chains, which span the globe transcending national boundaries and operating in many instances under anonymous conditions. Consumers, national and regional governments and food chain actors such as feed and food companies, farmers and retailers, all need to come to terms with the process to be able to make the food system more sustainable. Transparency constitutes the foundation of such a transformation. Only when the circumstances under which the modern food system operates become tangible, can responsibilities be attributed and interventions initiated.

When talking about transparency in the food chain, scholars and practitioners tend to think of consumers and their ability to make sustainable consumption choices on the basis of information provided to them first. The focus on consumers and their behaviour is not surprising. Scholars report that many food purchases currently support destructive forms of food production (Halweil and Nierenberg 2004). Studies show, for instance, that the consumption of certain food products (i.e. oils, beverages, fruits, cheese, ice-cream, cakes, meat and so on) puts more pressure on environmental resources than the consumption of other food products (i.e. vegetables) (Gerbens-Leenes et al. 2002). Additionally, studies show that a diet comprised of meat, typical in affluent countries,[1] requires three times as much land as a diet comprised of

1 The choice of certain food products over others (consumption patterns) depends on a number of factors: e.g. socio-demographic, personal preference, ethnic heritage, religion, tradition, nutritional and cultural requirements (Fuchs and Lorek 2002; Whitney and Rolfes 1999; Van der Boom-Binkhorst et al. 1997; Devine and Sandström 1995; Vringer and Blok 1995; Wandel 1994; Moorman and Matulich 1993; Ivens et al. 1992; Von Braun and Paulino 1990; Musaiger 1989; Von Braun 1988; Wandel 1988; De Wijn and Weits 1971). In particular income has been found to play a particularly important role (Von Braun 1998; Vringer and Blok 1995). Studies show that in affluent countries, people tend to consume more products of animal origin (Grigg 1994). Other studies show that in affluent countries people tend to consume more expensive products, which in general tend to have larger environmental impact. Thus, Gerbens-Leenes et al. (2002) show that the land requirement for beef, which is relatively more expensive, is more than twice the requirement for pork. Especially with regard to agricultural land, Gerbens-Leenes and Nonhebel (2002) point out that in affluent countries it is mostly the

vegetables (Bouma et al. 1998; Penning de Vries et al. 1995). Studies also show that considerable sustainability benefits can be achieved if people reduce their meat consumption (White 2000; Carlsson-Kanyama 1998; Goodland 1997). As such, scholars observe that the right buying decisions can reduce, and in some cases even totally eliminate, the risk of environmental harm (Ackerman 1997; Miljø – og Energiministeriet 1995; Stern et al. 1997) "making buying decisions some of the most environmentally important consumer decisions" (Thøgersen 1999: 430).

Thus, a number of studies stress the importance of information for changing food habits (Carlsson-Kanyama, Shanahan and Ekstrom 2000; Zadec and Amarlic 1998; Petit and Sheppard 1992). Information is supposed to influence the "ideologies", "symbols", "relationships" and "practices" that are the drivers behind consumption behaviour today (Conca 2001 cited in Fuchs and Lorek 2002). Moreover, scholars show that information can stimulate consumers' environmental or ethical values not always consciously active in a buying situation (Hoogland, de Boer and Boersema 2005; Thøgersen 1998). This is particularly important as "individuals in our present (western) societies – as opposed to earlier times (where economy played a major role) – typically feel an intrinsic motivation to behave in a way that at least does not harm the environment" (Dunlap et al. 1993; Thøgersen 1999: 439).

Currently, consumers display their environmental and ethical values by showing support for organic production and fair trade (Shreck 2005) as well as opposition to unethical means of production when these are revealed (Michael and Smith 1993; Peattie 1995; Smith 1990). However, scholars point out that the mere provision of selected and incidental information can only influence patterns of consumption to a limited extent, especially as "green" products are often more expensive. In this context, the consumer often "must trade off between lower price and higher ethics within a constrained budget" (Conner 2004:27). It is therefore unreasonable to rely solely on responsible behaviour by consumers for the sustainability of the food system. Rather political and economic organisations which usually decide about how goods and services that affect the environment, are designed, produced, distributed and marketed (Gardner and Stern 1996) need also be targeted. Hence, the entire food system needs to be analysed for appropriate policy intervention points and opportunities in order to identify opportunities and constraints for extending transparency beyond the organic and fair trade market as well as in conventional food chains.

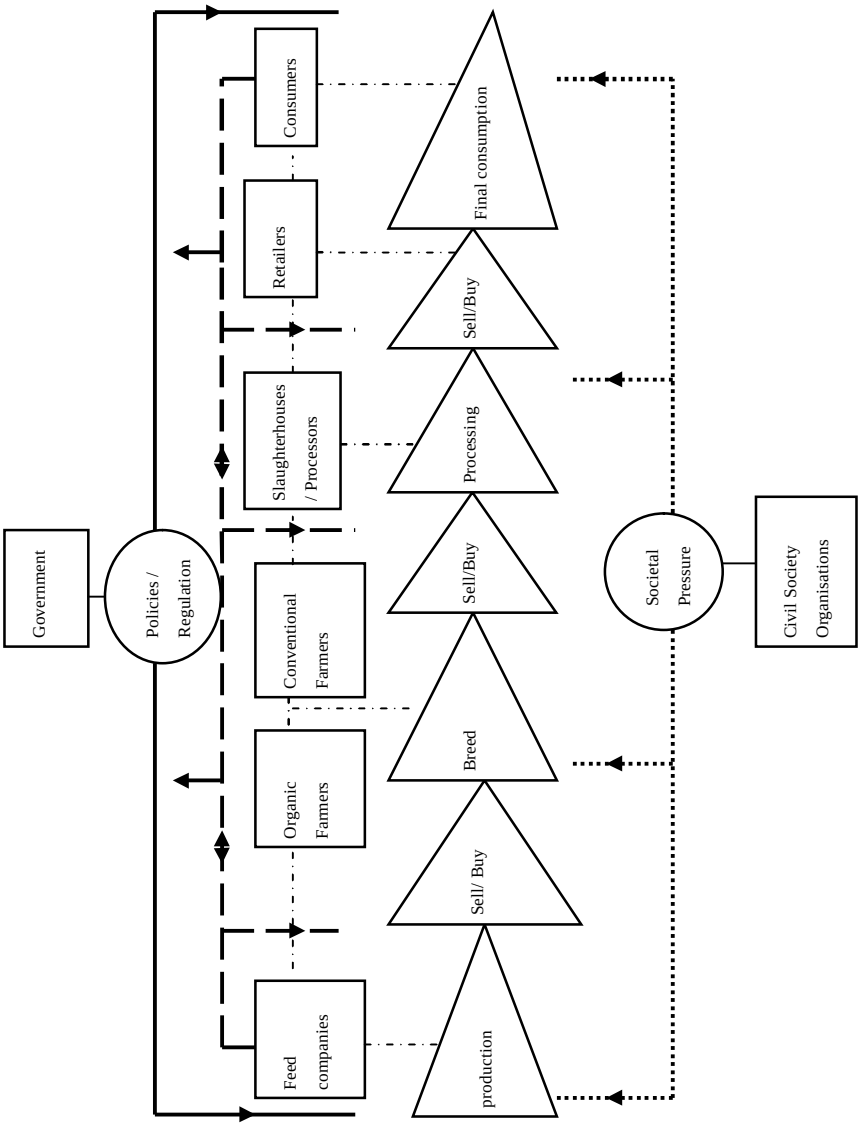
consumption patterns rather than the consumption levels that are responsible for the largest environmental impact.

However desirable, the establishment of transparency is not easy or straightforward. Transparency cannot be imposed hierarchically. Due to the global character of food chains, scholars and practitioners observe a transfer of the political capacity of national governments towards non-state and supra state actors where motivated governments need the collaboration of other actors. Moreover, chains themselves are not homogeneous. Food chain actors do not necessarily share the same understanding of "transparency", nor do they have the same preferences towards its promotion in the chain. Additionally, civil society organizations also appear in the political arena of food. Consumer, animal welfare and environmental groups often put pressure on governments and chain actors for increased transparency in food production, processing, distribution and marketing. Their views may differ however, from those of national governments or food chain actors. Since the improvement of transparency in the food system and the pursuit of sustainability lies with a whole range of actors besides the government (Fuchs and Lorek 2000), the issue of developing, implementing and actually establishing transparency becomes particularly complex.

That complexity is illustrated for the meat sector in Figure 1.1 (a similar figure can be depicted for other sectors as well). The figure shows the actors that are potentially involved in the effort to improve (or hinder) transparency in the food system and their input in the process. Following Bressers (1983) the actors are depicted in rectangulars, their input in each process is depicted in circles and processes are depicted in triangles. Different types of lines are used to distinguish the input of different actors in every process. The line type is chosen at random and does not imply anything about the importance of the input of each actor in every process. The squared dot line shows societal pressure as expressed by the NGOs, the solid line shows governmental intervention with policies and regulation and the long dash line shows the pressure exercised by the food chain actors on each other, as well as to the government and the NGOs.

We focus therefore, on those actors that try to influence politics for transparency in the food chain and their interactions. We attempt to identify what they think about transparency, what policy positions they advocate on that issue and how they try to advance their goals. On the basis of that information, we will try to explain why we reach certain policies for transparency and not others and will discuss the opportunities and constraints for change. Empirically, this dissertation focuses on the pork and farmed-fish chains in the Netherlands and the European Union (EU). Our aim is presented in more detail in the next section which describes the central research question and sub-questions.

Figure 1.1 *The Meat Policy Actors*



1.2 The central research question

The plurality of the actors involved in the political arena of food and associated ideologies, the diverse levels in which they might operate (i.e. a big multinational and a local NGO), their power discrepancies, and their complex relationships, bring a single question to mind: What degree and scope of transparency is *politically feasible* to be promoted by policies and/or initiatives in the chain? In other words, which policy actors' preferences of "how much" transparency and for "what aim", have (better) chances of being accepted, supported or even imposed in the food chain? Because we are particularly interested in an improvement of transparency in the chain, our central research question is formulated as follows:

> *What is the political feasibility of policies and initiatives that aim to improve transparency in the food chain?*

In pursuing our research question, we first examine the current situation with respect to transparency in the food chain. We assess the status quo and argue in favour of its improvement. Then, we analyze the *feasibility* of policies and initiatives aimed at improving transparency in the food chain in a multi-actor context. We try to identify the actors involved, their policy positions on the issue of transparency, as well as the opportunities and constraints actors face in their efforts to initiate better policies for transparency, with the aim of providing insights on how to attain improved policy outputs in this field. Consequently, the central research question can be broken down into three sub-questions:

1. Who are the policy actors that form the network around the issue of transparency in the food chains under study?
2. What are their policy positions on the issue of transparency?
3. What are the opportunities and constraints they face in their efforts to advance their goals?

Before embarking on our aim however, we devote some time to discussing the analytical perspective and its limitations in order to clarify and defend the dissertation's choices in that respect with the aim of informing the reader about the boundaries of our study.

1.3 Approach and caveats

This dissertation pursues its aim using a policy network approach. Policy networks are usually defined as more or less stable patterns of mostly informal interactions among public and private actors that shape policy agendas and policy outputs. As such, we agree with those scholars who argue

that structure in the form of informal interactions (rather than formal institutions) has a significant effect on policy. Consequently, "the structure of a social (or political) system must be a focus of investigation" (Knoke and Kuklinski in Thomson et al. (eds.) 1991:173) and *is* a focus of investigation in this study. The policy network approach has attracted criticism in the past for lacking explanatory power (see Dowding 1995) particularly because it does not fit any theory in the "minimalistic" meaning of the term (Evans 2001:548) as "a systematically related set of statements, including some lawlike generalisations, that is empirically testable" (Rudner 1996:10). Likewise, scholars have argued that network analysis lacks hypotheses which systematically link the nature of a policy network with the outcome and character of the policy process (Bressers, O'Toole and Richardson 1994:210). Indeed for a long time scholars produced extended and often conflicting typologies of "ideal" network types that failed to prove anything more than the mere existence of networks (Bressers, O'Toole and Richardson 1994).

Instead of classifying networks into "ideal" types, this dissertation empirically studies and measures them. More specifically the dissertation elaborates a *model*[2] that aims to explain policy formation by keeping the core theoretical contribution of the network approach to the study of the policy process: the role of (informal) structural variables in that process. However, the model also incorporates the role of individual actors in network analysis. Specifically, actors are assumed to be constrained and facilitated by the network structure in their efforts to influence policy outputs for transparency. In elaborating the model, we build on the work of other scholars who have employed similar conceptualisation of the role of networks in explaining policy making in empirical studies; in particular Laumann and Knoke 1987; Stokman and Beverlling 1998; Stokman and Zeggelink 1996; Stokman and Van den Bos 1992, thereby successfully demonstrating their validity.

Moreover, the dissertation employs a formal model. The main difference between a formal and a nonformal model (apart from the use of symbolic terms in formal models)[3] is that while the former involves statements that are derived or deduced from assumptions the latter does not (Morton 1999: 35). Due to this austerity entailed in the application of formal models, some scholars argue that nonformal models are more flexible, can entail more complexity, and thus appear more useful in performing empirical research. Certainly flexibility and complexity are important virtues in trying to explain the real world. Yet their potential advantage can turn to disadvantage when fluidity is used at the cost of clarity. In addition, formal models can be empirically estimated and, most importantly evaluated, a quality often missing

2 A model has been described as "an abstract conception of reality, a simplification of complex variables" (Vignali et al. 2001:463), "a blue print which shows the essential elements of a larger system (that) cannot be regarded as anything more than a rough approximation to a complicated reality" (Karmack 1983 in Vignali et al. 2001).

3 Note, however, that a formal model is not always expressed mathematically.

from nonformal models due to their lack of clearly stated assumptions.[4] Dowding states:

> 'When formalising models we face hard choices. We cannot include all the complexity of nonformal models, nor the complexity of the full descriptions of reality, let alone the complexity of the world itself. We are forced to simplify and even to assume that relationships between aspects of the world are not as we know them really to be. But in doing so we are forced to back our hunches and lay out, in ways that can be inspected, analysed and tested by others, the descriptive and causal inferences we think are important' (Dowding 2001:92).

In addition, this dissertation studies issue specific policy networks. Therefore, generalisations to other issues and fields need to be made with caution. As such, the applicability of policy recommendations issued by this study may be reduced in scope. Yet apart from the insights that we gain for transparency related policies and politics, this study may also be used in a comparative perspective, especially with research examining similar issues in different networks. We therefore believe our contribution to political analysis is not restricted by any potential lack of generalisability. Finally, we model the networks as they occur now (more specifically, at the time of the interviews). As such, we cannot rule out the possibility that new actors might have entered the policy network and that its characteristics might have changed. Especially, as the issue of transparency is contemporary, such a development would not be too surprising. However we do not expect any significant alterations in the networks that would considerably upset our analysis for two main reasons. First, external factors, for instance a new crisis in the scale of BSE,[5] have not occurred during the period of the study and therefore the political scene is unlikely to be currently changing by attracting new actors to the network. Second and related to that, dynamics within the network are also unlikely to be changing. Of course networks do not only transform because of external events, but can also change internally. Yet this is a different process, known as *network management*, and usually occurs intentionally, in contrast to the former which often occurs unintentionally.[6] We do not expect network management to be taking place however, because, to our knowledge, this is the first systematic effort to study the issue of transparency in food chains

4 The lack of clearly stated assumptions does not mean that nonformal models are not based on assumptions, however. In fact, in most cases, nonformal models use more assumptions –at least implicitly– than formal ones.

5 However, smaller case incidents have occurred.

6 We discuss in more detail "network management" in chapter 4 of the dissertation.

from a policy *network* perspective. Consequently policy actors are unlikely to possess the relevant knowledge for a purposeful management of the network.

In sum, we pursue an analysis of the political feasibility of policies for transparency using a policy network approach based on formal methodology. We acknowledge the limitations of such a perspective in terms of constraints in the number of variables used and the abstraction of the world. Accordingly, we recognize the limitations of such an analysis in terms of generalisation of the results. However, we contend that a policy network perspective sheds light on crucial aspects of the policy process that would otherwise be overlooked and argue that important insights can be gained from the adoption of a formal approach to network analysis.

1.4 The outline of the dissertation

The dissertation is organised in four parts. The first part (Chapter 2) sets the background. It explores the status quo and explains the need for transparency in the food chain. This chapter argues that transparency is a condition for responding to the set of changes that occurred in the food system during the last decades. The second part (Chapters 3, 4 and 5) presents the theoretical approaches that this dissertation draws on as well as the analytical perspective and methods used. Chapter three examines the theories and approaches most valuable for analyzing the process of promoting transparency in a multi-actor context. Having reviewed the major approaches, the dissertation's own analytical perspective is presented in chapter four. We view the formation of policy outputs for transparency, as a result of both actor strategies and network structures. More specifically, the network is considered to set the context within which individual strategies can evolve. The way actors and network characteristics are operationalised and measured is presented in chapter five. We also present the dissertation's methodology for the collection as well as analysis of data and case selection in this chapter. The third part (Chapters 6, 7, 8 and 9) presents the empirical analyses. Putting the model into force, chapters six and seven assess the political feasibility of efforts to improve transparency in the pork chain in the Netherlands and the EU respectively. In a similar vein, chapters eight and nine focus on the farmed-fish chain in the Netherlands and the EU respectively. Finally, the fourth part (Chapter 10) concludes the dissertation, interprets the results and discusses their implications for transparency and sustainability related policies and politics.

2

TRANSPARENCY AS A CONDITION FOR SUSTAINABILITY

2.1 Introduction

Two major transformations have taken place in the food system which led to requirements for more transparency in the food chain in recent years. There was a normative transformation resulting in increasing awareness among the public and stronger demands for sustainability from national and regional (EU) governments as well as certain food chain actors. There was also a structural transformation resulting in highly complex food chains with corresponding diffusion of responsibility among a variety of actors. The combination of the need to improve sustainability in the food system and the complexity of the food chain highlights the urgent need for transparency. Only when the circumstances under which the modern food system operates become tangible, can one attribute responsibilities and initiate interventions.

This chapter first discusses the need for transparency in the food chain (Section 2.2). As a very broad subject, the need for transparency can only be covered here in very general terms. Next, we present the notion of transparency conceptualized by this dissertation as vertical degree and horizontal scope (Section 2.3). The chapter then presents an assessment of the degree and scope of transparency currently implemented in the food chain as well as the instruments used to support it (Section 2.4). Section 2.5 summarizes the chapter and emphasizes the desirability for more ambitious policies for transparency.

2.2 The need for transparency in the food chain

This section discusses the normative and structural transformations that took place in the food system in the past decades which led to demands for improved transparency in the food chain. We begin by analyzing the normative transformations and proceed with an analysis of the structural ones.

Normative transformations

At the end of the Second World War a devastated Europe searched for ways to feed its undernourished population. In the European political agenda at that time, issues of food security, land reforms, increasing productivity and technological improvement scored very high. The aim was to produce enough affordable food for society. At the national levels, state-driven policies supporting the industrialization, intensification and rationalisation of agricultural production were put forward with the adoption of the Fordist model of increasing wage/productivity (McMichael 1997) through American led reconstruction programs, such as the Marshal Aid (Goodman and Redclift 1991; Marsden et al. 1993; Ward and Almas 1997). At the same time,

industrialisation, which paid much higher wages than labour in agriculture, occurred in different sectors of the economy and resulted in urbanisation and rural exodus. For that reason, subsidies were introduced to keep agricultural labour from lapsing to competitive fields and secure production. The results were rewarding: agriculture began to transform from a relatively backward and highly labour-intensive sector of the economy towards one of increasing technological sophistication (Bowler 1985; Gardner 1996), while the process of business termination slowed down (Van Leeuwen 2002).

The development of the Common Agricultural Policy (CAP) in 1957 along with the Treaty of Rome and the establishment of the European Economic Community (EEC)[1] further promoted and harmonised the national objectives set for agriculture. State intervention and price support schemes were further promoted to secure an income for the farmers[2] and adequate food for society. Moreover, a reduction of barriers to trade between the EEC member-states was introduced and common prices for agricultural products were set. As a result, the CAP and national policies achieved self-sufficiency in food, stability in agricultural markets and a fair standard of living for the farmers in Western Europe.

Although CAP and national policies were successful in their objectives, they created a number of problems which shifted the aims and operation of subsequent agricultural policies. Specifically, the intensive forms of production promoted by the European Union CAP and national policies have had severe consequences for both the environment and human health. The agricultural sector in particular, has been proven an important source of air pollution[3] and greenhouse gas emissions[4] (Biesiot and Moll 1995), contributing to global warming, acidification and eutrophication and causing health problems. Moreover, studies have established that emissions increase as the intensity and scale of agricultural production amplify (Kramer et al. 1999). The growing industrialization and intensification of agriculture has also been responsible for the continuing decline of biodiversity in agricultural landscapes, a trend observed throughout Europe (Andreasen et al. 1996; Baldock 1990; Delbeare et al. 1998; Fuller et al. 1995; Manhoudt and Snoo 2003). Intensive agriculture is considered responsible for the extensive drainage and extraction of groundwater, causing groundwater shortages,

1 These member countries were Germany, France, Italy, Luxemburg, Belgium and the Netherlands.

2 These schemes were based on the establishment of (high) target market prices for agricultural products and the setting up of lower intervention prices to account for the potential failure of the market to meet the target prices. Specifically, the intervention schemes worked as follows. The Commission set a target price for the agricultural products, which was supposed to be met by demand and supply in the market. If, however, the market did not support the target price, then the Commission started to buying the product itself at the intervention price.

3 CH4 from cattle farming, waste and animal husbandry; N2O from the use of synthetic nitrogen fertilizers.

4 CO2 resulting from the use of fossil fuel and the production of agricultural inputs.

decline of groundwater-dependent ecosystems and poor water quality (Van Ek et al. 2000). Similarly, the intensive use of agricultural land affects the long-term production capacity of the soil, which is crucial for a continued supply of high quality foodstuffs.

In addition to the agricultural sector, the stages of processing, packaging, storing and transportation have also been significant in terms of their impact. In meat production, studies report that the processing stage causes the largest environmental impact due to production of water effluents of high organic waste content. This kind of waste is very difficult to purify and dispose of because it is predominantly made from wastewater coming from all stages of the meat production process, including washing, cleaning, scalding, boilers and cooling machinery (UNEP 2000). Similar observations are made for the production of fish. Fish production is reported to contribute even more to waste because of its high perishable nature in comparison to other foods, and the associated large losses that occur during the production chain as a whole (UNEP 2000).

Moreover, intensive animal production methods reportedly cause important health and safety hazards such as joint, kidney, and heart problems (Buzby 2002), infections (Tauxe 2002), various kinds of cancer (Hill 1999; Lijinski 1999; McKnight et al. 1999; Navarro et al. 2003; Norat et al. 2002; Peters et al. 1992; Wilkens et al. 1996; Willet et al. 1990) and even diseases that are thought to be extinct from Western countries such as hepatitis E (Hoekstra 2002; Van der Poel et al. 2001). More dramatically, in terms of concentrated effects in a short period of time, intensive animal production methods also foster the outbreak of assorted animal diseases, such as pig plague, swine fever, salmonella, and Bovine Spongiform Encephalopathy (BSE). Especially during the BSE crisis society was shocked not only by the revelation of the fact that one could actually die by eating meat but also by the way animals were treated. Consumers began to question the ability of the modern food system to provide safe food (Smith and Riethmuller 2000; Tansey and Worsley 1995; Yeung and Moris 2001) and called for more attention to environmental and health problems as well as animal welfare concerns.

As a result of these realisations, a shift in policy objectives regarding agriculture and food took place. The concept of sustainability and sustainable development was gradually introduced as a core element of national and regional (EU) policies. Today agricultural and food policies in pursuit of sustainable development must consider environmental and social consequences, in particular food safety, in addition to economic and food security concerns. Policy makers realized that agricultural and food policies should not only concentrate on securing an income for producers and sufficient food for society but also must take into account environmental and

health aspects.[5] This realization is also shared by a number of food chain actors who want to promote more sustainable and socially responsible methods of production. As such the quest for food sufficiency has now become a quest for food sustainability.

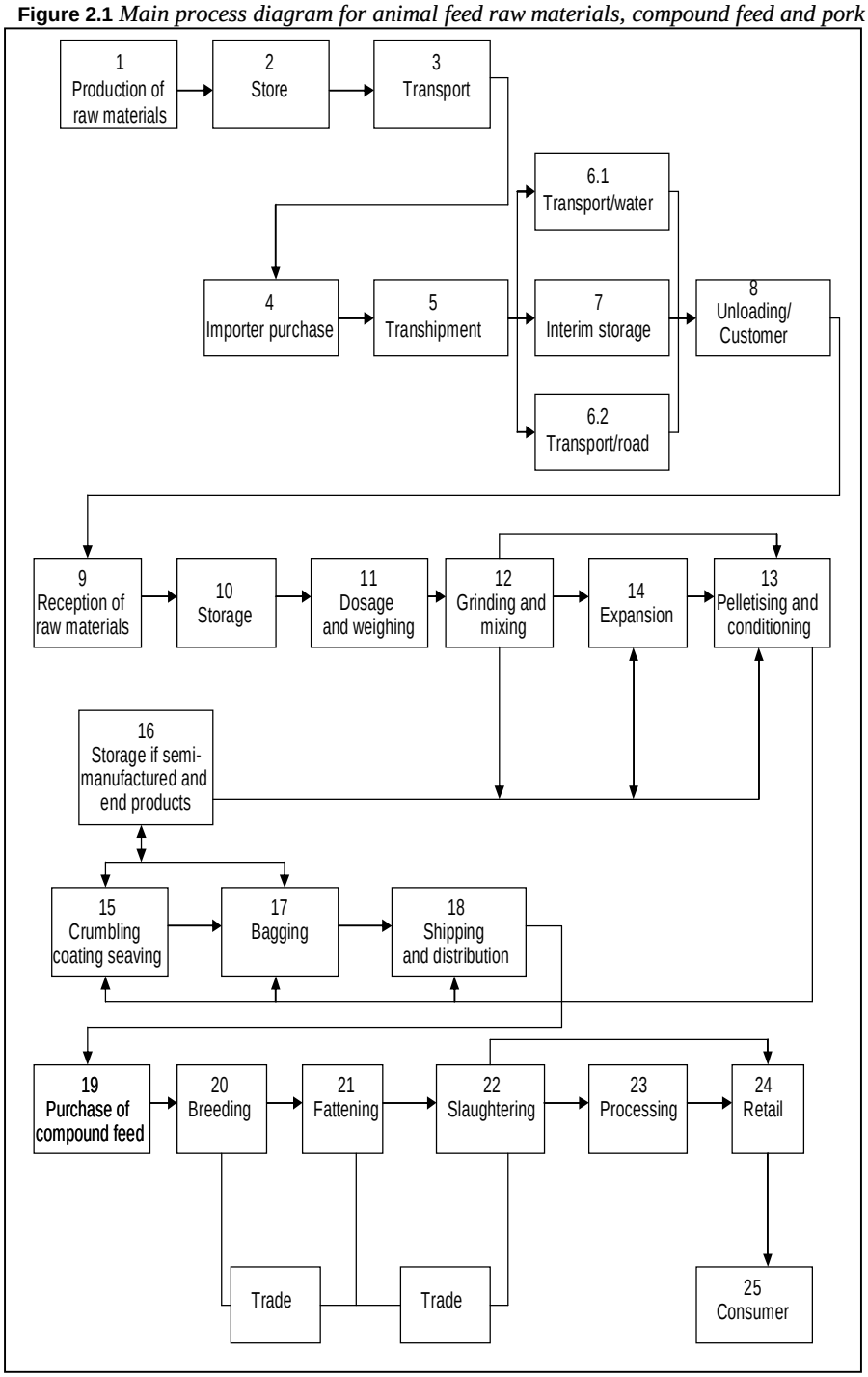
Structural transformations

Due to the structural transformations that have simultaneously taken place, responding to the normative changes is not an easy task. More specifically, CAP and national policies other than environmental and health failures also resulted in economic losses with a significant impact on the future operation of agricultural policies. From a consumer perspective losses occurred because of high prices paid due to levies on imports and intervention prices. In addition, the policy of increasing productivity resulted in massive overproduction and storage problems with increasing costs or in selling products at a loss (mostly in developing countries). Hence, the CAP resulted in dumping on world markets with the accompanying depression of world agricultural prices and catastrophic results for developing countries which based their economy on agricultural exports.[6] The economic failures of CAP as well as international pressure induced governments to reconsider the state-protected status of agriculture and support more liberal policies with emphasis on the market and the private sector. In particular the CAP McSharry reforms (1992), focused on the decoupling of agricultural production from state support and aimed towards direct income payments per hectare or per animal combined with production limits. The Agenda 2000 reforms of CAP some years later, verified the trend towards further liberalisation of agriculture.

5 This is illustrated, for instance, in the two reforms of the Common Agricultural Policy (CAP) (1992, 2000) which aimed at the adoption of measures that encourage "farming practices compatible with the increasing demands of protection of the environment and natural resources and upkeep of the landscape and the countryside" (Council of the European Communities, 1992). In addition, the adoption of a number of Directives in the area of environmental policy that supplement some of the provisions of the reforms are also illustrative of the shift that is being realized in agricultural policies. Important examples include the Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources aims to limit the spreading of fertilizer containing nitrogen and to set the limits for the spreading of livestock effluent; the water framework (1999) which sets the aim to achieve good water status for all waters by 2015; the IPPC (Integrated Pollution Prevention and Control) Directive with the aim to prevent or minimize emissions to air, water and soil, as well as waste, from industrial and agricultural installations in the community; and the pesticide Directive (1991/414) concerning the placement of plant protection products on the market.

6 McMichael (1997) reports, for instance, that Argentina found its earnings in cereals and vegetable oil seeds (accounting 50 percent of its export earnings in 1980) fell by 40 percent in the 1980s due to the United States and European Union dumping.

Figure 2.1 *Main process diagram for animal feed raw materials, compound feed and pork*



Source: Adapted from the Product Board for Animal Feed 2002.

The CAP reforms were significantly aided by the Uruguay Round (UR) (1986-1994) of the General Agreement on Tariffs and Trade (GATT). Specifically, the UR[7] focused on a reduction of barriers to trade in agricultural commodities *worldwide*, a development which continues under the World Trade Organisation (WTO) today. The liberalisation of agriculture and trade made distant producers as attractive for the manufacturing and processing food sector as domestic ones.[8] In terms of food production income support for the domestic farmers was no longer *as* necessary.

The liberal trade regime in agriculture brought dramatic changes in the food system; the pressures for competition in a global market intensified. As a consequence, concentration of production and integration of supply chains took place (Josling 2002). These transformations led to the strengthening of the food industry (Tansey and Worsley 1995) and the creation of big multinationals. At the same time the development of contract farming and other types of pre-selling of output meant that farmers became merely the managers rather than the owners of the farming process (Josling 2002). As the agricultural sector increasingly transformed itself into a food sector, food companies became the main players in the global political arena for food. Likewise, agreements about capital mobility led to the creation of global marketing, and distribution networks spread across a multitude of geographical locations. The result was the creation of extremely complex product chains. An example of the complexity of today's food chains is illustrated in Figure 2.1. The figure illustrates the process of pork production, starting from raw materials, continuing through the production of compound feed and finally, moving on to the production of pork and pork products. Looking at the figure it is easy to imagine that somewhere in this process the conditions under which the pork and feed were produced, processed, distributed, and consumed are not easily identifiable and controlled. To a great extent we rely on the responsibility of the chain actors themselves. Scholars observe however, that due to the complexity of the product chains knowledge and responsibility are so diffuse that no one really feels responsible (Heiskanen and Pantzar 1997).

The combination of the development of sustainability as a new objective for agricultural and food policy and the globalization of food production and consumption highlight the urgent need for transparency in the food chains. Currently, a great amount of information is lost between the various stages of production and consumption, due to the complexity of the supply chain. Moreover, the spatial and cultural distance between production and consumption decisions creates an informational distance that prevents actors at later stages of the supply chain from being able to use reliable sustainability criteria in their purchasing choices (Conca 2001; Princen

7 Some commentators argue that the UR and the 1990s marked a significant new period for agriculture, a period of shrinking of the regulatory state (McMichael 1994; Bonnano and Constance 1996; IISD 1996) and a shift from aid to trade (Watts and Goodman 1997).

8 Bonano describes that effect as the "transnationalisation" of agriculture (Bonano 1994).

1997). Transparency can help fill the informational distance created by globalisation, generate accountability, and create options for sustainable choices along the supply chain.

2.3 Conceptualization of transparency

The supply chain can be conceptualised in two dimensions, one vertical and one horizontal, representing the structural and normative aspects of food production, processing, distribution and consumption respectively. Accordingly, this dissertation conceptualises transparency vertically and horizontally, emphasizing the need to address both the structural and normative transformations that have taken place in the chain. The vertical dimension of transparency represents the need to address the complexity of the food chain and as such it responds to the structural transformations that have taken place in the chain. The horizontal dimension, on the other hand, represents the need to address the impacts on sustainability resulting from chain activities and as such it responds to the normative transformation that have taken place in the chain. The following paragraphs discuss the two dimensions of transparency in more detail.

The two dimensions of transparency

Transparency in the vertical dimension relates to the ability to trace the history of a product backward and forward through the entire production chain from harvest through transport, processing, distribution and sale. As such, it responds to the structural changes that took place in the food chain. A high degree of transparency in the vertical dimension[9] is important in order to ensure the accurate and rapid identification of product and process information up and down the chain. This process is also known as *traceability*.

Systems of traceability, however, can be used for the distribution of a wide variety of product information within the chain. Our primary interest is the inclusion of information on the sustainability attributes of products and processes in the food chain. We call this transparency in the horizontal dimension. We are particularly interested in information concerning human and animal health and safety, animal welfare and the environment. A wide scope of transparency in the horizontal dimension ensures that the full chain impact on sustainability can be estimated and judged. In addition this impact becomes visible to all the actors and society at large therefore enabling intervention for sustainability. Transparency in the horizontal dimension responds to the normative changes that took place in the food chain. Together,

9 The scope of transparency in the vertical dimension will invariably be called as vertical scope for the sake of brevity. The same holds for the scope of transparency in the horizontal dimension which will also be called as horizontal scope.

the degree and scope of transparency in the vertical and horizontal dimensions define the overall level of transparency in the chain. In terms of comprehensiveness and need for the promotion of sustainability in the food system, the desirable level of transparency in the chain is established when the vertical degree and horizontal scope of transparency reach a maximum.

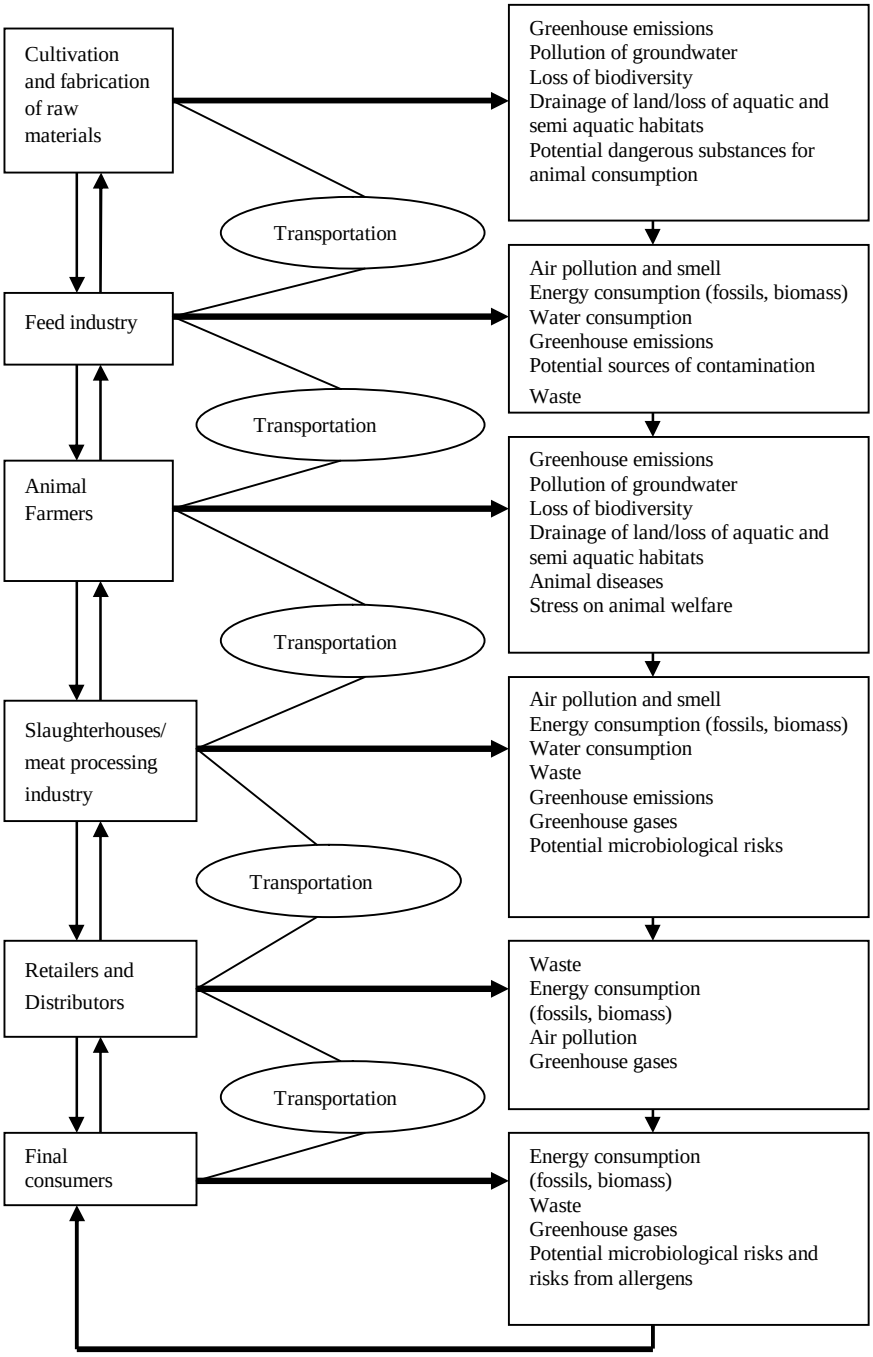
A graphic representation of our conceptualisation of transparency is provided in Figure 2.2. The figure illustrates a simplified commodity chain for meat and meat products on the left and the potential impacts on sustainability in each stage on the right.[10] Sustainability, in this study, is understood to be related not only to environmental consequences, but also to human and animal health and animal welfare. This more encompassing notion of sustainability accounts not only for the environmental dimension but also for the social and ethical dimension of the concept. The first stage of the chain is the cultivation and fabrication of raw materials for animal feed and the final stage is the consumption of the end product. The feed industry, animal farmers, slaughterhouses and meat processing industry, as well as retailers and distributors are situated in between.[11] With arrows the figure shows that the environmental and health impacts are reproduced over and over again within the chain as each stage helps to maintain the activities of previous and subsequent ones. For instance, the production of raw materials has an effect on sustainability that the product carries with it until final consumption.

Equally, in between stages are also responsible not only for the environmental and health burden they themselves impose, but also for the burden they help others to maintain. The final stage illustrates the impact of consumers on sustainability through food storage and preparation at home. These activities are especially demanding in terms of energy (Swedish Environmental Protection Agency 1999) and water consumption. The maintenance of chain activities and production methods through food purchases by end consumers is illustrated by the clockwise arrow at the bottom of the chain.

10 Similar chains can be envisaged for other animal products as well (i.e. farmed-fish).

11 The scheme focuses on the core actors of the chain while other actors, like agrochemical and pharmaceutical companies are not included. The reason why these are left out is that while they might have an interest in sustainability and health related standards their involvement in the communication of sustainability and health related information is not sufficiently large at the moment.

Figure 2.2 *Transparency in the Commodity Chain for Meat and Meat Products*



2.4 Overview of the status-quo with respect to transparency

This section provides an overview of the level of transparency that is currently implemented in the food chain. Specifically, we examine the degree and scope of transparency in conventional chains in the vertical and horizontal dimensions. The section shows that although efforts are being made to establish full traceability in food chains its presence is still limited with respect to the vertical dimension. Regarding the horizontal dimension of transparency, our research shows that even though there is a plurality of information regarding food products and processes only a small segment of that information is related to sustainability.

Overview of the status quo with respect to transparency in the vertical dimension

The vertical degree of transparency, or else traceability, became part of the political agenda of the EU and Member States after the BSE crisis in 1996. On 30 April 1997 the European Commission published a Green Paper on European Food Law[12] with the intention of launching a public debate on the need to change the current legislation on foodstuffs. The Commission aimed to meet the expectations of all the parties involved in the supply chain and to ensure that control and inspection systems meet the objectives to ensure a wholesome supply. The Commission stressed the need to provide a central unifying text setting out the fundamental principles on food law and clearly defining the obligations of the parties concerned. For the first time the need for a "from farm to table" approach on the regulatory framework for foodstuffs was realized as a means to ensure food safety and re-establish consumer trust.

On 12 January 2000, in the wake of a new dioxin crisis in Belgium,[13] the European Commission adopted a White Paper on Food Safety based on the

12 The EU food law was primarily based on Article 3 of the Treaty of Rome (1957) which aimed at ensuring the free movement of foodstuffs through the common market. Later, amendments were made to Article 3 by the Single European Act and the Maastricht Treaty to add the notions of consumer protection and public health. The EU food law was primarily based on an *ad hoc* basis (Vos 2000) and developed slowly over time through the European Court of Justice. In 1985 the Commission published a Communication on the "Completion of the Internal Market: Community Legislation on Foodstuffs". In this Communication paper it was mentioned for the first time that apart from ensuring fair-trading, the legislation on foodstuffs should also ensure the protection of the public health and consumer information and provide for the adequate and necessary official controls on foodstuffs. In 1989 the Commission published another Communication, "the Free Movement of Foodstuffs within the Community" to provide further clarification. However, until the Green Paper on Food Law was published in 1997, the emphasis was still placed more on the support of free trade and less on consumer protection.

13 This event had very large impact not only for the improvement of transparency but also for the EU food safety policies in general, as well as the re-organization of the EU bodies responsible for food.

consultation arising from the Green Paper on Food Law. The White Paper stressed the need for an integrated approach after recognising that production chains have become both extremely complex and integrated within the single market. This means that development in farming and food process and distribution patterns could not be dealt with sectorally, as had been the case. Therefore, a food safety policy would only be effective if it acknowledged the inter-linked nature of food production. For this reason, the White Paper emphasized that the role of all stakeholders in the food chain (the food chain actors; the competent authorities in Member States and third countries; the Commission, and the consumers) should be clearly defined. According to the White Paper, the primary responsibility for food safety should lie with the food chain actors who would ensure that adequate procedures are in place to withdraw food and feed from the market when it poses a risk to the health of the consumer.

In December 2000, after a long period of consultation with all the relevant stakeholders (including consumer groups and third country authorities) the Commission published a proposal for a Regulation on Food Law of the European Parliament and the Council. In January 2002, the European Parliament and the Council adopted that regulation (178/2002/EC).[14] The regulation imposes concrete demands for traceability from food chain actors alongside the chain (excluding final consumers). According to Article 18 of the regulation "traceability means the ability to trace and follow a food, feed, food producing animal or substance intended to be, or expected to be incorporated into a food or feed, through all stages of production, processing and distribution". Article 18 states the requirements for traceability: specifically stating that food and feed business operators should be able to identify any person from whom they have been supplied with a food, a feed, a food-producing animal, or any substance intended to be or expected to be incorporated into a food or feed. To this end such operators should have systems and procedures in place allowing for the on demand availability of this information to competent authorities. In addition, food and feed business operators should have in place systems and procedures identifying other businesses to which their products have been supplied. This information should also be made available to competent authorities on demand. It is required that food or feed placed on the market or likely to be placed on the market in the Community should be adequately labelled or identified to facilitate its traceability through relevant documentation or information in accordance with the relevant requirements or more specific provisions. It is also stated that traceability needs to be ensured at all stages including third countries.

This regulation demands a very high degree of transparency in the vertical dimension. However implementing the regulation has not proven to be an easy task. In order to monitor the progress in developing traceability systems at the

14 Applicable from 1 January 2005.

Dutch level, the Dutch Ministry of Agriculture, Nature and Food Quality (LNV)[15] financed a study comparing current practices of traceability of food products worldwide. The research, published in 2003, was carried out in Australia, the United Kingdom, Spain, the United States, Sweden, Germany and the Netherlands (Van der Vorst, Van Beurden and Folkerts 2003).[16]

The research was conducted for several types of food products including meat, dairy, fruit and vegetables and grain/bread but since we focus empirically on meat (and fish), the information that follows concerns only the results for meat chains (as fish was not included in the Ministry's study). As a result of the global character of the food chains, it was difficult to reach conclusions for each country independently; therefore, some general conclusions were presented. The study showed that more often than not there is a lack of chain traceability, at which each link of the chain could get insights into the processes and streams of other links. It was also found that currently, traceability is organized per link (in accordance with the Regulation) and information exchanged between links is often limited to the identification of received and delivered parties; in every country, complete chain traceability occurred in only a few cases. The study concluded that legislation seemed to be an important incentive for promoting traceability for every country. European standards were the strictest and countries which export to Europe (i.e. Australia) were found to conform to these high standards.

Finally, the study identified *best practices* in every country. It was shown that the best practices, particularly in the meat sector, most often occur in integrated (or coordinated) chains where companies have integrated quality assurance systems and have agreements on applicable standards in the identification and registration of products. The authors argue that this can be

15 In Dutch *Ministerie van Landbouw, Natuur en Voedselkwaliteit*.

16 The study used the following indicators for evaluating the chain performance on traceability: (a) the number of links in the chain that could be traced backwards and forwards; (b) the tracing unit that defined the level at which the traced object was uniquely identified (e.g. a farmer, a delivery, a cow); (c) the time needed for tracing the products; and (d) the reliability of the tracing.

Table 2.1 *Comparison of best practices in the meat chain in selected countries*

	Netherlands	Germany	United States	Australia
Regulations	EU regulations	EU regulations	None	Australian Meat and Livestock Export Act
Description best practice	Integrated chain from feed supplier to distribution to retail	Animal Trust Initiative' coordinated local chain	No insight in complete supply chain	Integrated chain from feed supplier to retail
Motivation for working on traceability	Competitive advantage: demands customers	Competitive advantage; demands customers	Logistical optimization	Food safety and competitive advantage
Tracing unit	Group of animals in one delivery	Individual animal	Wholesaler/ farmer	Individual animal
Backward tracing form outlet towards farmer and feed supplier	Partially until feed supplier; speed and reliability depends on specific question	Completely within 24 hours including eaten batches of feed; reliability 100%	Speed and reliability unknown	Completely to batch feed supplied at a farm within 36 hours and reliability 100% to the animal and 80% to the feed
Forward tracing from farmer and feed producer towards retail	Completely; speed and reliability depends on specific question	They expect to trace within 1 hour if the DNA-profile of the animal can be identified; test phase	Unknown	From feed supplier to retail within 36 hours if DNA-profile of the animal can be identified; reliability 95%
ICT for identification	Ear tags, barcode on pallet/box/end product. Still little electronically readable. Text labels	Ear tags, barcodes, DNA-identification and registration. Partially electronically readable	Ear tags, barcode on pallet/box/end product. Still little electronically readable	Electronically readable ear tags and bar codes
ICT for administration	Management system for the farmer, EPR, LIS, WMS at industry. A lot of custom made software	Management system for the farmer, EPR, LIS, WMS at industry. A lot of custom made software	Management system for the farmer, EPR, LIS, WMS at industry. A lot of custom made software	Management system for the farmer, EPR, LIS, WMS at industry. A lot of custom made software
ICT infrastructure	Central system linked via network; suppliers and customers have no access	Central database which every link can access via Internet (not possible to change data without access code)	Separate systems; no chain database	Central databases and DNA identification system
ICT for communication	Database syn-chronization and file transfer; EDI with customers; telephone /fax with suppliers	Via Internet on-line data exchange with all links	Unknown	EDI and FTP with customers and suppliers that have access to a central database

Source: Van der Vorst, Van Beurden and Folkerts 2003.

explained by the fact that within these chains additional functionalities (like chain optimization and additional quality aspects) are linked to traceability, resulting in creating surplus value (by the market- appreciated difference). An example of the best practices and a comparison in four countries is provided in Table 2.1.

A similar study financed by the Dutch Product Board for Animal Feed (Productschap Diervoeder) was conducted for assessing traceability performance in animal feed. Begun in mid-2001, the project was executed by the DLV Consultancy Group[17] and supervised by a working group of experts from the compound feed industry.[18] The aim of this project was the development of an administrative and physical system in which the most accurate and rapid traceability of *irregularities* would be possible in the batches of feed and fodder. The project consisted of two sub-projects: compound feed and animal feed raw materials.[19]

Compared to the previous study, the feed traceability study was much smaller in scope and scale and did not include cross-country comparisons. For example, only three shipping agents and importers were investigated. Two companies were both shipping agent and importer and the third only importer. Seven compound feed production locations were selected for the study which represented 28% feed for pork, 19% feed for beef, 24% feed for chicken, and 29% general feed.[20] Nevertheless the study gives important insights for traceability in animal feed at the Dutch level today. Specifically, it showed that significant problems exist for traceability in the feed chain, with respect to the origin of raw materials, as well as semi-manufactured and end products

17 Based on the result of this study and the advice of the College of Experts of Animal Feed Sector, the Board decided in June 2002 to include the guidelines for tracking and tracing in the GMP (Good Manufacturing Practice) code, which will be further analyzed in Chapter 6.

18 The compound feed industry relates to those companies which are active in the production and sale of compound feed. The production of compound feed begins with the purchase of animal feed raw materials which are then processed through processes such as mixing, grinding and pressing into compound feeds for various animal groups. Tracking and tracing in this link relates to the purchase of raw materials, the production and storage processes and the sale of the feed to the customers.

19 The raw material supplier's link relates to those companies which act as shipping agent or as importer in the purchase and sale of animal feed raw materials both inside and outside the EU. The major activities of the raw materials suppliers are the purchase and sale of animal feed raw materials such as soya lumps, tapioca, grain, maize, etc. Tracking and tracing in this link relates to the purchase of the product, transportation, transhipment and the sale of the product to the compound feed industry.

20 The study used the following indicators for evaluating the chain performance on traceability in animal feed at the Dutch level: (a) quantitative information (origin deviation, actions taken); (b) qualitative information (detail, unique code, availability); (c) integration (retrieved speed: problem tracing, recall management) and (d) technique (technical implementation).

used. Likewise, this study identified problems with the availability of information and the corresponding response in case of emergency. Some positive aspects were also revealed, for example, companies were found to have unique coding methods for their internal production enabling the easy identification of products when a complaint was filed. In addition, compound feed companies had a good record for tracking their customers. More detailed results of that research are summarised in Table 2.2.

Table 2.2 *Tracking and Tracing in the Feed Chain in the Netherlands*

	Compound feed	**Feed materials**
Origin deviation (ability to derive information about the origin of raw materials, semi-manufactured and end products used)	Only 2 out of the 7 companies were able to trace the products to their origin.	Tracing up to the country of origin. No tracing back to individual producer is possible.
Actions taken (the recording of data relating to the actions carried out during reception, storage, production and distribution processes and control data)	Most of the companies were able to record the actions taken.	Good. Nearly all details are recorded during the purchase of the raw materials.
Detail in information (how specifically the recorded information within the company can be linked to a specific batch product)	Two companies very detailed, one basic, the rest not good	Very detailed information. 'In the records of the shipping agent or the importer a clear link is made between the administrative batch records and the physical batch administration.
Availability of information (the information available to the company or the partners in the chain if necessary, for example in the event of an emergency).	3 companies basic the rest below	Bad. Probably due to the speed with which the data is available and the lack of standard reports.
Uniqueness of coding (the company internal coding for production lines, storage areas, raw materials, semi-manufactured and end products)	5 of the companies had a unique system the rest not (they made a combination of the delivery date and the type of feed or not providing a unique number to storage locations etc.)	All companies have unique coding methods.
Problem tracing and recall management (tracing a problem covers the tracing of a problem on the basis of a complaint where the records serve as a basis for finding out what the problem is).	The time which takes to retrieve the administrative data for delivery to a single customer of the specific batch amounts in just one case to less than four hours. Most companies say they can do it in a maximum of twelve hours. The compound feed companies need a maximum of twelve to twenty-four hours to trace the raw materials for this batch and to trace the other batches in which other raw materials are processed. Problem tracing is usually at day level. Some companies can do that up to the batch level. Problem tracing at	The basic level was reached by two companies. The time which takes to retrieve data for a specific batch amounts in most cases to less than one hour. In one case it took more time, less than 8 hours. To trace the raw materials for this batch and to trace the other batches in which these other raw materials are possessed than 5 hours is usually necessary. At one company this was a max of 2 days, between 12 and 24 hours. In the event of a recall two companies can trace the customers within one hour. These

	ingredient level occurs at two locations. The times for problem tracing exclude inspecting the data for return and/or waste management. Looking at these details in depth will cost the companies more time. In the even of a recall most companies can trace the customer who received the batch in question within four hours. It is sometimes possible in less than one hour.	companies could trace which customers have received which batches of the same raw material within 2 hours. One company required 8 hours to trace customers.
Technique (the means which make traceability possible).	"It often occurs that the information is held in different systems per compound feed company. There are interfaces between the systems at the reception of raw materials and micro components the link between the stocks and process computerisation and at the shipment of finished product. The different systems are usually not linked together. The supply information to third parties by compound feed companies is made on request. Third parties cannot log into the information systems of a company. Computerised systems work faster.	

The review of the implementation of transparency in the vertical dimension shows that with the EU Regulation (178/2002/EC) efforts are being made to establish full traceability in food chains. The progress of establishing traceability takes time and as such its presence is still limited however. Considering the global character of food chains, the observation that compliance with the demands for traceability extend outside EU borders is encouraging. Clearly more has to be done before we can declare that traceability in food and feed is complete and accurate.

Overview of the status quo with respect to transparency in the horizontal dimension

The EU General Food Law provides limited requirements for the provision of sustainability related information. The focus of traceability at the moment is solely associated with *ad hoc* responses to safety problems. Other instruments exist in addition to the General Food Law that aim to communicate information extending beyond food safety. The section below provides an overview of the instruments that support transparency in the horizontal dimension and identifies their prospects as well as limitations.

Labelling

Labelling[21] is a source of information to consumers at the point of sale. Labels provide information on certain attributes of food products and differentiate food products according to those attributes. Labels can screen, for instance, that a certain product was produced with biotechnology, with organic methods or with methods of harvesting that do not include dangers for other species. Therefore, food labels give information about the credence attributes of food (Einsiedel 1998; Golan et al. 2001; Hadfield et al. 1998; Inkamp 2000), those attributes that consumers do not experience in use.

Labelling may be voluntary or mandatory. An increasing number of multiple retailers are implementing their own voluntary code systems to distinguish food choices, especially when benefits outweigh costs. However, in certain cases governments require labelling information regarding certain attributes of food products. Mandatory labelling is required in two cases. First, when the market does not supply enough information to allow consumers to make consumption choices according to their preferences, for example, in cases of asymmetric or missing information. Second, when individual consumption decisions affect social welfare differently than they affect the individual consumer's welfare, for example in cases of externalities (Golan 2001).

Mandatory food labelling has existed in the EU since 1978 and the adoption of the Council Directive 79/112/EEC (replaced by Directive 2000/13/EC). This Directive aimed to smooth the function of the common market, as some Member States had already passed national laws concerning food labelling. According to the Directive, labelling should perform two roles: to "inform and protect the consumer" and "prohibit the use of information that would mislead the purchaser or attribute medical properties to foodstuffs". Thus mandatory labelling covers general requirements, such as the types and quantities of ingredients in a particular food, the name of the food and the name of the business, the presence of allergens, minimum durability as well as indications as to whether the product contains meat or Genetically Modified Organisms (GMOs). Moreover, labelling requirements also exist for feed products covering aspects of compound feed as well as feed materials, presence of GMOs and lipoproteins in feed.

With respect to sustainability related information three types of labelling are discerned: Type I, II and III. Type I labels identify products as being less harmful to the environment compared to other, similar products fulfilling the same function. Products awarded Type I labels have to meet certain multi-environmental criteria and be verified by a public or private third party. These

21 Information about the current labelling requirements in the EU is provided in Appendix A.

types of labels aim to communicate information to the final consumers and are usually represented by a logo on the product or product packaging. Examples of Type I labelling are presented in Figure 2.2.

Type II labelling concerns self-declared claims that allow statements about the environmental performance of a product by the manufacturer itself. The recipient of the claim is either the final consumer or professional purchasers. Examples of such claims are "recycled packaging" or "does not harm the ozone layer".

The third type of labelling is in the form of Environmental Product Declarations (EPDs) certified by the International Standardization Organization (ISO).[22] Environmental Product Declarations are a means of presenting quantified, life-cycle based information[23] about a product in a standardized way such as CO2 or NOx emissions. No judgment is made about how "environmental" the product itself is; instead the quantified information can be used by a potential purchase to make his/her own decision. In addition to labelling, this type of information is also communicated in the form of brochures which have the potential to contain much more information than a label can provide. The Commission aims to strengthen the use of EPDs as part of an effort to give incentives to companies to reduce their negative impact on the environment (for instance companies that participate in the Integrated Product Policy initiative). [24]

Although labelling is a powerful communicative tool it does not always have the intended effect. Specifically, studies show that consumers usually pay attention to eco-labels for instance, when they are already favourably disposed towards the environment and prioritize their health (Chinnici,

22 Certified according to ISO 140140 series of standards.

23 Life-cycle information is provided through following a process of evaluating the effects a product has on the environment over the entire period of its life (Life Cycle Analysis).

24 The Integrated Product Policy (IPP) initiative was first discussed with stakeholders at a conference in 1998. The following year, IPP was considered by the Weimer Informal Meeting of Environment Ministers, which welcomed the initiative. After that the Commission adopted a Green Paper in February 2001 (COM (2001) 68 final) and launched a stakeholder consultation exercise on its contents. As a result of the consultation process, the Commission published a Communication to the Parliament and the Council in 2003 (COM (2003) 302). Currently, this Communication is being discussed and at the end of 2005 a Handbook on best practice with Life-Cycle Assessment will be published as well as a discussion document on the need for product design obligations on producers. At the end of 2006 the Commission will develop an action program for greening its own procurement. In t 2007 a first set of products with the greatest potential for environmental improvement will be identified and action will begin upon them. Currently, two pilot projects are in process (chosen out of a list from twenty-two): one is operated by Nokia and concerns mobile phones and the other by Carrefour and concerns a teak garden chair. The projects were launched on 25 June 2004. Food is also considered to be part of IPP. If this happens the assessment is going to be made on aggregate categories of products, like meat, fish and shellfish, bread and cereals rather than specific products, like pork, salmon etc.

D'Amico and Pecorino 2002; Davies, Titterington and Cochrane 1995; Fotopoulos and Krystallis 2002; Harper and Makatouni 2002; Nordlund, Garvill and Marrel 2001; Tregear, Dent and McGregor 1994; Wandel and Bugge 1997; Wier and Calverley 2002). Moreover, research shows (Consumentengids 2001; OECD 2001) that labels in their current form and diversity are rather confusing and constrain consumers from basing their buying intentions on the basis of that information.

Figure 2.3 *Type I Environmental Labels from around the World*

Source: Five Winds International (www.fivewinds.com)

Corporate reports

Corporate reports often take the form of annual bulletins providing information about a company's strategy on specific areas and are addressed not only to consumers but to all stakeholders. Corporate reports are usually provided on request and normally do not provide "harmful" information. Instead they can be viewed as an additional information strategy by companies wanting to advertise themselves as socially and environmentally responsible.

Strategic information by retailers

Strategic information by retailers can be provided at the time of purchase of a food product and is voluntarily given to consumers who seek more information. Provision of information by retailers requires that the retailers themselves are well informed of the previous steps of production and processing of the products, that is, transparency should be present in the previous links of the food chain. This information is usually requested by consumers in cases other than food purchase, for example purchases concerning large electronic appliances of high cost (OECD 2001).

Advertising and mass media

Advertising is another form of communicating information to consumers. Advertising usually uses strong messages to convey information other than the characteristics and quality of products. Advertisements in OECD countries are mostly about establishing brand loyalty and evoking human desires, dreams and lifestyle options, rather than providing detailed information about products (OECD 2001). Environmental advertising should compete with other forms of advertising in quantity and appeal. Greenpeace is making an effort to convey strong environmental messages using popular images previously used for non-environmental reasons to support another message. However, the trend in environmental advertising is declining partly due to a shift in the dominant social issues (where health and well-being are major selling points) and partly due to tightening of standards for environmental claims which makes it more difficult and less profitable to use the environment as a way of attracting consumers (OECD 2001).

Mass media (television, radio, print, internet) are a major source of information to the average consumer and can be effective in shaping public opinion on certain issues as happened in the case of the BSE crisis. Coverage of environmental issues by the mass media however, is either insignificant or focused on problems that have a high public appeal, such as the BSE crisis. Sometimes that coverage reflects the state of knowledge about a particular environmental problem and ways to solve it. More often however, it is a result of traditional journalistic criteria, such as timeliness, proximity, prominence, human interests, drama and visual appeal (OECD 2001).

Information provided by social organizations and public authorities

Social organizations provide information to consumers but also to companies through campaigns, leaflets, magazines, and sometimes education. Information related to the environment can be provided by public authorities by request as is ensured by the Council Directive 90/313/EC on the freedom of access to information (Official Journal L 158 of 23.06.1990), amended by Directive 2003/4/EC of the European Parliament and the Council on public

access to environmental information (Official Journal L 41 of 14.02.2003) and the Convention on Access to Information, Public Participation and Access to Justice on Environmental Matters (Aarhus Convention 1998). Public authorities are required to make sure that environmental information is systematically available and disseminated to the public. The definition of environmental information that can and should be provided by public authorities is depicted in Box 2.1. According to this definition, environmental information should be related to the food chain, but only when the state of human health and safety is at stake.

Box 2.1 *Definition of Environmental Information as Provided by Directive 2003/4/EC on Public Access to Environmental Information*

Environmental information means any information in written, visual, aural, electronic or any other material form on:

(a) the state of the elements of the environment, such as air and atmosphere, water, soil, land, landscape and natural sites including wetlands, coastal and marine areas, biological diversity and its components, including genetically modified organisms and the interaction among these elements;

(b) factors, such as substances, energy, noise, radiation or waste, including radioactive waste, emissions, discharges and other releases into the environment affecting or likely to affect the elements of the environment referred to in (a);

(c) measures (including administrative measures) such as policies, legislation, plans, programs, environmental agreements, and activities affecting or likely to affect the elements and factors referred to in (a) and (b) as well as measures or activities designed to protect those elements;

(d) reports on the implementation of environmental legislation;

(e) cost-benefit and other economic analyses and assumptions used within the framework of the measures and activities referred to in (c); and

(f) the state of human health and safety, including the contamination of the food chain, where relevant, conditions of human life, cultural sites and built structures inasmuch as they are or may be affected by the state of the elements of the environment referred to in (a) or, through those elements, by any of the matters referred to in (b) and (c).

Control systems

Finally, information aiming to ensure conformity with certain regulations and/or private schemes is communicated in the chain with certifications of compliance to various control systems. Examples include the Hazard Analysis of Critical Control Points (HACCP), hygiene codes, veterinary checks, registration and identification of animals and medicines, and use of antibiotics. More detailed presentation about communication of this type of information, which focuses primarily on health and safety, is included in the empirical chapters.

The review of the implementation of transparency in the horizontal dimension shows that currently such information is limited. Sustainability related

information focuses predominately on food produced with organic or other environmentally friendly methods. Considering the niche market that these products occupy, this excludes the majority of products and methods on the basis of which the food system operates. Sustainability related information can only be effective, however, if a complete range of products and methods can be assessed and compared, making differences visible and understandable. In addition, obligatory communication of environmental information is limited to the cases where environmental risks are associated with human health risks. In all other cases, provision of information is a matter of coincidence or crisis driven event.[25]

2.5 Summary

This chapter presented the need for transparency in the food chain, based on transformative changes in the past decades. More specifically, this chapter highlighted the structural changes that took place and resulted in extremely complex product chains and the diffusion of responsibility among a variety of actors. We introduced the normative changes that resulted in increasing awareness among the public and stronger demands for sustainability from governments and food chain actors. We also argued that transparency *is* a condition for responding to the normative and structural transformations that have taken place. Transparency has been conceptualized in two dimensions, a vertical dimension representing the need to address the complexity of the food chain, and a horizontal dimension, representing the need to shed light on impacts on sustainability resulting from food chain activities.

This overview showed that with respect to the implementation of transparency in the food chain, current transparency is limited in both dimensions. Regarding the vertical dimension, a regulation is in place demanding that actors develop systems of full traceability. However, the regulation is implemented slowly and with some difficulty. This raises the question of whether such delay will provide the opportunity for certain actors to suggest a confinement in its degree. With respect to the horizontal dimension, transparency demands are clearly limited. From a comprehensive sustainability perspective there is a clear need for the development of policies and initiatives that will pose demands for broader transparency with respect to sustainability. In the following chapters we investigate the process of

25 To be sure the dim conclusions for the communication of information on the sustainability attributes of food products and processes do not axiomatically mean that such information is being censored. The implication, however, that sustainability information might be conveniently hushed up appears quite convincing.

promoting transparency in the chain and examine its political feasibility. On the basis of that analysis we will then be able to identify intervention points and provide recommendations for change.

3

PERSPECTIVES IN POLICY FORMATION

3.1 Introduction

It is possible to analyse the subject of political feasibility of transparency related policies from different perspectives. Chapter 3 reviews two such perspectives representing a major distinction in the literature of policy formation. The chapter first discusses the individualistic perspective that places emphasis on individuals and their actions. The individualistic perspective is concerned primarily with the micro level of analysis. Next, the chapter examines the network perspective, which places emphasis on individuals' context, in the form of their interactions. The network perspective is concerned primarily with the macro level of analysis. In doing so this chapter explores the major approaches in policy formation with the aim of deciding whether and how they can be used for the dissertation's research. The chapter makes the choice of combining the micro and the macro levels under the umbrella of the formal methodological approach to networks.

3.2 Two perspectives in policy formation

In political science, we can distinguish between two different perspectives explaining the formation of policies; one has the individual and her actions as a reference point, while the other focuses more on the context in which individuals operate on the basis of their relationships.[1] These two perspectives produce different kinds of explanations regarding how decisions in the form of policy outputs are reached. Models having the individual as a focal point provide explanations and suggest interventions on the basis of individual characteristics. On the other hand, models emphasizing the context in which individuals operate provide explanations and suggest interventions based on the characteristics of the individuals' relationships.

The two approaches share a fundamental difference stemming from a dissimilar understanding of the organization of the political and social life. The individualistic perspective mostly views actors as autonomous individuals separated from the context in which they operate. Within the collective level, actors bounded by their rationality develop strategies that they think will bring the highest benefit to themselves and their group. Autonomous actors intentionally develop the context in which they operate; they make and break relations with other actors on the basis of rational calculations. Comparatively, network approaches focus more on the context in which actors operate and less on the actors themselves. Actors can still behave rationally but they are enabled and constrained by their social relationships. In some instances the characteristics of the relationships they share with other actors may even impede them from achieving their goals.

1 Generally, the distinction between the two perspectives is one of emphasis rather than a complete dichotomy, of course.

These two perspectives are discussed in more detail below. Section 3.3 discusses the individualistic perspective and identifies three major approaches,[2] specifically bargaining models, models emphasising rules and institutions and incrementalism. Section 3.4 discusses the network perspective and identifies two major approaches, namely approaches in pursuit of ideal network types and approaches based on formal methodology. Section 3.5 discusses the opportunities for intervention, change and management of the policy process from the individualistic and network perspectives. Finally, section 3.6 summarizes and concludes the chapter.

3.3 The individualistic perspective and respective approaches

The perspective referencing the individual is influenced by the neoclassical assumptions of sovereignty and rationality. Neoclassical economic theory views the individual as a rational utility maximiser who, assuming perfect information about alternative courses of action, chooses the option that brings her a higher level of utility. Individual decisions are made solely on the basis of personal needs, wants and capacities without reference to their environment. The main difference between this and the network approaches discussed next is that the context either does not pose any constraints or offer opportunities on individuals' actions or when it does the constraints or opportunities are identical for everyone; hence, the role of structure is underplayed. Based on these assumptions each individual makes an optimal choice every time she is faced with a choice situation.

Developments in this field concern the re-conceptualisation of rationality which is now perceived as "bounded rationality" (Simon 1976). According to bounded rationality actors in their effort to make optimal choices over decisions are constrained by the limited availability of information about the choice situation as well as their limited capacities to process that information. Actors make optimal choices on the basis of what they think is the best choice based on the availability of information each time and their personal skills. The concept of bounded rationality guides most of the individualistic approaches discussed below. The approaches are distinguished in bargaining, institutional and incremental models, based on the dominant mechanism that explains policy-making.

Bargaining models

The first approach discussed in this section concerns bargaining models. These are cooperative or non-cooperative game-theoretical models that have been used extensively, especially in studying negotiations at the EU level (e.g. Bueno de Mesuita and Stokman 1994; Thomson, Stokman, Achen and Koenig

2 Though more approaches can be identified most can be considered variants of those discussed here.

forthcoming). The main purpose of these models is not only to explain the policy process but also to predict policy outputs.[3]

The models belonging to this category share the understanding that bargaining is decisive in policy-making, however some differences can be identified. Some models confine bargaining to informal negotiations before the formal decision-making takes place. Others argue that bargaining also occurs in the formal stage of decision-making and try to combine negotiations taking place informally with negotiations taking place formally. Combinatory models differ from each other to the extent that they recognise the output of the informal stage as binding or non-binding.

Bargaining models also differ with each other in their conceptualisation of power. Schneider, Finke and Bailer (2004) identify eight different bases of power used in different models in their evaluation of competing bargaining models. Some scholars find that certain models emphasize the ability of actors to make credible threats (Binmore 1998; Nash 1953; Schelling 1960). Others emphasize the role of formal decision-making power, or else, the number of votes actors hold in the Parliament or any other collective body (Machover et al. 2003; Tsebelis and Garrett 2000). In addition, there are models that emphasize actors' capabilities as derived from their resources (Zagare and Kilgour 2000); still others argue that power derives also from actors' preferences (Axelrod 1970; Garrett and Tsebelis 1996). There are also models that use combinations between preferences and formal decision-making power (Napel and Widgren 2004; Pajala and Widgren 2004) or preferences and other types of capabilities (Abdolahhian and Kugler 2003; Bueno de Mesquita 1994); likewise, models exist that account not only for actors' preferences but also for actors' time preferences (or else the ability to be patient) (Knight 1994; Osborne and Rubinstein 1990). Finally, still other models emphasise actors' power as derived from motivation, cognitions and resources (Bressers 2004).

To some extent the use of different bargaining models depends on the context of the policy area they want to explain. Recent studies comparing different bargaining models show, for instance, that cooperative models and models that account for actors' time preferences are on average the most accurate theoretical frameworks for the study of the EU (Arregui, Stokman and Thomson 2004; Schneider, Finke and Bailer 2004). On the other hand non-cooperative models are better applied in situations where reciprocal interactions and the desire for unanimity are not the dominant bargaining mechanisms.

3 Another category is the procedural models, in which the sequence of moves actors make in a negotiation process is a crucial element of their success. However, these models have been mostly used to explain policy making in the United States Congress and they do not seem to perform well in the EU (Schneider, Steunenberg and Widgrén *forthcoming*).

Institutionalism

Some of the individualistic, rational approaches to political science pay particular attention to the role of rules and institutions. Ostrom (1986, 1989) argues that institutional settings play an important role in affecting the behaviour of individuals. Ostrom perceives institutions as rules which are defined as "shared understandings among those involved that refer to enforced prescriptions about what actions are required, prohibited, or permitted" (Ostrom, 1989:50). Rules can be formal or informal and affect behaviour indirectly by affecting the characteristics of the setting in which actions are chosen. In some settings, rules provide incentives to individuals that lead them to repeat the mistakes of the past or behave strategically, while in some others, the incentives and opportunities to learn are high. The same idea is supported by March and Olsen (1989) only to their understanding institutions also include cultural settings and social entities, such as organizations or corporate actors. Mayntz and Scharpf (1995) and Scharpf (1997) also argue that institutional settings affect actors' behaviour by providing norms which define actors' competences, resources and also specify particular purposes and influence perceptions.

Incrementalism

In addition, there is a branch of individualistic approaches that undermine the concept of rationality. Lindblom (1965) and Braybrooke and Lindblom (1963) in particular, propose the idea of "incrementalism" as an alternative to rationalism. According to this idea, decision makers look only at a small number of alternatives when dealing with a particular problem and tend to choose options that differ only marginally from existing policies. For each alternative they only look at the major consequences and choose the policy option that does not produce much conflict among the decision makers, without being necessarily the best option to deal with the problem. Rationalism and incrementalism are combined by Etzioni (1967) in the "mixed scanning model" where he claims that while for fundamental decisions rationalism abounds, decisions for less important issues may develop incrementally.

3.4 The network perspective and respective approaches

On the other side of the spectrum lies the perspective that pays less attention to the individuals themselves and focuses more on their context. The formation of policy outputs is primarily perceived as a result of structural features rather than individual actors' efforts. The structural characteristics are conceptualised in the form of more or less stable patterns of interactions among actors that have been given the name "policy network".

Analytically the concept of policy networks was developed as a critique of corporatism and pluralism. Scholars used these categories to explain the role

of interest groups in politics but empirically this was proven a rather rough categorisation. Instead, scholars observed the existence of *networks* of actors in both systems. For instance in corporatist arrangements next to the traditional economic actors, other interest groups were observed who also formed relations with the state, which in certain cases (e.g. environmental policy) were antagonistic to economic interests. On the other hand, in pluralist arrangements scholars observed that policies were not always the result of a competition between numerous interest groups, but instead of close relationships between the state and certain interest groups. This was especially evident in United States politics, where despite its pluralistic system political scientists observed *whirlpools* of social interest (Griffith 1939), *subsystems* (Freeman 1965; Truman 1951), *sub-governments* (Ripley and Franklin 1984; and later Chubb 1983; Peters 1986), *private governments* or *iron triangles* (Lowi 1969) to denote the close (and symbiotic) relationship between the government and particular interest groups and stress the role of that relationship in the development of policies.

However, the policy network perspective received particular attention in political science with the works of Richardson and Jordan (1979) and Heclo (1978). In their study of policy making in Britain, Richardson and Jordan observed a "community" type of relationships between the government and particular interest groups, characterized by consensus and co-option. They claimed that as a result of that "policy community" political problems were handled similarly, irrespectively of what government was in power. Thus, Richardson and Jordan concluded that for understanding policy-making in Britain, it would be more useful to study the "*relationship* that had evolved within the community of departments and groups rather than examine the formal policy stances, of manifestos or parliamentary influence" (1979: 73-74).

Heclo (1978) also noted the importance of relationships among actors for the explanation of policy-making, but in a much larger scale. Instead of focusing on the relationship between the government and a small group of (usually business) actors, Heclo suggested that other actors such as governmental authorities, legislators, lobbyists, but also academics and journalists should all be taken into account in the policy-making process. Thus, he argued that policy-making is not the result of consensus among a small elite but is characterized by conflicting interests among a large number of groups. Heclo characterized this style of policy-making as "issue network" because actors participating in the network intended to solve or promote a particular issue.

Starting from these identifications of policy communities and issue networks, the development of network approaches in political science followed two different routes: (i) one in pursuit of the identification of "ideal" network types and (ii) one in pursuit of empirical assessments of actual network characteristics based on formal methodology.

Ideal network types

Scholars inspired by the ideas of policy communities and issue networks, started to identify a range of ideal network types. Originally the aim of this endeavour was to affiliate particular network types with particular types of policy outputs based on the idea that policy networks offer a balance of the views of participating actors and that this balance is reflected in the policy outputs. As such, the focus was placed on the identification of certain network characteristics allowing the categorization of the networks as one or another ideal type.

Different authors stressed different characteristics as important to characterize and differentiate networks. For example Rhodes (1981, 1986, 1988, 1990) and Marsh and Rhodes (1992) incorporated the notions of policy communities and issue networks into one continuum, given the generic name policy network, to denote the presence of a strong or loose dependency between the government and interest groups involved in the formation of policy. Jordan and Schubert (1992) perceived the level of institutionalization, scope of policy-making and number of participants as important characteristics of different types of policy networks. Van Waarden (1992) identified seven characteristics to distinguish policy networks; the number and types of actors, function of networks, structure, institutionalization, rules of contact, power relationships, and actors' strategies. Atkinson and Coleman (1989) use three characteristics: mobilization of interests, autonomy and concentration of state. Based on these characteristics, scholars developed "ideal types" of networks such as policy community, issue network, iron triangle, pressure pluralism/competitive pluralism, state corporatism, societal corporatism, group subgovernment, corporate pluralism, sponsored pluralism, parental relationships, clientelism, sectoral or meso-corporatism and negotiated economy.

This approach faced serious obstacles however, with respect to its explanatory power. Indeed only a few studies managed to sufficiently explain policy outputs using ideal types of networks (Bomberg 1998; Canavagh 1998; Daugbjerg 1998), while the majority used the networks as a descriptive metaphor rather than an explanatory tool (Bressers and O'Toole 1995; Bressers, O'Toole and Richardson 1995).

Formal methodology in network analysis

The second strand of research adopting a network perspective does not focus on the identification of ideal network types, but instead directly investigates how the network intervenes in actors' actions.[4] Usually models developed under this approach study the relationships between numerous actors with the help of mathematics, but narrative methods can also be used (see Bressers and Huitema 1999; Bressers and O'Toole 1998). The main advantage in relation

4 This strand of research has been strongly influenced by developments in other disciplines, in particular sociology.

to the previous approach is that assumptions guiding the models are limited; specifically, the only assumption made concerns the behaviour of actors who are considered boundedly rational, although the degree of rationality can differ in different models, while the characteristics of the relationships among the actors in the network are an empirical question and do not have to fit into fixed categories. As such, this approach can be considered a methodological extension of the policy network perspective.[5]

Compared to the first strand of policy network research the methodologically focused strand has proven more fruitful and not surprisingly, remains much more prominent today. Scholars successfully explained policy developments on the basis of empirical assessments of networks and their characteristics in a range of fields. For instance Laumann and Knoke (1987) explained the formation of policy outputs in the energy and health policy domains in the US. Stokman and Van den Bos (1992) and Stokman and Van Oosten (1994) analyzed the formation of policy outputs in the EU for a variety of issues including the emission limits for automobile exhaust gases, maximum permissible radioactive contamination and air transport liberalization.[6] Likewise, Pappi, König, and Knoke (1995) have assessed the impact of policy networks on social and labour policy in the US and Germany. Additionally, Ligteringen (1999) explained the feasibility of environmental instruments aimed at consumer behaviour.

Based on their analyses, these scholars found that networks differ in their emphasis on flows of information and communication on one side (Stokman and Van den Bos 1992; Stokman and Zeggelink 1996) and the exchange of resources among actors on the other (Cook and Yamagishi 1992; Stokman and Van Oosten 1994; Willer 1999). These are explained in more detail below.

Communication/Flow of Information

Scholars have observed that communication either as access to sensitive information or as a means for inducing shifts in actors' policy preferences and achieving compromises is an important factor for the explanation of policy outputs. More fundamentally the structure of the network as developed by the communication among actors enables or hinders actors' ability to influence the policy process.

Communication is assumed to influence actors' positions or perceptions (Schaap and Van Twist 1997; Teisman and Klijn 1997) about an issue or a

5 Models belonging to this approach share a lot of similarities with the bargaining models discussed before. However, the main difference is that the structure of the network plays a crucial role in defining actors' competences while this structural feature is less important in the previous models.

6 Models using empirical assessments of networks have also been employed to explain the formation of policy outputs at lower levels, such as the level of municipality (Stokman and Bervelling 1998) or the level of a company (Stokman and Zeggelink 1996).

situation in many different ways. Hence, there are studies emphasising for instance, the role of communication as access to sensitive information (Laumann and Knoke 1987). The acquisition of better information is assumed to make actors more valuable to the government facilitating access to decision-making. Of critical importance here are issues of timely access to information as well as trust in the source of information. Actors are more successful in promoting their policy goals if they alone possess trustworthy information. The positioning of actors in the communication network determines who has better chances to succeed in relation to the others. Specifically centrality is considered an important feature of success.[7]

Other studies emphasize the "strength of weak ties" (Carpenter, Esterling and Lazer 1998; Granovetter 1973) as an important feature of success in communication structures. According to this argument centrality is less important in a communication network. What is more important is whether actors' partners in communication are simply acquaintances (weak ties) or friends (strong ties). Specifically the authors argue that actors (in particular lobbyists) who invest in weak rather than strong ties have better chances to influence the policy-making process. More specifically the authors argue that while strong ties usually exist among like-minded actors weak ties exist among actors with divergent political perspectives. Consequently, information acquired through strong ties is considered redundant while information acquired through weak ties is new or distinct and generally more informative. Hence actors with more investments in "weak ties" gain access to a wider array of policy makers than actors with more investment on close and trusted contacts.

In addition, there are studies that perceive communication as means to exert influence. In these cases the network specifies the flow of influence among relevant actors. Models using communication in this form are based on the hypothesis that actors' positions or perceptions about an issue or a situation are influenced by the positions or perceptions of all the actors with whom they communicate.[8] The mode in which actors are influenced by their partner in communication differs in different studies. Berelson et al. (1954)

7 There are at least three different understandings of centrality following the hypotheses that underlie each study. One of the most common conceptualisations of centrality is that of "degree centrality" according to which the centrality of actors in the network is determined by the number of communication inputs. More specifically, the more inputs actors have, and hence the more sources of (trustworthy) information, the more central they are. Other conceptualisations of centrality are those of "betweeness centrality" and "closeness centrality". Betweeness centrality assumes that actors who are located in many communication paths are the more central and hence more successful. Finally, closeness centrality assumes that actors who are close to many other actors in the network are the more central and hence the more successful. All these measures of centrality have been described in modern form by Freeman (1978).

8 This hypothesis stems from the literature of social network influence, in particular, Friedkin 1986, 1997, 1999, 2001; Friedkin and Johnsen 1990, 1997, 1999; Marsden and Friedkin 1993; and Leenders 1995, 2002.

use “frequency” of communication and “trust” to show the shaping of peoples voting preferences while Stokman and Zeggelink (1996) and Stokman and Van den Bos (1992) use “relative resources” of actors in a policy network to explain actors’ shifts in preferences or policy positions. The literature is rich in different influence weights, a review of which is provided by Leenders (2002).

In short, actors’ access to new and timely information, access to other actors, as well as trust play crucial roles for the formation of policy preferences in communication networks. More fundamentally, the structure of the network in which actors participate and the positioning of actors in that structure determine the opportunities and constraints actors face in having access to the aforementioned assets as well as in using them effectively.

Exchange Relations

The next approach emphasises the role of policy networks in enabling or hindering exchange relations among the actors. Contrary to the communicative approach where relations were basically of a competitive character, here relations are or may be more collaborative. Also, contrary to the previous approach is the implicit assumption that policy positions shift primarily for issues in which actors are not particularly interested. Basically, this approach views policy making as a simulation of a market where some actors have what some other actors want and vice versa, enabling exchanges with mutual benefits. As a result of these exchanges networks reach equilibriums either local or global and in turn these equilibriums determine the policy outputs.

The resource exchange approach is primarily based on Coleman’s theory of social exchange (1972, 1988, 1990). Coleman made the observation that in any social system two elements are important: actors and events that actors are interested in. In many instances actors’ interests over certain events are distributed disproportionally to their control over those events. In other words, actors are not fully in control of events that can satisfy their interests; some of those events are under the control of other actors. In those cases actors can benefit by engaging in a process where they exchange their control over events they are less interested in for control over events they are more interested in. The exchange makes all the individuals better off and a social optimum is reached.

Coleman’s social theory has been extended to describe political bargaining in policy networks. Specifically, the policy network is conceptualised as an approximation of a market for political control over decisions. In that context political actors engage in mutually beneficial exchanges. Instead of exchanging control over events however, actors exchange votes or support over policy positions. For instance, actors with formal voting power on decisions can exchange voting positions with each other for support on different issues. This can be seen in cases where actors with formal voting power have different levels of interest and policy positions

for different decisions and they are willing to support a position other than their own (Stokman and Van Oosten 1994). Public and private actors also engage in mutually beneficial exchanges in cases where private actors are interested in the resources of public actors (e.g. access to decision-making) and vice versa (e.g. political support) (Pappi and Henning 1998). Exchanges can also occur among private actors themselves (Laumann and Knoke 1987).

The theory of social exchange assumes that exchanges among the actors are unconstrained and therefore numerous beneficial exchange rates among the actors can be determined and as such multiple possible equilibria can define the final outcomes. However the introduction of the social exchange theory to policy networks (Laumann and Knoke 1987; Marsden and Laumann 1977; Pappi and Henning 1998) also introduced structural constraints. The constraints actors face are compared to transaction costs and are determined by the extra amount of effort or resources actors have to exploit to achieve their goal. Exchanges among all the network actors occur simultaneously and exchange rates are determined at the global level. When no more exchanges among the network level actors take place, a global equilibrium is reached which in turn determines the policy output.

While the extension of Coleman's model to collective decision making is interested in determining global equilibria, another development of Coleman's model, the Network Exchange Theory (NET), is concerned with determining local equilibria (Cook and Yamagishi 1992; Stokman and Van Oosten 1994; Stokman and Zeggelink 1996; Willer 1999; and many others). Specifically, NET focuses on network effects upon exchange rates between pairs of actors. Splitting a pool of common resources represents exchanges and power rises primarily because of the possibility to exclude others from exchange and is defined in terms of shifts of exchange rates in one's own advantage (Stokman 2004).

In short, in exchange networks actors are engaged in mutually beneficial transactions, though the costs and benefits associated with those transactions, either at the dyadic or at the global level are determined by the exchange relations between all the network actors.

3.5 Intervention and change

The individualistic and network perspectives discussed above are concerned with the explanation of policy formation. Insights from both perspectives can shed light on the conditions under which certain policy outputs are reached. They can also explain why other policy outputs fail to be reached. In other words, by delineating the process under which policies are formed, the aforementioned perspectives are able to predict the success and failure of policy options and identify intervention points when predicted outputs are not desirable. In this respect the individualistic and network approaches provide different suggestions for intervention although the suggestions do not

exclusively belong to one or the other perspective. Yet the emphasis differs: on the one hand, individualistic approaches emphasize changes in individual characteristics; network approaches, on the other hand, emphasize changes in individuals' relationships. This section discusses intervention strategies as projected by the individualistic and network perspectives respectively.

It is important to clarify one point here: often change needs to be initiated by the government or other public actors. These are after all the only actors with the *authority* to intervene,[9] though their ability or willingness to do so is, at times, limited. Consequently, the role of other actors needs also to be considered. The following discussion applies equally to public and private actors, unless specified otherwise.

Intervention and change from an individualistic perspective

In individualistic approaches, policy outputs are perceived to result predominately from actors' individual strategies. As such change in policy outputs can be produced by changing actors' strategies. Different strategic interventions are proposed in that respect.

In bargaining models, emphasis is placed on altering actors' bargaining advantage. Depending on the characteristics stressed by the various models actors (public or private) are advised to change different sets of their characteristics; for example, allowing actors to change their revealed preferences. Altering their revealed preferences may force actors to make fewer concessions, attract more support for their position or induce costs to actors who base their strategies on their revealed preferences. In addition, actors can shift their own level of effort, invest more resources on influencing issues, invest time, try to get more insight into other actors' perceptions and so on.

In models emphasising the role of rules and institutions, intervention is conceptualised in the form of providing the conditions for rule enforcement.[10] Depending on outputs rules are envisaged to encourage, different types of interventions can be imagined. For instance, decision-makers can provide incentives (economic or otherwise), sanctions, information, and resources to ensure compliance. Alternatively, decision-makers can change the rules, if

9 Some scholars argue that governmental intervention is more effective than private intervention. Effective interventions are assumed to serve the government's interests because an ineffective government will undermine its status (as the guardian and promoter of the public interest) and lose its legitimacy in the long run (De Bruijn and Ringeling 1997). It is further assumed that no other actor will lose its credibility if they do not make effective interventions (in favour of the public) as much as the government primarily because they are not expected to or their efforts remain unnoticed. Effective governmental interventions supposedly produce better policies however not all governmental interventions are noticed by the public and not all governmental interventions serve to promote the public good. Many governments have been criticised for promoting the interests of industry or even of being unable to intervene because of the increasing power of private, mostly business, actors.

10 One could also imagine that this applies to rule design, adoption and implementation as well.

they do not produce desirable behaviour by the individuals. For example, rules can change in order to enhance cooperation or minimise conflict. For the final set of individualistic approaches, change may concern the decision mechanism under which alternative courses of action are assessed and selected, as well as the choice about the importance of the issues.

Intervention and change from a network perspective

From a network perspective policy formation is understood to result from the patterns of interactions among actors. It follows that change may be brought about by altering the pattern of these interactions. This is not as easy as it sounds as the concept of network implies a limit in central steering. However, the degree of limitation of central steering in networks is a subject of debate. In particular two different standpoints can be identified in the network literature. On the one hand the network is regarded as a new form of governance. In this respect networks are characterised as autonomous, self-organising, self-governing, and self-referential systems with the government playing a limited or even non-existing role[11] (Kickert 1993):

> 'The control capacity of government is limited for a number of reasons: lack of legitimacy, complexity of policy processes, complexity and multitude of institutions concerned, etc. Government is only one of many actors that influence the course of events in a societal system. Government does not have enough power to exert its will on other actors. Other social institutions are, to a great extent, autonomous. They are not controlled by any single, superordinated actor, not even the government. They largely control themselves. Autonomy not only implies freedom, it also implies self-responsibility. Autonomous systems have a much larger degree of freedom of self-governance. Deregulation, government withdrawal and steering at a distance…are all notions of less direct government regulation and control, which lead to more autonomy and self-governance for social institutions.' (1993:275)

The majority of scholars associated with this school of thought regard autonomous network governance as a potential threat to democracy.[12]

11 The idea of autonomy and self-referentiality in networks has its roots in the systems theory of Luhmann (1990) according to which systems when coping with inputs from outside, process them in their own way, and refer only to themselves. Another suggested term is that of "autopoiesis" borrowed from biology, which describes living systems able to produce and reproduce their elements as well as generate and reproduce their organisation, the interactions between the elements that compose the system (Kickert and Koppenjan 1997).

12 However, there are also scholars who see opportunities in autonomous network governance. Hence, networks from that point of view, are associated with effectiveness in: identifying new problems and providing negotiated responses that are both flexible and feasible; qualifying the decision-making process by means of providing the necessary information, arguments and assessments; establishing a framework of consensus building, or, at least, the handling and civilisation of conflicts and creating joint responsibility for new policies and thus, reducing

Autonomous networks are considered to lack transparency and accountability, blur the boundaries between public and private and hide the responsibilities of governments or render governments unable to pursue them (Marsh and Rhodes 1992; Rhodes 1997). Change in the form of governmental intervention (or any form of central steering) is difficult to imagine (Peters 1996).

From the second standpoint, the network is a negotiation structure in which the government can play an important and sometimes even leading role (Marinetto 2003; Smith 1993, 1999; Stokman and Van den Bos 1992). From this perspective the government can initiate and bring change (though not always via central steering). A number of empirical examples show that indeed the government or public actors can be influential in steering and managing the network (e.g. O'Toole 1997; Perri 1997). However the nature of the network means that "managers will have limited abilities to actually drive results" (Bressers and O'Toole 2005:141). In the following paragraphs we present a number of management strategies the government may follow to lead the network closer to the desired outcomes. We discuss these processes assuming that government pulls the strings but in fact any other actor can be assumed to do so in its place. Due to the limited steering capacity that the government or network manager might experience, in many of the management processes described below the government acts as a facilitator or meta-governor (Aars and Fimreite 2005; Kooiman 2000) rather than an active participant in the network.

In general, two management strategies can be distinguished in networks: managing interactions within networks or *game management*, and building or changing the institutional arrangements that make up the network or *network structuring* (Kickert and Koppenjan 1997; Klijn, Koppenjan and Termeer 1995; Teisman and Klijn 1997). They differ in that network structuring entails a more enduring and encompassing change than game management. In the following paragraphs we present management techniques that can be identified within the two aforementioned broad strategies.

In game management five alternative processes can be recognized: i) network (selective) activation, ii) arranging interaction, iii) facilitating interaction, iv) brokerage and v) mediation and arbitration (Kickert, Klijn and Koppenjan 1997:47-51).

Network activation or de-activation involves the mobilisation or demobilisation of influential actors to solve particular problems or achieve certain goals. Scharpf (1978:345-369) calls this management technique "selective" activation (or de-activation) because it targets particular actors rather than the network as a whole.

resistance against implementation (Sørensen and Torfing 2005). Finally, other scholars show that networks can work both ways depending on their balance between openness and consensus building capacity (Arentsen, Bressers and O' Toole 2000).

Game management can also take place through arranging the interaction among the actors, either directly or indirectly, in order to achieve particular outcomes. Direct intervention involves changing the interaction patterns by giving more access for instance, to actors previously constrained by the network. Indirect intervention requires the provision of mechanisms that will regulate conflict or the provision of guidance about resolving opinion differences (Crozier and Friedberg 1980). Alternatively, the government or network manager can facilitate rather than arrange interaction among the actors. Facilitating involves activities which are mostly of a procedural nature. The facilitator can organise workshops or meetings, monitor the dialogue between the participants in order to contribute to the understanding of the issues at hand, appreciate each other's point of view, and encourage collective problem solving (see also O'Toole 1988; Susskind and Cruishank 1987). A fourth game management process involves the employment of 'policy brokers' (Sabatier 1984) or 'policy entrepreneurs' (Kingdon 1984). The role of a policy broker is to minimise conflict among coalitions in order to move the policy process. Finally, game management can take the form of mediation and arbitration (see Coleman and Perl 1999; Williams 2004). This differs from the aforementioned brokerage strategy in that mediation and arbitration is implemented by an independent party, that is a party not involved in the conflict. Coleman and Perl (1999) also note that an important function of the mediator is the translation of policy ideas and policy paradigms among coalitions. According to scholars this is a crucial role in resolving conflict and bridging different world views (Muller 1995; Schön and Rein 1994). In order to be successful in this endeavour the mediator must be trusted by all coalitions.

Alternatively the government may try to develop strategies altering the structure of the network. Seven strategies can be identified for network structuring: i) influencing formal policy, ii) influencing interrelationships, iii) influencing values, norms, and perceptions, iv) mobilisation of new coalitions, v) management by chaos (Kickert and Koppenjan 1997:53), vi) network activation (Teisman and Klijn 1997: 106), and vii) anti-foundation (Rhodes 2000).

The first strategy, influencing the formal policy (O' Toole 1988) refers to influencing the distribution of resources among the network actors in order to shape actors' relations and shift their policy positions. The second strategy, influencing interrelationships, involves changing rules and incentives, which in turn alter the dependency relationships among the actors with the aim to improve effective problem solving (Jessop 1998; Kooiman 1993; Sørensen and Torfing 2005). In the literature of network management this is known as instrumental approach. The government or network manager can also follow an institutional approach and try to change actors' values, perceptions and rules of the game (Bressers 2004; Klijn, Koppenjan and Termeer 1995) in order to re-institutionalise key interests and relationships (Rhodes 2000). Scholars observe that a more drastic method is that of "reframing" (Rein and

Schön 1986, 1992) or "network framing" (Sørensen and Torfing 2005:204), which involves the (re)formulation of political goals and objectives in order to change actors' perceptions of the network, in other words actors' frame of reference. Reframing can be organised for instance, by confronting representatives of different coalitions or organisations (Kickert and Koppenjan 1997:52).

Some scholars argue that due to the complexity of restructuring the network it is difficult to envisage structuring as a way to influence the network in a desired direction. Instead the network is managed by chaos, for instance by provoking mobilisation that can lead to the formation of new coalitions or the breaking down of existing network structures (Richardson 1982). Furthermore, network structuring can take place through changing the network participation in order to counteract the predominance of particular interests, foster the formulation of a broader policy agenda, and align the network's objectives with the overall goals of the government (Sørensen and Torfing 2005) a process that is called network activation. Finally, Rhodes (2000) suggests an "anti-foundational" approach to manage networks. The approach is based on a historical analysis of beliefs and actions of actors through the construction of narratives. The idea is that the network is constructed and interpreted by all individual actors and only by understanding their interpretation of reality can change be proposed.

In sum, two perspectives can be identified in terms of the ability of governments to intervene and steer networks. In effect, their validity is an empirical rather than theoretical question. While networks can be identified where governments are excluded, other networks operate with both governments and private actors, and some others even develop more hierarchical relationships, with the government as the central actor.[13] Whether or not government is behind the steering wheel, management strategies exist to guide networks closer to the desired outcomes. Two general strategies incorporating a number of approaches have been identified: game management and network structuring. Management strategies range from changing, facilitating and guiding the interactions among existing network actors to introducing new partcipants, altering their perceptions and frame of references as well as network interpretation. Based on the issue at stake, the characteristics of the actors involved, and the characteristics of the network, governments or network managers can use these tools to achieve the desired policy outcomes.

13 An example of a hierarchical type of network was policy formation in electricity between 1989 and 1995 in the Netherlands. While the industry developed policies, the government had the final authoritative word. A similar example is the development of manure policies in the agricultural sector in the Netherlands (1998-2000). In contrast, examples of networks where the government played a less important role are the development of environmental standards in the farmed-fish and aquaculture sectors in the Netherlands and the EU.

3.5 Concluding remarks

This chapter reviewed two different perspectives in policy formation and (governmental) intervention. First the chapter discussed policy formation from the perspective of the individual, then the network perspective on the formation of policies. The two perspectives differ not only on the level of analysis but also in their understanding of the organisation of the political and social life. Viewing policy-making through the lenses of the individual, one understands collective decision-making as an aggregation of numerous individual decisions, actions and transactions. One ignores that way that the collective level has a structure of its own that constrains or facilitates individual action. On the other hand, the policy network perspective regards the collective level not as an abstract structure but as a major decision-unit in itself (see also Etzioni 1988). The policy network can be viewed as the collective level of political activity. Individual actors pursue their self-interest not blindly and unrestricted from one another and their context but in a form of interdependence. This interdependence is expressed as specific types of interactions that enable and hinder actors' ability to influence the policy process.

When only the structural interdependences are considered and actors' individual characteristics are ignored explanations of policy outputs are as well limited. Indeed policy network analysis is incomplete without the micro-foundation of a rational-choice nature (Dowding 1995). Hence, what is needed is an approach that combines both the micro (actor) and the macro (network) levels. After all, individuals and society (or the collective level) are in a continuous reciprocal interaction. Such a combinatory approach is required not only to provide more precise predictions, but also –and most importantly– to gain more theoretically accurate explanations of the policy process. In our view the methodological strand of policy network analysis which views the actor and the network in interaction with one another provides the terrain on which insightful approaches can be developed in that respect. As such, the dissertation's perspective is placed under the umbrella of the formal methodological branch of policy network analysis. The next chapter elaborates our perspective and develops a formal model designed for the explanation and prediction of policy outputs in an actor-network context.

4

POLICY FORMATION FROM A FORMAL NETWORK PERSPECTIVE

4.1 Introduction

The approach presented in this chapter belongs to the formal methodological branch of policy network analysis. It aims to explain the formation of policy outputs with respect to transparency in food chains using a formal model that captures the dynamics between actor and network characteristics. The policy outputs explained by the model are considered feasible under the conditions present each time (i.e. actor and network characteristics), and these conditions are empirically identified. The chapter begins with outlining an overview of the policy process as envisaged by the dissertation (section 4.2). Next, we present the assumptions guiding our analysis (section 4.3) followed by a detailed presentation of the dependent and independent variables (section 4.4), and an elaboration of the formal model (section 4.5). The final section discusses aspects of the regulatory context that need to be considered when evaluating the policy output in detail (section 4.6).

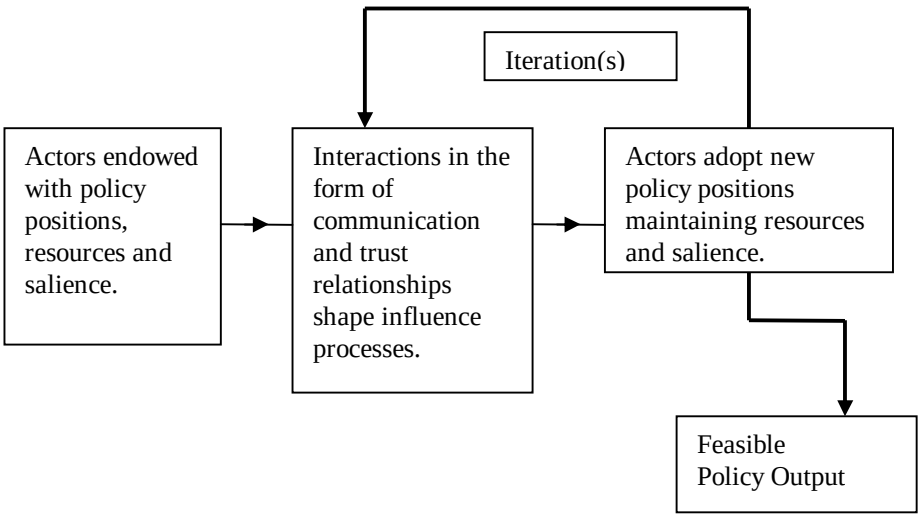
4.2 The General Model

The previous chapter reviewed two perspectives explaining policy formation in a multi-actor setting as well as a number of approaches developed under the umbrella of each one of them. On the one side we placed the *individualistic* perspective emphasizing actors and their strategies. On the other side we placed the *network* perspective emphasizing the context in which the actors operate in the form of their interactions. We argued in favour of combining the micro (actor) with the macro (network) level in order to achieve not only better predictions for the policy outputs but also, and most importantly, to gain more theoretically accurate explanations. In our view the methodological strand of policy network analysis envisioning the actor and the network in interaction with one another provides a terrain for developing insightful approaches.

Before going into a more detailed presentation of the dependent and independent variables and assumptions underlying our analysis, we find it useful to provide an overview of the policy process as envisaged by the dissertation. The policy process, illustrated in Figure 4.1 is perceived to begin with actors holding certain positions on a particular issue and end in a common policy output. Actors are endowed with certain types of resources that help them play a role in the resolution of the issue in question. In addition actors have a particular level of salience which determines their willingness to invest their resources in resolving the issue. Through communication and trust relationships influence flows are determined and new positions are formed. These new positions along with actors' original resources and salience are filtered again through the communication and trust patterns until positions no

longer change.[1] Iteration occurs each time one policy position filters into a new policy position. A policy output is reached when actors' positions shift no more. This output is the *feasible* policy output under the conditions (i.e. actor and network characteristics) that are present each time.

Figure 4.1 *The general model*



4.3 Assumptions

This dissertation is placed under the umbrella of the formal methodological strand in policy networks in order to provide explanations and predictions of the policy process outputs. We view the network or the collective level of political activity not simply as an aggregation of a myriad of individual decisions, actions, or transactions. Rather, the collective level is thought to have a structure of its own which significantly affects behaviour by providing the context in which individual decisions are made. This structural context created by the patterns of interactions among the actors is thought to be of a more or less stable nature. As such the network interactions are assumed to remain constant during the whole negotiation process with actors having to advance their goals within those boundaries. This assumption derives from the policy network perspective in policy analysis (see chapter 3) which views the

1 Communication and trust relationships can also alter the amount of salience and/or actors' resources. However this dissertation assumes that the impact of communication and trust on shifts in salience and resources is minimal. We explain the logic of this assumption in the next section (4.3) where we present and discuss the set of assumptions that guide the dissertation's analysis.

network as a more or less stable fabric whose structure plays a fundamental role in affecting policy outputs.

This dissertation's approach to networks is placed under the communicative rather than the exchange branch. Hence, no trade-offs between transparency and other issues are examined. Exchange is not considered primarily because exchange models have been found to work better when the issues are highly polarized (Arregui, Stokman, and Thomson 2004). As we will later see, transparency does not induce polarized policy positions among actors. Instead, actors' policy positions on transparency can be represented in a continuum. In such cases, influence models in which actors try to induce position shifts and compromises and build support behind their position rather than engage in exchange, are considered more appropriate (see Arregui, Stokman and Thomson 2004).

In addition we assume that decisions are taken by consensus and compromises are made by all the actors. In the process of making compromises we assume that actors prefer to move as little as possible from their initial policy positions, as those positions represent their preferred policy output. Therefore, in the process of shifting their policy positions (as a result of pressure or persuasion) actors prefer to shift towards those positions that are as close as possible to their own. In other words we assume that actors prefer to make the least possible concessions when they are engaged in a negotiation process.[2]

Finally, we assume that change in the level of salience and resources as a result of the interactions among the actors is minimal during the period of our study. Shifts in the level of salience and transfer of resources from one actor to the other can indeed take place when a longer time horizon is perceived. In this case the pattern of interactions among the actors may also change. However we take only a snapshot of the policy process which does not allow for the materialisation of such shifts in the characteristics of the actors and the networks. Only actors' policy positions shift in the course of determining policy outputs. We can now summarize the assumptions that guide our analysis as follows:

1. The policy output is determined by the (stable) interactions among actors who have an interest in influencing decisions on the issue of transparency,
2. Actors prefer to make the least possible compromises, hence their inclination to move towards other actors' policy positions diminishes with the distance between the policy positions, and
3. Salience and resources remain constant throughout the policy process.

2 Of course the actual concessions actors are going to make also depend on their individual influence and network structure.

4.4 The variables

This section presents the dependent and independent variables that we use in the ensuing chapters to explain transparency related outputs in the pork and farmed-fish sectors in the Netherlands and the EU.

4.4.1 Dependent variable

The dependent variable is in a broad sense, the characteristics of the policy output. Following our conceptualisation of transparency defined in chapter two as *vertical degree* and *horizontal scope*, the characteristics of the policy output are defined accordingly. In particular, we look at the policy output in terms of two characteristics: the degree and scope of transparency the policy or initiative[3] demands to be established in the vertical and horizontal dimensions of the food supply chain, representing the structural and normative aspects of food production, processing, distribution and consumption respectively. The following paragraphs delineate these characteristics and discuss them in more detail.

Transparency in the vertical dimension or Vertical degree of transparency

The first policy output characteristic relates to the tracking and tracing of a product backwards and forwards through the production chain from harvest through transport, processing, distribution, and sale. This characteristic refers to the presence of transparency in the vertical dimension. The policy question regarding transparency in the vertical dimension is: how deeply into the chain does the policy demand products to be traced; in other words what vertical degree of transparency is stipulated by the policy? The highest degree is achieved when the policy (or initiative) demands traceability in the whole chain from the retail shelf to the production of feed ingredients while the lowest degree is achieved when the policy makes no demands for traceability.

Transparency in the horizontal dimension or Horizontal scope of transparency

Systems of traceability, however, can be used for the distribution of a wide variety of product information within the chain. This dissertation is primarily interested in the inclusion of sustainability related information. The presence of sustainability related information on products and processes in traceability systems is referred to as transparency in the horizontal dimension. Consistent with our conceptualisation of sustainability in chapter two, sustainability related information covers the subjects of the impacts on human health and safety, animal health and safety, animal welfare and the environment caused by the various activities performed in each of the links that form the food

3 For the aim of parsimony when we refer to policy we also imply initiatives as well, unless stated otherwise.

chain. The policy question regarding transparency in the horizontal dimension is: how many subjects related to sustainability does the policy demand to be covered; in other words what scope of transparency is stipulated by the policy? The broadest horizontal scope is achieved when all the subjects (impacts on human health and safety, animal health and safety, animal welfare and the environment) are covered by the policy. In contrast, the narrowest scope is achieved when none of the subjects are covered by the policy.

4.4.2 Independent Variables

We use two sets of independent variables, one referring to actors' individual characteristics and another referring to the characteristics of the network in which actors operate. Actors are defined as "those acting units which are concerned with formulating, advocating and selecting courses of action that are intended to resolve the substantive problem in question" (Kennis and Schneider 1991; Laumann and Knoke 1987). Following Laumann and Knoke (1987), we assume that corporate entities such as trade associations, professional societies, labour unions, public interest groups, government bureaus, and congressional committees are the key policy-domain actors. Individuals play a role as long as they act on behalf of their organizations.

i. Actor characteristics

The identification of actors' individual characteristics is based on the bounded rationality model (Abdollahian and Kugler 2003; Bueno de Mesquita et al. 1985; Bueno de Mesquita and Lalman 1986; Bueno de Mesquita 1994), one of the bargaining models presented in chapter three. The model assumes that three characteristics are significant for the determination of policy outputs: actors' *policy positions* on an issue, their power *resources,* and their *salience* for the issue in question.[4] These characteristics are described in more detail below.

Policy Positions

Actors have certain preferences regarding the output of decisions on a particular policy issue. Their most preferred output is called their *policy*

4 The model also assumes risk as defined by the distance between actors' positions and the expected policy output, which in that model is represented by the weighted median. Specifically, it is assumed that actors are more risk-averse the closer they are to the median while they are more risk-takers the further away they are. However, this assumption can be challenged as it assumes that actors with extreme policy positions will always be the most vulnerable to pressure. Nonetheless, actors with extreme policy positions might be the most resistant to pressure, specifically when their positions stem from strong ideological beliefs. Hence, it is unlikely to expect for instance, that Greenpeace will be easily persuaded or induced to change its position on genetically modified foods, even when it participates in a negotiation network where less extreme positions can be identified.

position. In this study actors' policy positions concern the vertical degree and horizontal scope of transparency in the food chain. In line with the bounded rationality model we assume that the policy positions can be represented in a straight line (Abdollahian and Kugler 2003; Bueno de Mesquita 1994), from the least to the most extreme, with the final policy output falling somewhere in between. In the absence of any interaction among the actors, the policy output can be predicted by calculating the weighted mean or median of an actor's alignment of policy positions.[5] However, when actors interact with one another their policy positions are bound to shift. We remind the reader of our assumption that while actors compromise they want to shift as little as possible from their policy positions; to do otherwise would be irrational as their policy position is their most preferred policy output (Stokman and Zeggelink 1996). In order to reflect that internal mechanism we use the concept of utility functions.

In line with the bounded rationality model we assume that actors' utility functions are single peaked and monotonically decreasing. The assumption of single-peaked utility functions implies that actors have only one best preference (their policy position), while their preferences for the policy positions of other actors is always smaller. However, actors do not regard all other policy positions as identical. Instead they are able to rank them from their least preferred to their most preferred in an ordinal fashion (Abdollahian and Kugler 2003; Bueno de Mesquita 1994; Bueno de Mesquita et al. 1985; Bueno de Mesquita and Lalman 1986). The way actors rank their preferences for other actors' policy positions depends on the distance between their policy positions. Actors are more attracted to policy positions closer to their own than policy positions further away (assumption of monotonicity).

Resources of Power and Influence

If all actors' policy positions converged, and in the absence of fear for unilateral defection, the common policy position would be translated into the output of the policy process. In most cases however, actors' positions over an issue diverge. Usually different actors have different preferences concerning decisions about a particular issue as well as different means to foster the adoption of those decisions. In such situations the policy output is determined by the *ability* of each actor to influence the output either directly or through attracting support from other actors by pushing for positional shifts or compromises. Actors' abilities to successfully promote their positions are determined by the power of resources they hold relative to the resources of other actors.

Usually, scholars decide their categorization of resources according to the issue they study and the actors involved. For instance, Laumann and Knoke (1987) in their study of organizational influence on policy making identify

5 We will return to that point in chapter 5.

expertise, financial resources, staff or facilities, official decision-making authority, good connections to influential organizations, reputation, ability to mobilize members to support of proposal and ability to mobilize public opinion to support a proposal as important resources of power. Ligteringen (1999) and Klok (1995) who study policy for formulation and implementation processes involving the government and a target group list as influential resources physical goods and skilled people, information, time, money, legal rules and consensus, and authority or trust. Stokman and Zeggelink (1996) who study influence relationships between government and private actors argue that in general important resources include exclusive information, and financial resources, as well as official voting power.

This dissertation focuses on influence processes among actors that have an interest in policies concerning transparency in food chains. Typically three types of actors are involved: the government or public actors, business actors and civil society organizations.[6] These actors hold certain types of resources, which although they do not belong exclusively to one specific actor are primarily associated with specific types.

For the government or public actors the obvious resource is official decision-making power or the power to impose legally binding decisions on others. Even though the ability and willingness of the government to do so varies, the shadow of hierarchy, or in other words the threat of governmental regulation, is a powerful resource. On the other hand, private/business actors are mostly associated with the possession of financial resources as well as expertise/information. Financial resources can be an important political resource for a variety of reasons. First of all, financial resources enable actors to hold, for instance, offices in official centres of decision-making and therefore, closely monitor the political scene. In addition, financial resources help actors to launch campaigns and/or financially support political campaigns. These practices have rewarding returns for the money suppliers, in terms of both access to public actors and to the public. Financial resources can be used by actors as a source of investment for research and as such create another resource, namely expertise or information. Expertise is a particularly important resource, since decisions on a number of issues are currently based on "scientific proof". Government increasingly relies on the expertise provided by the private sector for dealing with a number of issues; in this study, for example, the government could rely on the private sector for developing tools for transparency. Furthermore, both expertise and financial resources can be used in the promotion of self-regulatory activities.

Finally, civil society organizations are primarily though not always associated with moral legitimacy as a resource. Moral legitimacy derives from the support organizations have from the public to perform certain tasks. For instance, surveys such as the Eurobarometer 58.0 (2002, 2003) demonstrate

6 Universities and research institutes, as well as the media, can also be involved in the policy process but they usually operate as background actors.

that civil society organizations enjoy the acceptance and support from a large segment of the population. A recent survey initiated by a number of Dutch universities shows that a large segment of the population places their trust on consumer organizations in particular.[7] The public usually perceives them as defenders of consumer rights and the environment who are not motivated by individual financial profit in pursuing their activities and therefore have no incentive for deception. As such, civil society organizations gain authority as political actors and acquire the ability to mobilize public opinion. Table 4.1 summarizes the types of resources mostly associated with specific types of actors as well as the activities that they enable actors to perform.

Table 4.1 *Resource Categories, Types of Actors and Activities*

Types of Resources	Types of Actors	Activities
Financial resources	Primarily Business Actors	Launch campaigns, financially support political campaigns, hold offices in official centers of decision-making (lobbying)
Expertise[8]	Primarily Business Actors and NGOs	Give advice on various subjects. Especially in food policy, expertise is very important for issues of food safety, but also for environmental consequences and animal welfare concerns
Rule Making	Primarily State Actors	Legally bind decisions upon all actors
Moral Legitimacy	Primarily Civil Society Actors	Authority as a political actor. Ability to mobilize public support

Salience

Stokman and Zeggelink (1996) call attention to the fact that the resources actors hold represent only potential influence and not actual influence. Indeed actors' actual influence depends not only on the amount and quality of their resources but also on their willingness to invest these resources to influence a decision for a particular issue. As negotiation processes on a particular issue are often parallel similar processes on many other issues, actors have to prioritize and decide where to invest finite resources in order to obtain influence. Salience determines actors' willingness to use their power resources to promote their positions and as such it acts as a discount factor over actors' power resources.

7 Information for this survey is provided in Appendix D.

8 Expertise is also regarded by some scholars as a source of legitimacy in addition to moral legitimacy.

ii. Policy Network Characteristics

The network is the constellation of actors and their interactions. The pattern which those interactions display determines the characteristics of the network. This dissertation focuses on two network interactions, namely communication and trust. Communication is regarded as the means through which actors express their challenging and persuasion requests, while trust is regarded as a communication qualifier.

The network can be observed from a micro and a macro perspective. A micro perspective examines actors' direct relationships with each other: which actors communicate with which others, whom they trust, and who trusts them. This gives information about actors' neighbourhoods or local patterns. On the other hand, observing the network from a macro perspective derives explanations for the structure of the network as a whole: how much communication takes place and what is the general level of trust. In addition, the macro perspective sheds new light on the local patterns, as it allows contrasts and similarities to be revealed. Below we discuss actors' interactions of communication and trust from both perspectives.

Communication patterns

Actors communicate with each other to exchange information but more importantly to expand pressures to address a common problem or to seek a common solution to a problem (Warren 1999). Following Stokman and Van den Bos (1992) and Stokman and Zeggelink (1996) we argue that communication is a condition for influence among actors with different policy positions. In addition communication is a condition for obtaining support for one's own policy position by like-minded actors. As such, communication aims to promote one's policy position by transforming other actors' positions and persuading potential allies to maintain their positions. The promotion of actors' policy positions therefore, depends both on their ability to exert pressure and resist pressure.

An actor's location in the communication network plays a crucial role with regard to resisting pressure. More specifically, actors are better able to resist pressure the more they share a communicative relationship with other actors, especially when these oppose the challenger's policy position[9] (see also the formal model in section 4.5). The results are more rewarding when these are actors with similar policy positions in which case their collective power has the potential to keep them from shifting their policy position at all.

9 The argument stems from the literature on social network influence (Friedkin 1986; 1997; 1999; 2001; Friedkin and Johnsen 1990; 1997; 1999; and Leenders 2002), which shows that actors' positions or perceptions about an issue or a situation are influenced by the positions or perceptions of all the actors with whom they communicate. In particular actors are assumed to make a mental average weighted calculation of the positions of all the actors with whom they communicate. If the weighting factor is actors' power, then actors who have to consider diverse policy positions when reformulating their own are ultimately going to make less compromises than actors who are exposed to only one powerful position.

However, the results might be counterproductive if the communicative partners are actors with positions more extreme than the challenger's in which case the challenged actor's policy position could shift towards the challenger's (less extreme) position.

Actors promote their policy positions not only by resisting pressure but also by exerting pressure. Therefore actors are more successful if they pursue an effective communication strategy. A number of studies try to identify the best strategy (in terms of who to communicate with and therefore try to influence) that will help actors attain their goals. For example Stokman and Zeggelink (1996) argue that actors' communication strategies are more effective if they challenge actors whose policy positions fall on the other side of the expected output in relation to their own. Instead of making the assumptions of rationality in that respect however, this dissertation focuses on an empirical examination of actors' communication patterns. We do that because examples show that actors do not always optimize their communication patterns but in many instances those patterns are the result of more or less habitual communication relationships. Specifically, actors usually communicate with actors that are regular allies on many other issues or who share the same ideology or values (Laver and Shepsle 1990) even though in the particular policy issue at hand (e.g. transparency) their policy positions might differ. In other words actors do not enter the communication process without a memory of the past.

In addition to influence through direct communication, influence also occurs through indirect communication taking place within the network. For example, two actors may indirectly influence one another by sharing direct communication with a third network actor. This may explain why some actors are unable to find supporters even though local patterns would suggest otherwise. Influence flows at the macro level bind actors' capabilities at the local level.

Trust patterns

In addition to communication, trust plays a major role in determining actors' position shifts and compromises. Actors develop trust relationships with each other during their past and present interactions, inside and outside the policy process. Trust occupies an important role in the literature on management, where it is usually distinguished in two forms; based on the other party's intentions or based on the other party's abilities (Dooley and Fryxell 1999). Trust in someone's abilities determines whether or not that person or organization will be assigned a certain task. From the perspective of influencing policy outputs, trust in other actors' abilities does not play a decisive role (perhaps only in the selection of instruments). Moreover, actors' ability to influence the policy output is sufficiently covered by actors' resources. On the other hand, trust in someone's intentions is mostly associated with the risk of facing opportunistic behaviour (Bradach and Eccles 1989; Gambetta 1988). This type of trust plays a much more vital role

in explaining influence among the actors. Therefore this dissertation is concerned with trust in someone else's intentions.[10]

We argue that trust and especially distrust significantly impinges an actors' ability to influence other actors. At the micro level distrust makes actors more resistant to influence from the actors[11] with whom they communicate directly. Actors need to be trusted in order for their influence to be more effective. At the same time actors need to be able to trust other actors. This might sound like a paradox, especially due to the benefits of distrust for the skeptical party outlined above. However the weakening of influence over one party from the side of certain actors is not always advantageous for that party's policy position. In the absence of trust actors might not consider the positions of actors that could serve as potential allies against influence that would shift them away from their policy positions. The absence of trust from one party to another could eventually enhance rather than weaken the former's exposure to pressure, while the latter is a potential ally against the challenging actor's influence.

Trust also plays a significant role at the macro level where it operates in a way similar to communication, in the form of a chain effect. Actors indirectly influence one another through trust relations those who communicate directly with them have with other network actors. In addition trust at the macro level also operates in a more holistic way. Scholars argue for instance, that the dynamics of whole structures in terms of trust can shape behaviour at the individual level (Bradach and Eccles 1989; Granovetter 1985).[12] In particular research shows that structures characterized by intense trust relationships among groups of actors prevent trust from developing outside the group boundaries (Yamagishi, Cook and Watabe 1998).[13] These groups of actors often develop due to familiarity and friendship or due to sharing views and ideologies (Fukuyama 1995; Gambetta 1988). The authors explain that trust among those actors is based on a system of informal (or formal) mutual monitoring and sanctioning operating within the boundaries of a community outside of which actors seem to be unable to cooperate. Committed trust relationships seem to confine actors' ability to see beyond them to the possibility of trusting other actors. On the contrary, Yamagishi and his

10 Some scholars argue that trust on someone's intentions can be placed strategically (i.e. Coleman,1990). In other words actors are supposed to pretend to trust someone for the benefits of cooperation. However, the dissertation adopts the view that trust cannot be induced at will and cannot be pretentious (see also Gambetta 1988; Williams 1973).

11 In the absence of power, cooperation would fail if distrust was complete or unilateral (Gambetta 1988). However policy processes do not exist independently from power relations in politics and society. In consequence trust or better distrust, weakens, but does not negate the ability of actors to influence one another.

12 Scholars also identify other factors on which trust depends. For instance, institutions are thought to be one source of trust (Deakin, Lane and Wilkinson 1997; Giddens 1990; Luhmann 1979).

13 See also Yamagishi and Yamagishi 1994; Yamagishi and Yamagishi 1989.

colleagues argue that when a structure is characterized by general trust, actors' tendency to commit themselves to specific relationships is reduced. Hence actors become more open to influence even by actors who traditionally perform different and sometimes, antagonistic roles in the network. As such trust relationships constrain or facilitate the flow of influence among the actors. In a network characterized by general trust, influence will flow unobstructedly among all the network actors. In contrast, in a network characterized by trust only among specified groups of actors influence across groups will remain restricted.

4.5 The formal model

This section brings the discussion on dependent and independent variables together in a model designed to predict actors' position shifts over time and eventually the final policy output. The formal model is based on Stokman's work on the effects of network communication patterns on actors' policy positions. The model is encapsulated in the following formula that has been employed for the estimation of actors' new positions as they shape during their interaction with other actors:

$$P_i^{t+1} = \frac{\sum_{j=1}^{n} I_{ji} P_j^t a_{ij}^t}{\sum_{j=1}^{n} I_{ji} a_{ij}^t} \quad (1)$$

where,

$$a_{ij}^t = 1 - \left| P_j^t - P_i^t \right| \quad (2)$$

The formula shows that the position of actor i, P_i, at time (t+1) is a weighted sum of her own policy position and that of other actors who interact with i at time t. This is consistent with our first assumption which postulates that actors' position shifts, and hence the final policy output, are determined by the interaction processes among the actors. The weights are determined by her own and the other actors' incoming influence relations, I_{ji}, as well as the normalized distance between i's and other actors' policy positions at time t, a_{ij}^t. Factor a_{ij}^t is employed in order to account for the inclination of actor i to move as little as possible towards policy positions further away than her own (consistent with the second assumption introduced in the beginning of the chapter). Her inclination to move towards other actors' policy positions diminishes with the distance between their policy positions (the larger the

distance between policy positions, the smaller the a_{ij}^{t} and hence, the less the effect on i's position shift).

The specification of the influence j can excel on i, I_{ji}, is denoted by the following formula (based on Stokman and Van den Bos 1992):

$$I_{ji} = \frac{r_j s_j (C_{ji} T_{ij})}{r_i s_i + \sum_{k=1}^{n} r_k s_k (C_{ki} T_{ik})} \quad (3)$$

The formula shows that in a network of n actors, the ability of one actor j to influence another actor i depends on the resources j can mobilize to determine decisions on the issue at hand discounted by the salience j attaches to that issue ($r_j s_j$), relative to the resources and salience i ($r_i s_i$) and all the other actors who interact with i can mobilise to determine decisions on the same issue ($\sum_{k=1}^{n} r_k s_k$). That equation also gives the amount of influence of an actor over herself, I_{ii}^{1}, which is equal to one minus the incoming influence of all other actors. For each actor, the sum of all the incoming influence and the actor's own influence over herself sums to 1.

The interaction variables are given by C_{ji} and T_{ij}, as well as $\sum_{k=1}^{n} C_{ki} T_{ik}$. The variable C_{ji} denotes the communication from j to i, while $\sum_{k=1}^{n} C_{ki}$ denotes the communication from actors k in the network towards i. The formula shows that the influence of j over i increases the less actors k communicate with i, especially when i's ability to determine decisions on the issue at hand (given by $r_i s_i$) is small and j's (given by $r_j s_j$) large. In contrast, the larger the number of actors k communicating with i, the smaller the relative influence of j over i (especially when i's ability to determine decisions regarding the issue at hand is small and j's large). This is especially advantageous for i's policy position when the actors k share the same position as i and/or have policy positions close to i and distant to j.

The variable T_{ij} denotes the trust relationship from i to j, and $\sum_{k=1-} T_{ik}$ the trust relationship from i to other actors k in the network. The

combination of communication and trust variables shows that actors' capacity to induce position shifts on other actors' policy positions depends not only on the establishment of a communication relationship from j to i but also on the presence of trust from i to j. In the discussion on the role of trust earlier in the chapter we argued that the absence of trust has a weakening effect on actors' ability to influence other actors. In other words actors resist pressure from actors whom they do not trust. In the same vein actors are reluctant to form coalitions with similar minded actors (stick to their common policy position) if they do not trust their potential allies. Hence, the benefits of communication and power can be diminished in the absence of trust relationships. We discuss in more detail the magnitude of that effect in the next chapter.

Finally, the network policy output is predicted by taking the weighted sum of the policy positions of all actors after a number of influence rounds (t+m). The network output is thus given by:

$$P_n^{t+m} = \frac{\sum_{i=1}^{n} P_i^{t+m} r_i s_i}{\sum_{i=1}^{n} r_i s_i} \quad (4)$$

This formula shows that in determining the policy output the positions of all actors as they have been shaped in time t+m, P_i^{t+m}, are taken into account but the positions of less influential actors (in terms of resources and salience) carry a smaller weight relative to the positions of more influential actors.

4.6 Evaluating the policy output in the context of regulatory practices

The evaluation of the model's predictions will be discussed in detail in chapter five. In this section, we discuss aspects of the regulatory context that need to be taken into account when evaluating the policy output in detail from a qualitative perspective. The regulatory context represents the way through which change in the status quo is intended to be brought (see also Bressers and O'Toole 2004). Different regulatory practices can make strong or weak demands for the establishment of transparency in the chain, impacting the degree and scope of transparency that will actually be implemented. Additionally, the legitimacy of such practices in the eyes of the public will determine whether transparency will have an appeal in their purchasing decisions. Three regulatory practices are identified, namely self-regulation, governmental regulation (command-and-control), and as a mix of both. These practices are discussed keeping in mind their potential role in promoting a high degree and broad scope of transparency in the vertical and horizontal dimensions respectively.

Self-regulation

Self-regulation can take a variety of forms and encompass a wide range of instruments. These include voluntary and cooperative agreements, environmental covenants, enforced self-regulation, negotiated compliance, codes of practice, environmental partnerships, environmental management systems, corporate environmental reporting, environmental accounting, and environmental self-auditing (Sinclair 1997).

The arguments in favour of self-regulation are abundant. In addition to the obvious economic arguments, quickness, efficiency, excellence through competition, and universality are also stressed as important (Furger 1997). Self-regulatory systems are also thought to be able to correct their own institutional failures through reflexivity mechanisms (Aalders and Wilthagen 1997). More importantly, self-regulation is thought to be able to change the attitude and behaviour of a target group in ways that criminal prosecution and administrative fines are unable to achieve (Gray and Scholz 1993). According to supporters this takes place through a system of reputation incentives through which concerns for actors' public image "seems to be a decisive factor in triggering self-policing activities" (Furger 1997:450). In addition actors seem to conform to the rules not only because it serves their individual interests but also because it is expected from them (Scott 1995). In other words actors feel morally obliged to conform to the rules they themselves have developed.

However, self-regulation also has its critics. According to some commentators the arguments in favour of "peer review" are not so persuasive. Gerits and Hinssen (1994) in particular argue that peer pressure fails more often than not and this is an inherent flaw of self-regulatory systems. This is especially the case when due to short-term self-interest, actors might be tempted to neglect the self-imposed regulation of the sector, hoping for solidarity from their colleagues. However, this behaviour might undermine the self-regulatory scheme as a whole.[14] Furthermore, self-regulatory standards are considered weak, enforcement is deemed ineffective and punishment is often considered secret and mild. According to critics self-regulation commonly lacks many of the virtues of conventional state regulation "in terms of visibility, credibility, accountability, compulsory application to all...and availability of a range of sanctions" (Webb and Morrison 1996:1-2). Consequently, it might lack legitimacy in the eyes of the public.[15] Some

14 For example, Rees (1994) demonstrates that what is perceived as one of the most successful self-regulatory schemes ever created, that governing nuclear power utilities in the U.S., maintained its long term credibility only by the intervention of the police in regular intervals due to the unwillingness of a small minority of recalcitrants to conform to the rules. The author posits that this series of events threatened to destabilise the scheme as a whole.

15 However, Furger argues for instance, that the extent to which the public accepts self-regulatory systems as a legitimate alternative to governmental regulation may depend upon the time frame within which both systems address their institutional failures. Thus, if the self-regulatory

scholars go so far as to discard self-regulation altogether. Braithwaite for instance argues that "self-regulation is frequently an attempt to deceive the public into believing in the responsibility of an irresponsible industry. Sometimes it is a strategy to give government an excuse for not doing its job" (Braithwaite 1993:91).

Governmental regulation (Command-and-Control)

A number of studies support the argument that governmental regulation in the form of command-and-control plays a major role in changing the behaviour of a target group, especially when sustainable practices are concerned (e.g. Biekart 1995). Scholars posit that the arguments in favour of governmental regulation usually rest on three pillars. First, on the assumption that actors are self-interested, optimising individuals. Hence they lack the incentives to develop certain rules that might constrain their profit maximisation activities when profit and sustainability are incompatible. Second, on the assumption that groups of rational actors are rarely able to maintain commonly defined rules.[16] As such the threat of legal sanctions needs not be omitted; rather it should be kept on the background as an incentive for compliance. Finally, on the situation where other kinds of measures, such as self-regulation, have failed, in which case the public interest needs to be protected by public agencies (Furger 1997).[17]

Despite the effectiveness of governmental regulation to shape the activities of target groups in desired directions, it has been subject to a wide range of criticism from a variety of sources. Indeed governmental regulation, in particular in the form of command-and-control, has been accused of being costly and inefficient, of stifling innovation, inviting enforcement difficulties and focusing on "end-of-pipe" solutions (Bernstein 1993; Hahn and Stavins 1991; Leone 1986; Moran 1995; Reitze 1991; Sinclair 1997; Stewart 1992; Sunstein 1990).

Governmental regulation and Self-regulation

A number of scholars argue that the choice between governmental regulation and self-regulation needs not and should not be dichotomous (Bressers and O'Toole 2004). Rather they posit that these two regulatory types represent the two ends of a continuum, which in the middle features a combination of practices (e.g. Gunningham and Rees 1997; Sinclair 1997). Scholars observe that the combination of these two regulatory practices can have both advantages and disadvantages. This depends on the overlap between the

system works more efficiently, the public might prefer it over an "unacceptably slow institutional response to pressing problems" (Furger 1997:462).

16 Scholars posit that this is especially true when the trust among the relevant actors is limited (Deakin and Wilkinson 1998).

17 In the Netherlands, for instance, the regulation of chemicals was initiated after the bankruptcy of industrial self-regulation (Jong, ter Brugge, Levelt, and Damen 1991).

targets set by each practice, the combination of instruments used to achieve the desired targets, and the credibility of monitoring and compliance. For instance, in the case of food safety regulation, European and national regulations are in place emphasizing the responsibility of producers in that respect (see also Van der Meulen and Lugt 2004). This in general is considered a desirable combination consistent with the liberal goal of less governmental involvement and the associated benefits of self-regulatory schemes, while maintaining the background threat of criminal prosecution. Private schemes do not always guarantee compliance with public regulation however, especially when the monitoring of compliance is the responsibility of a private body. Havinga (2002) reports for instance that the Dutch Food Safety Authority has detected as many offences in HACCP-certified firms (demanded by EU regulations) as in uncertified firms. Moreover, the combination of instruments used by each regulatory practice plays a fundamental role in the effectiveness of a quasi-private quasi-public regulatory regime. A combination of complementary instruments, for example when "targeted information campaigns supplement self-regulatory initiatives", is considered effective (Gunningham and Sinclair 1999; Yu et al. 1998). In contrast combinations of instruments are usually ineffective when one instrument negates or dilutes the effects of the other. Examples include the adoption of uniform pollution standards across industry, which undermine the effectiveness of a pollution tax (see Gunningham and Sinclair 1999) and the incorporation of ISO 14000 environmental standards into national regulations, which reduce the incentives of moving beyond those (typically low) standards (Clapp 1998).

In conclusion, different regulatory practices could be employed to support policy outputs for transparency in the food chain. Each maintains both advantages and disadvantages for the implementation of a high vertical degree and broad horizontal scope of transparency in the food chain. The benefits of a regulatory regime that could promote the successful implementation of a high level of transparency (in both dimensions) in the chain could be refuted however, from a potential lack of legitimacy of the specific regime in the eyes of the public. Indeed a potential lack of legitimacy could mean that consumers would not use the information provided in their purchasing decisions thus minimising the benefits from transparency. We return to that point and discuss it in detail in the empirical chapters.

4.7 Summary

This chapter presented our analytical approach to the explanation of policy outputs for transparency in the food chain. We discussed the dependent and independent variables as well as the relationship between them. The dependent variable in particular is the vertical degree and horizontal scope of the policy

output while the independent variables are the characteristics of the actors (policy positions, resources, salience) and those of the network in which they operate (patterns of communication and trust). This chapter elaborated a formal model which we will use to predict actors' position shifts in various negotiation rounds and the final policy output.

The formal model envisages the formation of policy outputs to be determined by the interaction between actor and network characteristics. More specifically, network characteristics shape the influence processes among the actors, which (can) result in actors' position shifts and are translated in policy outputs. The policy outputs explained by the model are considered the feasible policy outputs under the conditions that are present each time (i.e. actor and network characteristics), and these conditions are empirically identified. Finally, the chapter discussed aspects of the regulatory context that need to be considered when evaluating the policy output in detail from a qualitative perspective.

The dissertation examines the validity of its perspective in the empirical chapters. Before that, an exposition of the operationalisation and measurement of variables and research methods is presented next.

5

RESEARCH METHODOLOGY

5.1 Introduction

This chapter presents the methodology we use in this dissertation. Section 5.2 presents the research method based on both quantitative and qualitative approaches to research, while section 5.3 elaborates on the selection of empirical cases for this study. Section 5.4 discusses the boundary specification, a common concern in network studies, and presents how we deal with this issue. The following section (5.5), explains measurement of actors' individual and network characteristics. Section 5.6 explains evaluation of the results of the model and section 5.7 summarizes and concludes the chapter.

5.2 The research method

This dissertation aims to explain the formation of policy outputs with respect to transparency in a multi-level, multi-actor setting based on actor and network characteristics and is empirically guided in pursuit of this aim by a combination of qualitative and quantitative methods. According to Wester (1992:212) qualitative research observes relevant characteristics with the aim of specifying and naming them. Thus qualitative research is used in this dissertation as an explorative tool making an assessment of the field. Methodologists report that qualitative methods consist of three kinds of data collection: (1) in-depth, open-ended interviews; (2) direct observation; and (3) written documents, including such sources as open-ended written items on questionnaires, personal diaries and program records (Patton 1987:7). In the first stages of the research we used open-ended interviews with key actors in order to explore and illuminate the particular subject area under study. The dissertation used a technique called the "interview guide", as opposed to the "informal conversational interview" (Patton 2002 provides an extensive analysis of the different styles of interview that can be employed in qualitative research). Researchers using an interview guide list the questions or issues to be explored in the course of an interview. An interview guide ensures that the same basic lines of inquiry are pursued with each actor interviewed. The researcher remains free to hold a conversation within a particular subject area and to ask spontaneous questions but with the focus on a particular predetermined subject. As such, the guide provides a framework within which the researcher can decide which issues to pursue further and what information to pursue in greater depth. Moreover the guide makes interviewing more systematic by determining the issues to be explored in advance, which remain consistent for all the interviewees. In comparison, the informal conversational interview does not predetermine subjects and is recommended when no subject has been chosen as the primary object of research.

This study also used quantitative research methods following directly from the employment of the formal model described in chapter four. In order

to estimate the model, information was required on two types of variables: (a) composition variables measuring actor attributes, and (b) structural variables measuring relations of a specific kind between pairs of actors (Wasserman and Faust 1994:29). Composition variables included actors' positions and salience on the issue in question and actors' sources of influence; structural variables included communication and trust relations between pairs of actors. We gathered information on these variables using a structured questionnaire. Before explaining the types of questions used in order to collect the necessary information on composition and structural variables however, it is important to present the criteria for case selection first, and then explain how we specified the boundary of the network; in other words how we identified the relevant actors that should be included in the study.

5.3 Case selection

In its examination of the political feasibility of designing and implementing transparency, this dissertation concentrates on the Netherlands and the European Union (EU) due to their interrelatedness and significant role in food production and trade. The Netherlands in particular, is a major trader and producer of agricultural products internationally and within the EU, and therefore a big player on matters relating to food production chains, such as transparency. Likewise the EU is a major food producer and trader of agricultural and food products.[1] As such, EU decisions concerning agriculture and food carry substantial weight at the international level. More significantly for the purposes of this study however, EU decisions also carry substantial weight at the national level. Since the establishment of the Common Agricultural Policy of the European Union, the regulation of these fields on issues related to agriculture and food has developed a strong European dimension. Decisions at the EU level in relation to food strongly influence decisions and policy options at the national level. The national level itself cannot be ignored however and has its own voice. Hence this dissertation focuses on both national and EU levels.

The formation of policy outputs with respect to transparency in the food chain is examined by focusing on meat and fish. The case of meat is of particular importance as it has involved past crises resulting in substantial short-term consumption decrease and long-term image problems for the meat industry (Verbeke, Ward and Viaene 2000). Similar problems may arise in the fish industry, although fish presently, has a much healthier image compared to meat. Current practices of fish farming however, increasingly resemble the practices of the meat industry therefore potentially reversing the fish industry's image. As such the potential for improving transparency also

1 Appendix B provides the evidence for such claims.

needs to be examined in the fish sector. Specifically, this dissertation focuses on pork and farmed-fish. Pork was chosen on the basis of the severe impacts on sustainability related to pork production and consumption especially at the national level. Farmed-fish was chosen on the basis of the rapid development of this sector, its increasing expansion both in scale and intensity, and the accompanying rise in significance of the associated sustainability impacts. Below we describe in more detail the cases for pork and farmed-fish in the Netherlands and the EU, and their significance for this study.

The significance of pork production in the Netherlands

The Dutch pork sector is the most important meat product sector in the Netherlands in terms of revenues, representing an annual 2.3 billion euros in export values of meat out of a total 3.5 billion euros in 2001 (PVE 2002).[2] Pork also represents the most preferred meat consumption product (42.4% of total meat consumption) and the most important product in organic meat production in the Netherlands. In particular organic meat production in the Netherlands has a share of 2% of the market of which 1.6% is pork.

Pork production in the Netherlands covers activities throughout the chain, from the production of raw materials for feed, to animal breeding, slaughtering, processing, and selling. Although most stages in the pork chain are characterized by concentration, pig farming remains mostly a family business activity. Pig farming is concentrated in the south and eastern parts of the country and is highly specialized into breeding, multiplication and fattening, usually carried out on separate farms. A great number of pigs are reared and bred in the Netherlands; in 1996 there were 21,500 pig farms, with 14.5 million pigs, 1.2 million of which were breeding sows housed on 9000 farms. This pig population produced 24 million piglets per year, making the southern and eastern provinces two of the most concentrated pig farming areas in the world (Pluimers, De Leeuw, Smak, Elbers and Stegeman 1999). As a result of the extent and intensity of pork production, the environmental pressure from the range of activities associated with pig farming and processing is extremely high. In terms of health consequences, the large concentration of animals increases their susceptibility to diseases and the quick spread of diseases among the animal (and possibly human) population. Finally, the intensive character of pig farming and pork production raises concerns about animal welfare.

The number of pigs and pig farms diminished significantly after the outbreak of swine fever in 1997. In 2002, the pig population was estimated at 12.6 million animals, 12% less than in 1996. The number of pig farms decreased to 12,800, while production dropped by 10.3% to 20.3 million animals. The number of animals slaughtered decreased by 13.8% to 16 million. Finally, the pig sector's total export volume decreased by 7% to

2 More than 70% of the pigs reared in the Netherlands are sold abroad. Most of the exports go to EU countries (especially Germany 65%, Italy 19% and Belgium 12%) (PVE 2002).

1,160,000 tones (PVE 2002). Despite these developments, the pig sector remains highly intensive and the associated concerns for health and safety, animal welfare and the environment, and transparency continue to be relevant.

The significance of pork production in the EU

Regarding pork, the EU is the second largest exporter in the world after China, representing 22% of total global exports (EU-25) (FAO 2003). The biggest producing countries in the EU are Germany, Spain, France, Poland, and the Netherlands. However, the share of organic pork production in each of those countries is below 0.6% of total pork production (Hamm et al. 2002). Hence the vast majority of pork production in the EU takes place under intensive and industrialised conditions.

Due to its strong position in the global food market, decisions promoted by the EU on food and agricultural issues carry substantial weight at the international level. Important from the perspective of this study, decisions at the EU level significantly influence policy options within the member states themselves. Indeed for many issues, especially those that affect intra-EU trade, actors (in particular economic actors) tend to oppose national measures that would impose "unnecessary" costs on their production methods, if such measures are not harmonized within the EU. Therefore the EU is a particularly decisive actor in this context. This study then, also concentrates on the EU policy network that has formed around transparency related decisions in the pork chain.

The significance of farmed-fish production in the Netherlands

This dissertation also focuses on the farmed-fish chain. At the Dutch level the farmed-fish sector is relatively small. In 1999, the Ministry of Agriculture, Nature and Food Quality (LNV) observed that one can hardly speak of a sector (in the sense of an organization with branch associations etc.) as most of the relationships among various actors are based on friendship rather than professional activities (*Achtergronddocument Aquacultuur*, October 1999). Approximately 150 companies are currently active in this area mostly in the production of eel, trout and catfish (LNV 2000). The total volume is approximately 3000 tonnes per year for eel, 1500 tonnes of catfish and 300 tonnes of trout. This brings revenue of 30 to 35 million EUR (LNV 1999) and represents about 5% of the total production of fish caught in the wild by Dutch vessels.

Although small, the Dutch farmed fish sector is characterised as (hyper) intensive and takes place almost entirely on closed re-circulation systems. Consequently issues related to intensive farming activities are relevant in the farmed-fish sector however due to the size of the sector they often get less attention. Yet, fish farming has many prospects for future development and growth. According to an LNV document (LNV 2003) fish farming in terms of food production is the fastest growing sector in the world. Consequently the sector is getting more attention as an investment opportunity for businesses.

For EU countries a decisive driver behind the promotion of fish farming activities are restrictions placed on the open sea fish quotas by the Common Fisheries Policy (CFP). Farming is therefore considered a viable and more sustainable alternative to catching and depletion of fish stocks. Such a development however, could lead to large-scale intensive production with consequences similar in range and extent to those we experience with pork and other types of meat. Therefore, issues related to health and safety, animal welfare and the environment, and transparency are highly relevant.

The significance of aquaculture production in the EU

Fish farming is a broad industry within the EU including the cultivation of other aquatic organisms besides fish. Therefore we use the term "aquaculture" instead of "farmed-fish" to describe aquatic farming activities in the EU. Aquaculture in the EU comprises three main activities: sea fish farming, marine shellfish farming and fish farming in fresh water. It is a highly diverse sector and consists of a broad spectrum of species, systems, and practices. The main aquaculture products in the EU are fish (in particular trout, salmon and sea bream) and molluscs (in particular mussels, oysters and clams). The production of aquaculture products continuously rises. Indicative numbers show that production rose from 642,000 tonnes in 1980 to 944,000 tonnes in 1990 while it reached 1,350,000 tonnes in 2000 (COM(2002)). Although this number represents just 3% of world aquaculture production, the EU is the world leader for the species of trout, seabass, sea bream, turbot and mussels. Moreover aquaculture constitutes 17% of the volume and 27% of the value of the total fishery production of the Union, with a current value of € 2,500 million per year.

Aquaculture is covered by the Common Fisheries Policy, which also manages fishing activities in the open sea. A recent 2003 reform of the CFP, presented aquaculture as a vital alternative to the depletion of fish stocks and degradation of the marine ecosystems, thus (aquaculture) assuming a more important role than in the past. The Commission praised the sector for its substantial contribution to the economic and social well-beings of European regions while also stressing the need for further financial aid.[3] Aquaculture is an increasingly important sector at the EU which requires carefully considering its future development in terms of sustainability impact. Therefore transparency in sustainability aspects of aquaculture must also be examined at the EU level.

3 Aquaculture has benefited from financial support from the Community since 1971. Aquaculture projects can also benefit from financial support from the Financial Instrument for Fisheries Guidance. These include projects modernizing existing premises or building new ones; installing or improving water circulation systems on site; installing new equipment; bringing hygiene standards up to Community requirements; reducing environmental impact and making a sustainable economic contribution to the proposed structural improvement.

In addition to their significance for sustainability, the cases of meat and fish in general and pork and farmed fish in particular, are especially interesting from a policy perspective. Policy-makers are trying to improve the sustainability consequences of the meat and fish supply chains by providing for instance, guidelines for more sustainable fish and agricultural practices. Societal pressure on the production side to include environmental and health considerations in their practices also stems from consumer associations and other non-governmental organisations (NGOs). This pressure also involves transparency because these organizations increasingly demand screening of food companies to ensure that they are loyal to sustainability and health objectives. Therefore from the perspective of sustainability and health it is important to assess the likelihood of the development of policies and instruments resulting in a more transparent food system.

5.4 Boundary Specification

In chapter four we defined actors following Kennis and Schneider (1991) and Laumann and Knoke (1987) as "those acting units which are concerned with formulating, advocating and selecting courses of action that are intended to resolve the substantive problem in question". We therefore base boundary specification on identifying those actors who tried to influence policies regarding transparency in food chains by formulating, advocating, and selecting policy positions on that issue. This method is referred to as the "nominalist approach" (Laumann, Marsden and Prensky 1989; Wasserman and Faust 1994) indicating that the identification of the relevant actors is based on the theoretical concerns of the researcher.[4] In several instances however, the nominalist approach presents weaknesses due to an unkown boundary. This is also true for this research as transparency is a new issue and negotiations concerning transparency are mostly informal in nature. For example actors other than those participating in meetings might be trying to influence the issue of transparency; these other actors must also be taken into account. In those cases sampling techniques such as snowball sampling (Erickson 1987; Goodman 1949, 1961) can be used. The snowball network sample begins when the actors in a set of sampled respondents, identified with the nominalist approach, report on the actors to whom they have relationships of a specific kind on the issue at stake. These nominated actors constitute the first-order zone of the network. The same procedure continues with the

4 A different approach is the "realist approach", which focuses on actor set boundaries and membership as perceived by the actors themselves. Wasserman and Faust (1994:34) illustrate this approach with the example of a street-corner gang which is acknowledged as a social entity by its members, where the membership of the gang is the collection of people the members acknowledge as belonging to the gang. However this approach is not practical in this study as it presupposes a "group-" or "community-" like character of the network.

sampled actors reporting on additional actors with whom they have a specific kind of relationship on the issue at stake. These additional actors constitute the second-order zone. The process continues until no more actors are added by the sampled respondents. When combined the nominalist and the snowball method provide a good specification of the network boundary.

5.5 Measurement of Variables

This section presents the operationalisation and measurement of the independent variables of the formal model. Two sets of variables are discerned: one refers to actors' individual characteristics, methodologically known as composition variables, and the other to the characteristics of the network, methodologically known as structural variables.

Composition Variables

Composition variables are measurements of actor attributes. Three actors' attributes have been identified as important in this dissertation: actors' positions, salience and resources.

Actors' Positions

This research tries to identify the positions of actors on issues related to transparency in pork and farmed-fish chains. More specifically, we want to identify actors' positions on (a) the level of traceability actors want present in the respective chains, and (b) the types of sustainability related information actors want included in traceability systems. Before investigating actors' positions on these sub-issues we first provided the respondents with a short introduction in the beginning of the questionnaire explaining how transparency was defined in the context of this dissertation. This was important in order to avoid context bias where respondents form their own interpretation of what transparency means. The following introduction was prepared:

> This questionnaire is developed for the purposes of a PhD project, which is interested in studying the process by which national and EU policy concerning transparency in the food chain is made and implemented. We regard transparency, in the context of this project, as the full communication of food and feed product and process information among all the actors in the food chain, from producer to the final consumer. Transparency can be viewed in two dimensions: one represents the tracking and tracing of products through the chain and the other represents the type of information that can be included in tracking and tracing systems. We have identified your organization as a significant actor in this policy-making process. We would like to talk with you about transparency policies and the role that your organization is taking in their development.

In order to identify actors' positions on traceability we asked them[5] to indicate which stages of the chain they want covered by tracking and tracing. We provided them with a list of five statements representing different degrees of traceability, ranging from zero (tracking and tracing is not important at all in the chain) to four (tracking and tracing should cover all stages of the chain from the raw materials of feed to the final product). The respondents were asked to pick a number that would represent their policy positions on the sub-issue of traceability. We then, ranked actors' positions in an ordinal scale from 0 to 4. In ordinal measurements the numbers indicate which units have more and which have less of a property, in other words they indicate the relative amount of a property (Bernstein and Dyer 1984:59). Thus position 2 indicates for instance, more of traceability than position 3 and less of traceability than position 1. In addition we asked actors to verbally express their position on that issue. We asked this follow-up, open-ended question in order to check on the validity of the closed-ended previous question, a technique that is recommended by several methodologists (e.g. Cook and Reichardt 1979).

In order to identify actors' positions on the presence of sustainability related information in the chain we asked them to indicate what kind of information they want included in the system of tracking and tracing in the chain. We explained that this type of information can be used to communicate their practices to the consumers but also to be sure that their commercial counterparts are behaving in a responsible way. The kind of information we asked actors to choose from involved information on human health and safety, animal health and safety, animal welfare, and the environment. Actors were free to choose more than one response. An open-ended question followed in order to check for the validity of actors' responses.

Ranking sustainability related information is not an easy task. For instance the researcher must confront questions regarding the type of information that provides more transparency on sustainability issues. Is information on "environmental consequences" more important in terms of illuminating sustainability aspects than "animal welfare"? And, what about "human health" and "animal health"? One way to deal with this problem is to treat the different aspects of sustainability as separate issues. This means that the issues cannot be represented in a continuum, ranking from narrower to wider scope of sustainability but must be treated as discrete choices from the side of the respondents. However this would contradict our conceptualization of sustainability related information as a scope. The essence of "scope" would be entirely missing.

We needed a tool to account for this scope. For that reason, we decided to explore whether the subjects were cumulative. If so, the broadest scope would be achieved if all the subjects were covered and the narrowest if none of the

5 For more detailed information about the questionnaire see Appendix C.

subjects were covered. However, ranking issues in between those extremes remained tricky. Doing a preliminary test we discovered that actors responded as follows:

1. no sustainability related information;
2. only information on human health;
3. information on human health and animal health;
4. information on human health and animal health ***and*** animal welfare ***and/or*** environmental consequences;
5. information on human health and animal health and animal welfare and environmental consequences.

In other words, actors' responses show that actors willing to promote environmental information and/or animal welfare information in the chain are also willing to promote information on health issues, illustrating their belief that health is only one of the relevant aspects of sustainability that food chain actors and society at large should be informed about. On the other hand, actors only willing to promote information on human health are reluctant to provide any other information. In their opinion, information on human health is the basic and single subject that should concern the actors (including final consumers) when making a consumption choice. Accordingly, actors' responses could easily be ranked on an ordinal scale from 1 to 5. Actors were then assigned numbers representing their policy positions on that issue according to their responses. For instance an actor was assigned position 2 if she responded that the type of information she considered important to be promoted in the chain was aimed to contribute to human health and safety only while an actor was assigned position 5 if she expressed the view that information on health and safety (human and animal) as well as on animal welfare and the environment is important to be promoted in the chain. We discuss the implications of actors' policy positions in the empirical chapters.

Actors' Resources/Influence

In chapter four we mentioned that the possession of powerful resources determines actors' ability to influence the policy output. On that basis we distinguished a number of different resources that actors could use as a source of influence: political authority and legal rights, financial resources, expertise, and moral legitimacy. The diversity of resources makes it difficult to scale them, because it requires the addition of elements that are difficult to compare (Stokman et al. 2000). Moreover scholars have shown that resources do not work in the same way in every situation (Sabatier and Jenkins-Smith 1999). Nevertheless the actors themselves are often able to provide estimates of the relative importance of resources based on their experience and their expertise. An additional reason for using the "influence reputation" mechanism as it is called (Knoke 1998; Laumann and Knoke 1987) is that the subjective perception of influence is often more "real" than influence based on more

objective criteria: more often than not actors react to what they perceive as reality rather than what some objective evaluators would present as reality.

We therefore evaluated actors' ability to determine policy outputs according to the value the actors participating in the policy process assigned to them. In order to find out how actors evaluate the influence of other actors over the policy output we followed Laumann and Knoke (1987) by asking each actor to indicate which actors (including themselves) they considered the most influential (see also Jordana and Sancho 2005). Participants were able to choose from a list provided to them by the interviewer representing the network actors. In order to associate influence reputation with particular types of resources we also asked them to identify which types of resources account for the influence of the actors they selected as influential. To facilitate their responses we provided them with a list of resources including political authority and legal rights, expertise, financial resources and moral legitimacy. Actors were free to add other resources not on the list if they had a different opinion. Following Stokman and Van den Bos (1992) we assigned a score to each actor based on a quintile distribution.[6] If an actor was mentioned often enough to be in the top 20 percent of actors it received a score of 100, whereas if not mentioned at all it received a score of 20.

A possible critique of this method concerns the meaningfulness of ranking actors' reputations along a single dimension ranging from high to low. As Knoke (1998) notes, analysts applying this method implicitly assume that all actors are using identical or very similar criteria when making their judgments. It is possible then, that this ranking method conceals differences between actors' perceptions about who counts and why, because it aggregates the "votes" to the whole population. Knoke (1998) tests this methodological concern in labour policy networks in the US and Germany. The results of this study indicated that while informants use different criteria in making their choices, the aggregate rankings provide robust consensus regarding the influence reputation of organizations. Hence the study concluded that the research practice of aggregating informants' influence reputation votes produces a reliable uni-dimensional scale for use in substantive analysis.

Actors' Salience

Salience measures the willingness of each actor to devote resources to a particular issue. Following Abdolahian and Kugler (2003) and others (Bueno de Mesquita 1994; Stokman and Van den Bos 1992; Stokman et al. 2000) we assigned issue importance to each actor based on their willingness to devote their resources to advance their position when the issue arises. Salience weighs actors' potential influence by their motivation and commitment. Salience implies that in certain cases less influential but more committed actors have better chances to determine policy outputs than more influential

6 Quintiles are often used to describe demographics and especially income distributions.

but less committed ones. In order to measure salience we provided actors with a list of statements indicating different scales of issue importance. The statements ranged from "being aware about the issue but not caring enough to get involved" to "being absolutely committed to the issue because it is number one priority". Based on actors' responses we assigned a value to their salience that ranged from 0 to 100.

Structural Variables

From the view of policy network analysis, the political arena can be expressed as patterns of relationships among interacting actors. The presence of regular patterns in relationships is referred to as structure, while the quantities that measure structure are referred to as structural variables (Wassermann and Faust 1994:3). Consistent with our model presented in chapter four, we used two types of structural variables, that is, communication and trust relationships between pairs of actors.

According to Wasserman and Faust (1994:45-48) there are three different question formats that can be used in order to collect information on structural variables in the questionnaire. Each format is presented in two variations: a) roster or free recall, (b) free or fixed choice and (c) ratings or complete rankings. The formats are not mutually exclusive and can be used in combination with one another.

(a) The roster is a complete list of actors presented to respondents when asked to indicate with whom they share a particular relationship. Rosters can only be constructed when the researcher knows the members in a set prior to data gathering. When this is not possible the researcher simply asks actors to name those actors with whom they share a relationship. Such a network questionnaire design is called free recall.

(b) In some network questionnaire designs actors are told how many other actors to nominate on a questionnaire. In that case each actor has a fixed number of choices to make. Such designs are called fixed-choice. If actors are not given such constraint on how many nominations to make the design is called free choice.

(c) Finally, in some network designs actors are asked to rate or rank order all the other actors in a set for each relation. Such measures reflect the intensity of strength of ties. Ratings require respondents to assign a value or rating to each tie whereas complete rankings require each respondent to rank their ties to all other actors.

In this dissertation we used a roster design. After having specified the network boundary we provided actors with a complete list of other actors from which they had to choose those with whom they regularly communicated on the issue

of transparency and who they trusted. In addition, we used a free choice format, as there was no particular reason to limit actors' choices.[7]

Patterns of Communication

In order to identify the pattern of communication among the actors we asked them to identify other actors with whom they regularly communicate on the issue of transparency. Regularity was emphasised because incidental communication does not imply a stable (network) relationship. Actors could pick their communication counterparts from a list containing the network actors provided to them by the interviewer. This was the same list used for measuring actors' influence reputations. Actors were assigned a value of "1" if the respondent mentioned a communication relation with them and a value of "0" if not. The same process continued with all the actors in the list.

Patterns of Trust Relationships

We examined trust relationships by asking actors to indicate which other actors in the network they trusted (from the same list used for communication and influence reputation). Actors were assigned a value of "1" if the respondent mentioned a trust relationship with them, and a value of "0.5" if not. The same process continued with all the actors in the list. We used "0.5" to account for the weakening effect of distrust on power and cooperation. As explained in chapter four actors are reluctant to join forces either due to coercion or persuasion with actors they believe might betray them in the process. However actors are not immune to other actors' power. Therefore distrust does not negate influence from other actors while the absence of a trust relationship does not qualify for assigning it a zero value. Different degrees of weakness could be used but in the absence of any previous effort to account for such effect (at least to our knowledge), we felt that weakening influence by half would provide a fair account. As trust and distrust are expected to play a primary role in determining actors' position shifts and policy outputs, future research on this issue is necessary.

5.6 Evaluation of the Results

Usually researchers study processes that have taken place in the past or have been concluded during the period of research. In those cases evaluation of the results is a rather straightforward task. Researchers compare the results of their model with actual outcomes of specific policy proposals and evaluate

7 We did not ask actors to rate or rank their relationships with other actors in order to account for intensity. In terms of communication, intensity is already included as regularity. In terms of studying relationships of trust, consistent with our theoretical framework presented in chapter four, we were interested in the existence of trust or distrust, as opposed to different degrees of trust.

how often they managed to successfully predict the outcome versus how often they failed to do so. In this research we study present-day-phenomena. Transparency related proposals and initiatives have been initiated only very recently and although first-round outcomes have been reached for some of them, new initiatives are constantly underway.

In order to evaluate the validity of our model's results we use the following procedure. First, we describe the current situation in terms of existing legislation and initiatives for transparency for each of the sectors (pork/farmed-fish) and levels (national/European) under study. We then assign a value to the status quo on the basis of the level of transparency currently agreed to be promoted by certain types of regulatory practices employed for its promotion. Therefore we assign a value of four to the status quo with respect to traceability, if policies and initiatives are in place with the aim to promote tracking and tracing in the whole chain, from feed ingredients to the final product. In a similar fashion, we assign a value of five to the status quo with respect to sustainability related information, if policies and initiatives are in place with the aim to promote information on health (human and animal), animal welfare, and the environment alongside the chain. Having assigned a value to the status quo, we then compare it with the prediction of the model. If these are not significantly different, then the model is a good predictive tool for the estimation of policy outputs.

Understanding the correctness of a model's predictions however, is a difficult matter (Bueno de Mesquita 2004). One of the most prominent tests used to assess accuracy is the mean absolute error (MAE). This test takes the absolute value of the difference between the predicted and the observed outcome and divides that value by the range of the issue continua, which represents the maximum possible predictive error. When the values are normalised then the denominator takes the value of 100. Then the average across issues is calculated and this gives the MAE.[8]

A number of scholars compare the prediction of their models with the prediction of base models, such as a weighted median or mean. Such models assume no interaction among the actors and no shifts in policy positions, and have been described for that reason as "a-theoretical" (Schneider et al. forthcoming). The aim of comparing the results of the sophisticated model with those of a base models is to test whether the theory behind the sophisticated model makes any difference to the prediction of the policy outputs. If it does, the sophisticated model is a superior predictive tool. We compare the results of our model with those of a weighted mean (weights determined by actors' resources and salience) rather than median for several reasons. First, the particular weighted mean is a "compromise model" (Van den Bos, 1991:176 in Arregui, Stokman and Thomson 2003) that takes all positions of actors into account, weighting these by the resources each actor

8 The test is unreliable however, when issues involve dichotomous choice (Bueno de Mesquita 2004).

can apply during the negotiation and the importance each assigns to the issue at hand. Typically policy-making in both the Netherlands and the European Union is characterised by compromise because the costs of not reaching a common agreement are higher than individual benefits for not realising personal goals (see Schneider, Steunenberg and Widgrén *forthcoming*; Van den Bos 1991). Second, our own model can be seen as an extension of the base model because it employs the same basic mechanism to explain policy outputs. Hence, it is more appropriate to compare our elaborate model with the compromise "weighted mean".

We also evaluate the results of our model in a qualitative manner. Specifically in evaluating the policy output we discuss aspects of regulatory practices due to their impact on the degree/scope of transparency actually to be implemented and used by consumers in practice. To that aim we evaluate the status quo on the types of regulatory practices currently supporting transparency in the food chains under study and assess whether the particular regulatory regimes have the potential to influence consumers' consumption patterns in favor of more sustainable choices on the basis of their perceived legitimacy by the public.

In sum, we evaluate our model by comparing its results with the status quo, as well as estimating the associated average margin of error in the prediction of policy outputs and comparing its performance to that of the "base" weighted mean. We also evaluate the results of our model qualitatively in the context of regulatory practices.

5.7 Summary

This chapter presented the research methodology guiding this dissertation. Qualitative and quantitative methods are used to identify, operationalise and measure the variables and evaluate the results. Since transparency is a contemporary issue, evaluation of the results takes place by assigning a value to the status quo and comparing that value with the one predicted by our model. We also compare the results of our model with those estimated by the weighted mean.

In our discussion of the research methodology we also identify the cases selected for the performance of the study. We selected two chains based on their significance regarding impacts on sustainability and two levels of analysis. We selected the following cases: i) the pork chain in the Netherlands; ii) the pork chain in the European Union; iii) the farmed-fish chain in the Netherlands; and iv) the farmed-fish (or aquaculture) chain in the European Union.

These cases will be discussed in the next four chapters. Each chapter begins with an introduction to the transparency related proposals and initiatives focusing on the specific sector or chain. Next we delineate the network; we present the actors and their characteristics as well as the

characteristics of their relationships. Then we focus on implementation of the model and the prediction of policy outputs for transparency also evaluating our empirical results. Each chapter concludes with a discussion of the results and their implications for transparency and sustainability as well as recommendations for change.

6

PROSPECTS FOR TRANSPARENCY IN THE DUTCH PORK CHAIN

6.1 Introduction

Chapter six presents the dissertation's empirical analysis for transparency in the pork chain in the Netherlands. The chapter begins with a presentation of transparency related policies, proposals and initiatives that focus on the Dutch pork chain (section 6.2). This section also discusses these proposals in terms of the vertical degree and horizontal scope of transparency they aim to promote. Section 6.3 presents the actors that form the Dutch pork policy network and discusses their characteristics and those of the network in which they operate. Section 6.4 presents and discusses the policy outputs with respect to transparency supported by the Dutch pork policy network. In section 6.5 we evaluate the policy outputs for transparency in the context of regulatory practices. Section 6.6 concludes the chapter highlighting the implications for transparency and sustainability related policies and politics.

6.2 Transparency related policies, proposals, and initiatives in the Dutch pork chain

In chapter two we presented the general status quo regarding transparency in food chains. The EU General Food Law was mentioned as well as a number of strategies that actors usually follow for the promotion of transparency, including but not limited to the development of ICT tools, labelling of foods, and publication of corporate reports. This chapter presents transparency related proposals and initiatives that focus on the pork sector in the Netherlands in more detail. They are discussed in terms of the degree and scope of transparency they advocate for the pork chain in the vertical and horizontal dimensions respectively. In discussing the proposals and initiatives for transparency, we also reveal the types of regulatory practices currently supporting this goal.

We find it useful to remind the reader that the vertical degree of transparency relates to the ability to trace the history of a product backwards and forwards through the production chain from harvest through transport, processing, distribution and sale. From a political perspective, the question regarding the vertical degree of transparency is: how deeply in the chain does the policy demand products to be traced? In contrast, the horizontal scope of transparency refers to the presence of sustainability related information on products and processes that can be tracked and traced in the chain. Sustainability related information covers the subjects of the impacts on human health and safety, animal health and safety, animal welfare, and the environment caused by the various activities performed in each link forming the food chain. The question regarding the horizontal scope of transparency from a political point of view is: of what number and type of subjects related to sustainability does the policy demand coverage? Finally, regulatory practices refer to the type of regulatory regime (governmental regulation, self-

regulation and combinatory measures) that is chosen to promote the selected degree/scope of transparency. We discuss the type of regulatory regime in the evaluation of policy outputs for transparency.

Existing policies for the chain

Chapter two explained that transparency became an objective of the EU and national policies with the adoption of the General Food Law (Regulation 178/2002/EC). This regulation contains specific requirements for the provision of product information that food chain actors have to fulfil.[1] As we explained, the current notion of transparency in the regulation is limited to traceability of safety risks , i.e. the aim of a rapid identification and withdrawal of products found to pose a threat to human health from the market (Article 18).[2] As such, the regulation only covers communication on limited aspects of the sustainability attributes of products and processes. In addition the requirements provided by the regulation currently lack specificity and allow actors considerable leeway in interpretation.

In addition to Article 18 which is primarily addressed to business actors, the regulation contains two further articles (Articles 9 and 10) referring to principles of transparency, namely public consultation and public information. Article 9 states that public consultation requires an open and transparent consultation process (either directly or through representative bodies) during the preparation, evaluation and revision of food law, except where the urgency of the matter does not allow it. Article 10 states that public information requires that where there are reasonable grounds to suspect that a food or feed may present a health risk, public authorities should inform the general public about the nature of this health risk. In addition according to Article ten, public authorities should identify to the fullest extent possible the food or feed, or type of food or feed, and the risk that it may present, as well as the measures which are taken or about to be taken to prevent, reduce or eliminate the risk. As with traceability emphasis is given on the prevention of the spread of food related health risks, and as such the scope of transparency is limited.

Even though the provisions of the EU Regulation with regards to transparency are weak and vague, the regulation itself proved to be an important stimulus for the development of a number of private initiatives, and national proposals for regulation. Those initiatives, discussed below, were primarily developed on a sectoral, link-by-link, basis.[3]

1 Applicable from January 1, 2005.

2 Article 18 of EU Regulation 178/2002/EC defines traceability as “the ability to trace and follow a food, feed, food producing animal or substance intended to be, or expected to be incorporated into a food or feed, through all stages of production, processing and distribution.”

3 Except in integrated sectors that cover a whole range of activities. So, companies such as Nutreco for instance have developed their own traceability systems, e.g. Nutrace.

Feed sector

Initiatives for the sector

Many food scandals are associated with the composition or contamination of animal feed; the Dutch feed sector is no exception. More specifically, the feed sector in the Netherlands has been involved in a number of feed scandals in the past (dioxin and sewage waste in feed in 1999) and the present (dioxin in 2004, and more recently dioxin in feed 02/02/2005).[4] To control feed related scandals the Dutch animal feed industry applies two systems of traceability both of which have been initiated by the Product Board for Animal Feed (PDV).[5] The first is the "Early Warning System" (EWS) and the second the "Tracking and Tracing System". The purpose of the Early Warning System is to identify and eliminate any potential hazards for people and/or animals which may arise despite preventive quality assurance.[6] The Tracking and Tracing System is an integral part of the quality assurance system known as GMP+.[7] The purpose of the Tracking and Tracing System, as explained by the Product Board (PDV), is to track down irregularities in consignments of animal feed and foodstuffs as quickly and as accurately as possible. Apart from tracking and tracing of contaminated feed the GMP system requires that producers only use feeds having a risk assessment registered in the Feed Risk Assessment Database of the Product Board for Animal Feed. Independent certification bodies issue feed companies a certificate accepted by the Product Board to audit and certify companies in the animal feed industry. Companies contravening the rules risk losing their GMP+ certificate. In the Netherlands around 90% of the feed companies are GMP+ certified.

Clearly the establishment of sophisticated control, and tracking and tracing systems demonstrates the effort of the feed sector to restore the confidence lost in the safety of feed products. Responding to the EU regulation the sector developed systems of traceability for the tracking and tracing of irregularities in the composition of animal feed. No proposals have been initiated by the sector however, to embrace a broader conceptualization of human and animal health and safety, aside from proven risk related

4 The last incident was discovered early on by the competent authorities and was not forwarded in the food chain. However it resulted in negative media attention and the criminal investigation of certain feed companies. Many actors voice the fears that feed companies in the Netherlands circumvent the legal requirements and have false certification labels.

5 PDV stands *for Productschap Dierenvooder* (Product Board for Animal Feed).

6 Quality assurance is made through the system of HACCP (Hazard Analysis Critical Control Points). This system is designed to manage all public health hazards involved in food production. HACCP focuses on hygiene and product safety.

7 GMP stands for Good Manufacturing Practice. HACCP and GMP together make up the GMP+.

problems. There is also a lack of proposals with respect to information on animal welfare[8] and the environment.

Farm, slaughter, and processing sectors

Initiatives for the sector

At the farm, slaughter, and processing sectors a system called IKB (*Integrale Keten Beheersing* or Integrated Chain Management) is the tool through which actors exchange information on products and processes. IKB was introduced in 1992 with the aim of identifying the origin of animals. Currently it has expanded to include other types of information including requirements for information provision on hygiene, animal feed, the use of prohibited growth substances, drugs,[9] and to some extent animal welfare. In the Netherlands approximately 80% of pig farmers participate in the IKB.

While health related issues are communicated exclusively within the chain, issues that concern animal welfare are also communicated to the consumers through labelling. In particular the sector has developed three labels screening different levels of animal welfare (see Figure 6.1). Two of these labels are part of the IKB system (PVE-IKB and PVE-IKB *scharrelvarkens*), and one is related to organic production (EKO). The PVE-IKB label signals conformance to the basic national and EU regulations concerning pig welfare.[10] Therefore it signals compliance.[11] The other two labels signal higher standards for the welfare of pigs. For example the PVE-IKB *scharrelvarkens* label indicates that pigs are kept in larger rooms better equipped for their comfort and are allowed to walk outside. In addition, this prohibits preventive medication and use of growth hormones while allowing other practices such as castration. The EKO label represents the highest standards for animal welfare and also indicates organic production. In

8 Animal welfare can also be a feed industry issue: for example involving feed causing discomfort to animals, or feed containing hormones or drugs that do not necessarily affect animals' health but do affect their welfare.

9 The feed industry and veterinarians cooperating with IKB need to comply with either the code of Good Manufacturing Practice (GMP) or the code of Good Veterinarian Practice (GVP). Checks on animal health rules are carried out by the SKV (Foundation of Quality Guarantee of the Veal and Meat Sector) and CBS (Central Bureau of Slaughter Stock Services).

10 Animal welfare in the Netherlands is covered by Community and national legislation. At the national level the Pig Farming Decree (*Varkensbesluit)* (in force since 1996, amended in 1998) was introduced to implement the Council Directive 91/630/EEC (now replaced by Council Directive 2001/88/EC). The Directive sets the minimum standards for pig welfare at a farm. The Animal Health and Welfare Act (*Gezondheids en welweijnswet voor dieren*) in 1992, (revised in 1994 and 1997), sets minimum standards for the layout, dimensions and hygiene of housing, as well as transport of animals and slaughtering methods.

11 The animal welfare organization in the Netherlands criticizes those standards as being low and lacking sensitivity to the natural behavior of pigs. According to the Dutch Animal Welfare Organization (Dierenbescherming) the main animal welfare problems in the pork sector concern the keeping of pigs in very small places, the construction of the floor, the keeping of sows individually, castrating, tail cutting and corner teeth lowering or extracting, intensity of light, inability to walk outside, use of hormones and preventive medication, and nurturing time.

addition to the farm level, animal welfare rules apply at the transportation stage and for the slaughtering of pigs. In this respect the first two animal welfare labels comply with standard rules forming part of the IKB system while the EKO label involves higher standards.

Figure 6.1 *Quality labels for pig welfare in the Netherlands*

In regards to information strategies about the environmental consequences of farming, slaughter, and processing processes, information is currently limited to the farm level. Environmental information at the farm level is also limited to tracking manure and ammonia emissions, of which the pig farming has a large share. Especially with regards to ammonia emissions pig production has a large share (30% of ammonia emissions).[12] In 1998 a minerals accounting system was introduced (MINAS) in order to make farms accountable for their methods, account for differences within sectors, and to stimulate technological development and enterprise. This system, developed jointly by the industry and the government, involves a registration of farm mineral inputs (nitrogen and phosphate from fertilizers and animal feeds), as well as mineral outputs in the form of products and manure. The difference between inputs and outputs, the mineral loss, ends up in the environment. If minerals losses (the difference between input and output of minerals) exceed certain standards then levies are applied. The levy rates are progressive in that the more the standard is exceeded the more the farmer has to pay. In the first years of the application, farmers using MINAS were rewarded by labelling their products as environmentally friendly (*milieukeur* label). However as from 2000, the *milieukeur* label was changed to introduce other environmental themes (in particular energy use for the pork sector, applicable from 2005).

According to some observers *milieukeur* certification standards are not particularly high. For example the losses of biodiversity, groundwater drainage issues, and ecosystem damage, all represent big problems from pig

12 According to a policy document on manure and ammonia by LNV (2002) this figure could be reduced by low emission application. The development of low-emission pig units is a recent development and is rather expensive; however costs are expected to fall. These systems are also thought to improve animals' living conditions as well as their health.

farming activities and are activities that are not covered by the label. In contrast, the EKO label used to indicate biological production, covers a wider range of environmental themes associated with pig farming activities. The EKO label indicates that activities beyond the farm level have been carried out in an environmentally friendly way. Figure 6.2 shows the two quality labels currently used in the Netherlands to indicate environmentally friendly pig practices on farms.

Figure 6.2 *Quality labels for environmental protection in the Netherlands*

This discussion shows that some initiatives have been undertaken with respect to information provision on animal welfare and environmental consequences in the farm sector. However, in total the number of pigs slaughtered with f the above-mentioned labels (except for the standard IKB) was only 111,000 animals. This number represents just 0.6% of the total number of pigs slaughtered in or exported from the Netherlands (LTO, *Varkenshouderij in beweging, Maatschappelijk verslag varkenshouderij* 2003-2004). As such, the initiatives have not been effective in attracting the participation of a large number of farmers. Moreover environmental initiatives in particular, by-pass the slaughter and processing sectors whose sustainability impacts are particularly high (see also Chapter two).

Retail sector

Initiatives for the chain

The retail sector also initiated schemes for information provision on food products and processes. Of particular importance are the initiatives of EUREP-GAP and the Global Food Safety Initiative. The Global Food Safety Initiative, initiated in 2000 by a group of international retailers, aims to ensure consumer protection, strengthen consumer confidence, set requirements for food safety, and improve cost efficiency throughout the food chain. It has 52 members, currently representing 65% of worldwide food retail revenue. Apart from retailers, global manufacturers such as Unilever and Carefour also participate in the initiative. In the Netherlands, the Dutch retailers' association (CBL) as well as four food retailers (Albert Heijn, Laurus, Superunie and AMS) are involved (the other 28 CBL members do not participate individually).

EUREP-GAP was initiated in 1997 by a group of retailers belonging to the Euro-retailers Produce Working Group (EUREP). It evolved into an equal partnership of agricultural producers and their retail customers. Initially, it

covered only fruits and vegetables, but today has been expanded to cover meat products and fish from aquaculture. EUREP-GAP certification is contingent upon completion and verification of a checklist that consists of 254 questions, 41 of which are considered "major musts" and 122 of which are considered "minor musts". Another 91 questions are "shoulds" which are recommended but not required practices. For the pork sector all "major musts" concern traceability and food safety, while information on environmental consequences and animal welfare fall into the categories of "minor musts" or "shoulds". As such the protection of human health and safety remains the central goal of the initiative, while the environment and animal health and welfare remain secondary aspects. The Dutch retailers' organization (CBL) as well as a leading retailer (Albert Heijn) and the Dutch farmers' organization (LTO) participate in the initiative.

Non-Governmental-Organisations (NGOs)

Initiatives for the chain

Efforts to improve transparency have also been initiated by the Dutch consumer organization *Consumentenbond*. In particular, *Consumentenbond* developed the proposal for a national regulation (Wok).[13] The proposal was made in parallel with the adoption of the EU Regulation and was stimulated by the Dutch Social and Economic Council's (SER) advice on Sustainable Consumption to the Dutch government. Basically, Wok intended to upgrade the role of consumers to stakeholders, facilitate the work of consumer and other societal organizations, and emphasize the need for government intervention. For this reason, it proposed that food chain actors should provide any relevant information on products and processes demanded by societal actors. In addition they should provide information actively by means of yearly reports or the publishing of information on their websites. The proposal was rejected as legislation, since both the government and the vast majority of chain actors did not want to adopt a mandatory regulation in this context. It was decided that business should become more "transparent" through the publication of their website and telephone addresses, so that consumers could contact them, if they had specific questions. In addition permission was given to *Consumentenbond* and other societal organizations to conduct relevant research and publish the results. Finally, it was agreed that food companies should publish yearly reports.

The discussion on transparency in the Dutch pork sector shows that the EU regulation makes demands for the highest degree of transparency in the vertical dimension and successfully promoted a number of private initiatives at the national level. These follow the spirit of the regulation and focus primarily on the traceability of safety related information. In particular traceability currently focuses on the tracking and tracing of products *proven*

13 The Proposal is named "Weet wat je koopt (Wok)", means "Know what you are buying" in English.

to pose risks to human health (and animal health when related to human health) with the aim of withdrawing them from the market. As such, with respect to the horizontal scope of transparency in the Dutch pork sector, the discussion above reveals that current focus is quite narrow. Although laudable, private initiatives from farmers and retailers have not proven very effective in attracting a large and broad range of actors. *Consumentenbond* initiated an effort in the direction of provisioning and distributing sustainability related information in the chain and towards consumers but the output of the negotiation process revealed that the proposal was seriously undermined. From a sustainable development perspective however, the current focus on issues "proven" to involve food safety concerns cannot suffice.

6.3 The Dutch pork policy network

This section examines the Dutch policy network developed around the issue of transparency in the pork chain in terms of two characteristics: communication and trust relationships among the actors involved. In addition, we examine the characteristics of the actors, defined as their policy positions, resources and salience on the issue of transparency. In total we identified fourteen actors active in national food policy making concerning transparency in the pork chain. We collected data in the form of structured interviews with all relevant actors in the period 2003-2004.

6.3.1 The actors

The actors involved in the Dutch pork network with whom we conducted interviews are public, semi-public, private business and civil society actors. Public and semi-public actors are the Ministry of LNV (Ministry of Agriculture, Nature and Food Quality),[14] the Product Board for Animal Feed, PDV (*Productschap Dierenvoeder*), and the Product Board for Livestock, Meat and Eggs, PVE (*Productschap Vee, Vlees en Eiren*). Private business actors are the feed industry association, NeVeDi, (*Nederlandse Vereniging Dierenvoederindustrie*) the meat industry association, COV (*Centrale Organisatie voor de Vleessector*) the farmers' associations LTO and NVV (*Land en TuinbouwOrganisatie* and *Nederlandse Vakbond Varkenshouders*), the retailer association, CBL (*Centrale Bureau Levensmiddelenhandel*), the organic farmers' association PB (*Platform Biologica*), as well as individual big meat and animal feed companies Dumeco (DUM) and Nutreco (NUT). Finally, civil society organizations include the consumer organization CB (*Consumentenbond*), the Animal Welfare Organization DB

14 Ministerie van Landbouw, Natuur en Voedselkwaliteit.

(*Dierenbescherming*), and the environmental organization SNM (*Stichting Natuur en Milieu*).

6.3.2 Actor Characteristics

We inquire into three types of actors' characteristics: their policy positions, resources and salience on the issue of transparency. The following table summarizes these characteristics, discussed in detail in the following paragraphs.

Table 6.1 *Actor characteristics in pork network in the Netherlands*

Actors	Positions on Vertical Degree of Transparency (PVD)	Positions on Horizontal Scope of Transparency (PHS)	Resources (r)	Salience (s)	Influence capacity (r x s)
NEV	4	1	50	50	25
PDV	4	1	100	80	80
PVE	4	2	100	80	80
COV	4	2	80	70	56
DUM	4	2	80	30	24
NUT	4	2	100	90	90
NVV	4	3	30	30	9
LTO	4	3	70	50	35
SNM	4	4	50	50	25
DB	4	4	50	70	35
CB	4	5	50	70	35
PB	4	5	50	50	25
CBL	4	5	80	90	72
LNV	4	5	100	90	90

Policy positions on the degree/scope of transparency

Actors' policy positions on the degree and scope of transparency can be ranked in an ordinal fashion from the lowest/narrowest to the highest/broadest. With respect to the *vertical degree* of transparency a position advocating the highest degree indicates that an actor demands that the policy should cover the tracking and tracing of the entire chain from the retail shelf to the production of feed ingredients (position 4). On the other hand, a position advocating the lowest degree indicates that an actor believes it is not necessary for products to be traced backwards and forwards at all (position 0). In between lie positions 1, 2 and 3. Position 1 indicates that the actor demands only the country of origin of product to be traced. Position 2 indicates that traceability should extend not only to the country of origin but also to the specific farm where the product originates from. Finally, position 3 indicates that the history of the product should be traced up to the level of the compound feed industry, without however, extending to the feed ingredients.

With respect to the *horizontal scope* of transparency a policy position in the broadest scope indicates that an actor demands all the subjects related to sustainability (impacts on human health and safety, animal health and safety, animal welfare and the environment) to be covered by the policy, indicated by position 5. The narrowest scope implies that the actor thinks that none of the subjects need to be covered by the policy (position 1). In between lie positions 2, 3 and 4. Position 2 indicates that an actor demands only the subject of human health and safety to be covered by the policy. Position 3 indicates that in addition to human health and safety actors also favour the promotion of information on animal health and safety as well. Finally, position 4 indicates that in addition to human *and* animal health and safety, other types of sustainability related information are important, namely information on animal welfare or information on the environment.

Actors' policy positions on the vertical degree of transparency converge. In particular, all the actors indicated in the interviews that they are favourably positioned towards a maximum degree of traceability in the pork chain. Traceability is regarded as an instrument for food safety, which actors expect to enhance their "reliability" and competitive advantage in the market and to regain consumer trust.

The situation differs, however, with regard to the horizontal scope of transparency. More specifically, the feed associations (PDV and NeVeDi) have the narrowest preferences (position 1) regarding the inclusion of sustainability related information in the traceability systems, advocating the tracking and tracing of sellers aned buyers. The meat companies and their organisations (NUT, DUM, PVE, and COV) advocate position 2. These organisations are interested in the tracking and tracing of information related to human health and safety. On the other hand, consumer and environmental organisations as well as retailers and the Ministry of LNV have broader preferences regarding the inclusion of sustainability related information in the traceability systems. Specifically, the environmental organisation *Stichting Natuur en Milieu* and the organisation for animal welfare *Dierenbescherming* advocate position 4 (information on human and animal health and safety *and* environmental consequences or animal welfare), while *Consumentenbond, Platform Biologica*, the Ministry of LNV and the umbrella organisation for retailers (CBL) advocate position 5 (information on all aspects related to sustainability as identified by the dissertation, that is information on human and animal health and safety, *and* animal welfare, *and* environmental consequences). Finally, the farmers' associations (NVV and LTO) are situated in the middle advocating position 3 (information on human and animal health and safety).

Actors were also asked to provide justifications for their policy positions eliciting several responses. The majority of actors advocating narrower preferences with regard to the horizontal scope of transparency argued that sustainability related information, in particular information related to animal welfare or the environment, does not contribute to food safety (in contrast to

risk traceability, for instance). Consequently, according to these actors, consumers are unlikely to pay more for that information since their main concern is their safety.[15] Other respondents mentioned that the development of sustainability related information is country-specific, as different contexts can change the meaning of what counts as sustainable. Therefore, they argued the development of sustainability related information is an extremely difficult task, especially for multinational companies which operate simultaneously in different countries, as they would be unable to develop uniform rules. Finally, one respondent argued that sustainability related information can only be developed in consultation with society and that society is currently unprepared for such a dialogue. On the other hand, actors who supported the inclusion of sustainability related information argued in favour of the "right to know" as well as the benefits of informed choices for the promotion of sustainability in general.

Resources

Based on the influence reputation method the public and semi-public actors, namely the ministry of LNV and the two product boards, are considered the most influential actors in the Dutch pork network. Next in rank are the two big private business companies Dumeco and Nutreco, as well as the retailer association CBL, followed by one of the two farmers' associations, LTO. Other corporate entities, in particular the feed industry association NeVeDi, the meat industry association COV, and the organic farmers' association PB are ranked almost at the same level as the civil society organizations (the consumer organization CB, the animal welfare organization DB and the environmental organization SNM). The pig farmers' association NVV occupies the last place in the ranking.

We also asked actors to justify their responses regarding who they consider especially influential in the network by associating actors with certain types of resources. In comparing the ranking of actors' influence reputation to the resources they are perceived to hold we reach the conclusion that political authority and legal rights are considered the major political resource in the Dutch pork policy network. Next is expertise, predominately associated with business actors, and financial resources (again associated with business actors). The latter is considered an important political resource in terms of allowing investment in expertise and maintaining a prominent position in the market. Finally, moral legitimacy is primarily associated with NGOs and although it is considered an influential political resource by actors, it is not considered as influential as the resources perceived to be possessed by the most prominent business actors.

15 While this might be true to a certain extent, in chapter two we argued that when consumers are confronted with information their behavior is influenced towards the direction intended by the information.

This reputation hierarchy shows that public actors in the Netherlands still have a great deal of political might and that resources held by these actors are greatly appreciated. Therefore despite public actors participating in a network arrangement they seem to have room for manoeuvre and network management. However the question remains whether public actors will (be able to) use their influence to direct decisions towards transparency. As shown later in the chapter the mere possession of resources or even willingness to invest them is not enough to guide policy outputs. In addition other conditions must be met simultaneously. Yet the high influence reputation by public actors is an important indicator for their potential role as network managers.

Salience

Salience determines actors' willingness to invest resources in order to influence the issue of transparency. Table 6.1 informs us that transparency is a particularly salient issue for the ministry of LNV, the retailer association CBL and the private business company NUT, while it is one of the several important issues for most of the network actors. The lowest salience is reported by the private business company DUM and the pig farmers' association NVV. For these actors, transparency is important but generally they focus on other issues first.

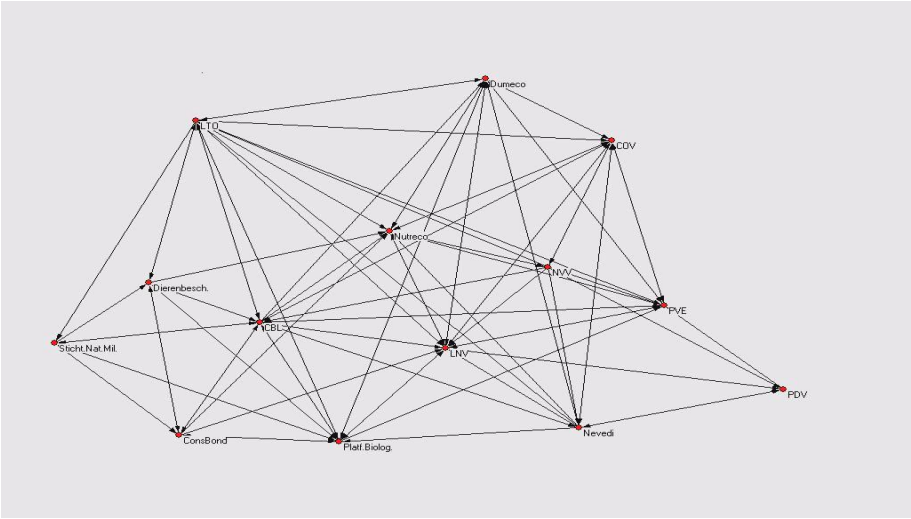
6.3.3 Network characteristics

In addition to actor characteristics, network characteristics play a crucial role in determining actors' position shifts and policy outputs. This dissertation looks at two network characteristics: patterns of communication and patterns of trust relationships among actors.

Patterns of communication

The following figure illustrates the patterns of communication in the Dutch pork network. The figure shows the interconnectedness of all these actors; no isolates exist in the network. Observing the network at the global level we deduce that influence takes place among all the network actors. In other words, we expect that each actor's policy position is going to be influenced directly or indirectly by the policy positions of every other actor in the network.

Figure 6.3 *Patterns of communication in the pork network in the Netherlands*[16]



An analysis of the patterns of communication in the network however, reveals several clusters or factions of communication. These clusters can be identified on the basis of similarity in communication with other actors (see table 6.3). This means that although influence might take place among all network actors, the degree of influence is going to be stronger among some of them. More specifically, the Ministry seems to be part of a cluster of actors, which also includes the large economic actors and the Product Board, whose policy position is very different than that of the Ministry (position 2 versus position 5). Therefore, the Ministry becomes subject to influence from a particular group of actors that strongly support a position of narrow scope. In contrast the Ministry's potential allies, environmental and animal welfare organizations, the consumer organization, and organic producers, are marginalized in the network.[17] Consequently actors advocating a broad scope of transparency appear detached by the communication patterns and hence unable to hold their influence together. The marginalization of NGOs also indicates the constraints these actors face in their efforts to influence the policy positions of the rest of the network actors. As such, we expect support

16 All figures in this dissertation illustrating networks were developed with the network program UCINET.

17 The tightness of communication and acceptance of this "coalition" by its members is reflected, for instance, in the Ministry's initiation of a Platform for Transparency. In this platform the largest meat and fish companies in the Netherlands are to develop proposals for establishing transparency in the chain, while other groups including environmental and consumer organizations as well as retailers only receive a consultative status.

for a broad scope of transparency in relation to sustainability to be weakened because of the communication patterns in the network.

Table 6.3 *Communication clusters in the pork network in the Netherlands*[18]

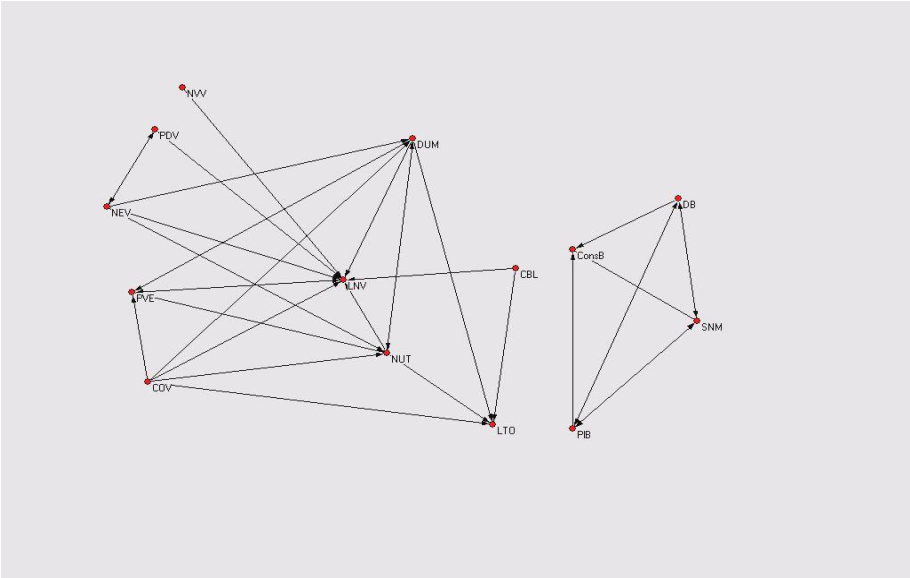
	N	P	P	D	C	C	S	L	L	P	D	C	N	N
Nevedi		1									1			
PDV	1								1					
Platf.Biolog.					1	1	1	1	1					
Dierenbesch.					1	1		1						
CBL			1	1		1	1	1	1	1		1		
ConsBond			1	1	1		1							
Sticht.Nat.Mil.			1		1	1								
LTO			1	1	1						1	1	1	
LNV		1	1		1					1	1	1	1	
PVE					1				1	1	1	1	1	1
Dumeco								1	1	1		1	1	
COV	1				1			1	1	1	1		1	
Nutreco								1	1	1	1	1		
NVV										1				

Patterns of trust relationships

Apart from communication patterns, trust relations in the network also play a fundamental role in determining actors' position shifts and network output (see figure 6.4). In examining trust relationships among the actors in the pork network in the Netherlands we observe particularly low levels of trust. Consequently, we expect influence among actors to be less forceful when actors with different policy positions are involved. We expect less binding relationships among similarly positioned actors; we find specifically that distrust exists between NGOs and business actors. Business' and NGOs' distrust combined with the current communication patterns results in the further marginalisation of the NGOs in the network and the lowering of their chances to promote their policy position. Most significantly, the mutual distrust between the NGOs and the other pro-sustainability actors prevents those actors from expressing a unified voice. As such, further weakening of the support of that policy position in the network is expected.

18 All tables in this dissertation illustrating communication clusters among the actors were developed by the network program UCINET.

Figure 6.4 *Patterns of trust relationships in the pork network in the Netherlands*



Why is the level of trust among broad-sustainability actors so low? Here we can only speculate as we did not include this question in interviews. With respect to the Ministry, the cause may be the result of the corporatist tradition of retailers not being part of the traditional constituency of the Ministry. For the retailers, the lack of a trusting relationship with environmental and consumer organisations may be the result of the existence of different fundamental organizational values. Retailers are business companies. On many political issues their interests are likely to be closer to those of the meat producers than to environmental and consumer organisations. In this particular case, they may want to avoid an open conflict with other business actors that could yield significant costs for future interactions. Regarding NGOs, the lack of trust towards retailers and the Ministry may result from the latter's strong liberal views. Specifically, both the Ministry and retailers are strong supporters of self-regulation for the promotion of sustainability related transparency, a view conflicting sharply with that of the NGOs'. Their preferences on regulatory practices represent different ideologies, which in this case makes NGOs suspicious of those actors' true motives (we discuss this point further in section 6.5).

6.4 Policy outputs for transparency in the Dutch pork chain

Based on patterns of communication and trust relationships as well as actors' individual characteristics, this section estimates the feasible policy outputs for transparency. The numerical estimation is derived from the implementation of the formal model presented in chapter four. The model envisages the formation of policy outputs to be determined by the interaction between actor and network characteristics. More specifically, the network characteristics shape the influence processes among the actors, which can result in actors' position shifts and are translated in policy outputs for transparency.

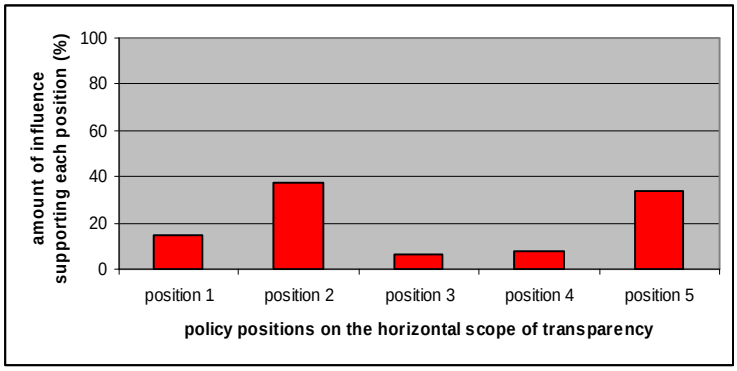
With respect to policy outputs for transparency, our analysis begins with assigning a value to the status quo. We then compare that value to that predicted by the base (weighted mean) and our elaborate models. Regarding the vertical degree of transparency, EU regulation requires tracking and tracing to cover the whole chain from the production of raw materials for feed to the final product. As such it can be interpreted as position 4, representing the highest level of traceability. Regarding the horizontal scope of transparency, EU regulation as well as private initiatives are in place which issue demands for transparency primarily on human health and safety aspects. The outcomes of the negotiations for Wok and private initiatives aim to promote transparency beyond that level. Due to limited participation in initiatives that extend their requirements for transparency beyond the purposes of human health and safety however, we estimate the value of the status quo to be position 2-plus. In other words agreement on the provision of information related to human health and safety and first steps to prepare the inclusion of other sustainability related information.

We can now compare the value assigned to the status quo with that predicted by the base (weighted mean) and elaborate models. A comparison of those values will show whether the elaborate model is a more accurate predictive tool than the base one. On the vertical degree of transparency, all actors' policy positions converge and as such, the application of any numerical manipulation for the estimation of the policy output is irrelevant. A policy output of full traceability in the chain is supported by all network actors, an output in agreement with the status quo. On the horizontal scope of transparency, however, actors' policy positions diverge and as such the feasible policy output needs to be estimated.

The alignment of actors' policy positions with respect to the horizontal scope of transparency is represented in figure 6.5 which shows that the amount of influence supporting each position is distributed such that positions 2 and 5 are the most influential. Based on this alignment of actors along the continuum and performing a weighted average calculation (determined by actors' resources and salience), one should expect a policy output of 3.1, meaning an agreement on the provision of information related to human health and safety and animal health and safety, plus steps towards including information on ethical and environmental issues. However the status quo

regarding the scope of transparency is interpreted as position 2-plus. Therefore in the estimation of policy outputs for the provision of sustainability related information in the Dutch pork chain, the weighted mean model provides an overestimation of the current situation.

Figure 6.5 *Distribution of the policy positions on the horizontal scope of transparency in the Dutch pork network*



The difference between the actual policy situation and the one expected from the alignment of the actors is understandable when one takes into account the communication and trust relationships between the actors and their impact on negotiation dynamics. Based on these dynamics in the network our model suggests a policy outcome of 2.5, which is close to the current decisions concerning transparency in the pork sector and significantly different from what an analysis without consideration of communication and trust relationships would suggest. Table 6.4 summarizes actors' position shifts over time (or negotiation rounds) in the pork network in the Netherlands as they have been estimated with the help of the formal model outlined in chapter four.

The table shows that the Ministry quickly abandons its policy position for a broad scope of transparency (5) and settles after three negotiation rounds on position 3. As mentioned this is due to its location in the network as part of a strong weak-sustainability group, as well as its limited trust relationships with potential allies. This indicates that the Ministry's resources and willingness to invest them are not enough in determining decisions for transparency. Rather, the negotiation context in terms of interactions with other actors needs to be taken into account.

Table 6.4 *Position shifts on the horizontal scope (PHS) of transparency in the Dutch pork network*

Actors	PHS (t)	PHS (t+1)	PHS (t+2)	PHS (t+3)	PHS (t+4)
NEV	1	1	2	2	2
PDV	1	1	2	2	2
PVE	2	2	2	2	2
COV	2	2	2	2	2
DUM	2	2	2	2	2
NUT	2	2	2	2	2
NVV	3	3	3	3	3
LTO	3	3	3	3	3
SNM	4	4	4	4	4
DB	4	4	4	4	4
CB	5	5	5	4	4
PB	5	5	4	4	3
CBL	5	5	4	3	3
LNV	5	4	3	3	3
Network position	**3.1**	**2.9**	**2.8**	**2.6**	**2.5**

The retailer association (CBL) also follows a declining trend in its position, but not as quickly as the Ministry due to the fact that its communication relationships with NGOs are better than those of the Ministry. However, as a business actor it maintains stronger ties with other economic actors. Finally, the most radical NGOs also compromise, but remain at position 4. This is due to the fact that they distrust the majority of their challengers and hence, the latter's influence upon NGOs position is weakened. However the shifts in actors' policy positions indicate that the communication patterns that dispatch actors from their potential coalition as well as the absence of trust relationships do have an impact on the policy output. The potentially powerful coalition in favour of broad sustainability proves not to be a coalition at all, but quickly dissipates in the negotiations.

Would the situation differ if broad-sustainability actors communicated and trusted each other? The following analysis indicates that this would indeed be the case. In particular, actors' position shifts are re-estimated after altering the patterns of communication and trust relationships among pro-sustainability actors. Table 6.5 summarises actors' positions shifts over time under the assumption that broad-sustainability actors communicate and trust one another.

This table shows the Ministry does not abandon its policy position for a broad horizontal scope of transparency in contrast to the previous case when communication and trust among pro-sustainability actors were low. The same is true for the retailers' association. In fact the broad-sustainability actors are able to maintain their policy positions through two negotiation rounds and only in round 3, after business actors have moved closer, do they compromise. The ability of pro-sustainability actors to hold their common policy position

proved fundamental to attract the position of other actors as well. The farmers' association LTO in particular, seems to quickly follow the pro-sustainability actors when it sees that it has a strong enough coalition.[19] Moreover, the Product Boards, due to their close relationships both in terms of communication and trust with the Ministry, are also shifting their policy positions closer to the Ministry. The positions of the other business actors follow those of the Products Boards and LTO at a slower pace.

Table 6.5 *Position shifts on the horizontal scope of transparency (PHS) in the Dutch pork network if broad-sustainability actors communicated and trusted each other*

Actors	**PHS (t)**	**PHS' (t+1)**	**PHS' (t+2)**	**PHS' (t+3)**
NEV	1	2	3	3
PDV	1	2	3	3
PVE	2	2	3	3
COV	2	3	3	3
DUM	2	2	2	3
NUT	2	2	2	3
NVV	3	5	5	4
LTO	3	3	4	4
SNM	4	5	5	4
DB	4	5	5	4
CB	5	5	5	4
PB	5	5	5	4
CBL	5	5	5	4
LNV	5	5	5	4
Network position	**3.1**	**3.4**	**3.7**	**3.5**

At the end of the negotiation process the network would adopt a position of 3.5 instead of 2.5, which can be interpreted as agreement on provision of information related to human and animal health and safety and noteworthy steps towards the inclusion of other sustainability related information. This is a significant improvement even though transparency does not reach its broadest scope. Nevertheless an outcome of 3.5 at this point, given a change in the network patterns as described above, would mean that in future negotiations actors would begin the negotiation process at the position 3.5. Consequently one could expect further improvements with respect to transparency in the future.[20]

19 Such an inclination was also indicated in interviews when farmers' representatives stated that they would like to help promote sustainability as long as they are not on their own.

20 Transparency could also follow a declining trend from position 3.5. However because this output was estimated by assuming a change in network interactions that favor the creation of stable coalitions among relatively influential pro-sustainability actors, we expect that the trend will rise from position 3.5.

6.5 Evaluating the policy output in the context of regulatory practices

This dissertation argues that in evaluating the policy output, aspects of regulatory practices need to be discussed due to their impact on the degree/scope of transparency actually to be implemented and used by consumers in practice. Consequently we investigate the type of regulatory practices the pork network currently adopts in order to support the selected degree/scope of transparency. In the Dutch pork chain we can identify a mix of both governmental regulation and private self-regulatory schemes. In terms of governmental regulation the EU General Food Law is the primary tool. In terms of self-regulation a number of self-regulatory initiatives exist, such as IKB and EUREP-GAP discussed earlier in the chapter. As mentioned in chapter four, this is considered a desirable combination consistent with the liberal goal of less governmental involvement and the associated benefits of self-regulatory schemes, while maintaining the threat of criminal prosecution in the background. The question is whether such a combination is the appropriate response for the promotion of transparency in the Dutch pork chain.

The fact that a combinatory regulatory regime exists is due to the strong interest in such a regime among network actors. Almost all business actors opt for a quasi-public quasi-private regulatory regime where minimum standards would be set by public bodies and instruments as well as monitoring and implementation would be the responsibility of the private sector. The fact that business actors support regulation might come as a surprise though the actors explained this is not the kind of regulation that *Consumentenbond* had in mind with the development of the Wok proposal. In contrast business actors prefer a basic regulatory framework, preferably setting health and safety standards and leaving them freedom to develop their own more detailed private schemes for other types of sustainability information. This serves a double purpose, as the governmental regulatory framework protects business actors who care about health and safety from unfair competition with actors who do not care enough to invest in that field and simultaneously allowing business actors who want to use sustainability as a marketing tool to compete on that issue while not making it a requirement for those who do not consider sustainability a priority for their business. As shown in the previous section this latter view of sustainability corresponds to the majority of the business actors operating in the Dutch pork chain.

Some actors adopt more extreme positions namely those advocating a broad horizontal scope of transparency, which has implications for their ability to form a stable coalition. In particular the retailers' association and the Ministry opt for self-regulation while the NGOs opt for governmental (and/or EU) regulation emphasizing the importance of liability rules. It is clear that the positions of broad-sustainability actors are very far apart with respect to the types of measures that they want adopted. Both retailers and the Ministry seem to believe that sustainability related transparency will better be

served under private initiatives with the Ministry performing a supportive and consultative rather than a leading and prescriptive role. At the same time NGOs appear to be strong supporters of governmental regulation and litigation rules with the Ministry playing a leading role.

The Ministry's position on this issue is rather unfortunate for the legitimacy and therefore appeal and support, of transparency related initiatives in the eyes of the public. Surveys[21] show that Dutch (meat) consumers do not particularly trust food chain actors for the provision of information regarding sustainability attributes of products and processes, including information about their health and safety. Instead they trust public actors as a source of such information. In addition Dutch consumers appear to agree that government needs to make the provision of information about food products and processes compulsory, and that this should not be the responsibility of the food chain actors *alone* with the government acting as a simple spectator. These insights indicate that private initiatives for sustainability related transparency will probably have limited appeal to the public unless public actors are involved. This is particularly important as the potential failure of private initiatives for transparency could be interpreted solely on the grounds of consumer unwillingness to pay or consumer apathy. Alternatively, the engagement of independent experts or consumer organizations can also induce benefits for transparency related initiatives since the reported high levels of public trust in information provided by those actors on issues related to sustainability attributes of meat products and processes.

What does this regulatory regime mean for the current outputs for transparency? With respect to traceability, this combination seems to be doing well. Actors are trying to develop tools that facilitate the tracking and tracing of products through the production chains. With respect to the promotion of sustainability related information actors are mostly developing their own self-regulatory schemes and private initiatives in the chain. Consumer scepticism about the reliability of such schemes however, will probably reduce their utility especially if outputs for transparency shift toward supporting a broader horizontal scope. In that respect the government needs to re-evaluate its position and reconsider its role and the role of other societal actors besides business in fostering sustainability related information in the chain.

6.6 Concluding Remarks

The above discussion gives a mixed message with respect to transparency in the Dutch pork chain. Traceability is accepted as well as desired by all the network actors. Yet the results regarding the provision and distribution of

21 Information about this research and relevant data is given in Appendix D.

sustainability related information in the chain are disappointing. This analysis suggests that efforts to promote sustainability related information in the Dutch pork chain have stumbled across a strong coalition of actors situated around the Ministry of Agriculture and are likely to continue to do so in the near and mid-term future. Although this is hardly surprising it does indicate that despite the involvement of civil society organisations in the network with broader sustainability interests, their impact on the Ministry's policy position on that issue and subsequently on policy outputs for transparency is minimal. How can the situation be reversed? It is clear that the patterns of communication and trust in the network need to change. In particular, NGOs, retailers and the Ministry need to communicate more closely. Such a move could be initiated by government, which claims to be interested in fostering this type of sustainable information. The Ministry's current positioning of itself in the network however, and its patterns of communication with the other network actors force us to categorize such claims as political rhetoric. Alternatively this change could be initiated by retailers. To date however, these actors appear to shy away from building a coalition with environmental and consumer organizations against producer interests and prefer to pursue a cooperative approach based on bilateral negotiations with producers. This preference could change if retailers felt they had no chance of success at that level. Moreover, retailers may perceive the Ministry as currently unwilling to truly support a strong push for sustainable information. It is possible that they would be willing to foster a pro-sustainability coalition with environmental and consumer organizations if they saw more potential of government support for such an objective.

The pattern of trust relationships among actors would also need to change to allow for more cooperation among broad-sustainability actors. At the moment actors appear to belong to small trust clubs while the general level of trust in the network is quite low. Altering the level of trust is not that simple however. Significant efforts from all sides would need to be made in order to improve the trust relations in the network. Business actors, for instance, complain that NGOs are never satisfied and always ask for more. On the other hand NGOs do not see significant efforts from business to become more transparent. From their perspective they also see a lack of significant efforts from the government to seriously pursue transparency. Such visible efforts would be necessary for actors to alter their collective memory and create new trustworthy relationships with one another.

In addition, government needs to make more effective use of its resources. Its influence reputation in the network reveals its ability to direct decisions. In addition, consumer demands illustrate their support for governmental intervention and disbelief in information coming from food chain actors. The same is true for those business actors who want to promote transparency but find limited support for their plans or face uncertainty about their success. We argue that government has a crucial role to play in this respect by providing the right incentive structures and openly showing its support for transparency

through redirecting the communication patterns and trying to foster improved trust relationships among actors.

Alternatively, the introduction of influential new actors, with more general interests for sustainability, such as the Ministry of the Environment could also result in better outputs for transparency. The participation of a public actor with an environmental profile would counteract the predominance of economic actors by giving more access to pro-sustainability interests.

At the same time we should not forget that the Netherlands is part of the European Union and that decisions taken at the national level, especially those regarding agriculture and food should be regarded in a larger context. The next chapter looks at the feasibility of decisions concerning transparency in the pork chain as being negotiated in the EU policy network. It identifies relevant actors, their characteristics and their relationships and predicts policy outputs for transparency. It aims to find out whether better outputs for transparency could be anticipated at the EU level which might have a positive impact on transparency at the national level.

7

PROSPECTS FOR TRANSPARENCY IN THE EU PORK CHAIN

7.1 Introduction

Chapter seven presents empirical analysis of the EU pork chain. We begin with a presentation of transparency related policies, proposals, and initiatives that focus on the EU pork chain (section 7.2); they are discussed in terms of the vertical degree and horizontal scope of transparency they advocate. The next section (section 7.3) presents the actors that form the EU pork policy network and discusses both their characteristics and those of the network in which they operate. We then present the analysis and discuss the policy outputs with respect to transparency supported by the EU pork policy network (section 7.4). In section 7.5 we evaluate the policy outputs in the context of regulatory practices. The last section concludes the chapter interpreting the results and their implications for transparency and sustainability related policies and politics (section 7.6).

7.2 Transparency related policies, proposals, and initiatives in the EU pork chain

This section presents transparency related policies, proposals, and initiatives in more detail, focusing on the EU pork chain. It discusses them in terms of the degree and scope of transparency they advocate for the pork chain in the vertical and horizontal dimensions respectively. In this discussion we reveal the types of regulatory practices that currently exist for this aim. We remind the reader that the EU General Food Law covers all the sectors that are presented below and as such it is not mentioned independently for each sector.

Feed sector

Existing policies

Safety is a major concern for the feed sector as many food related crises begin with feed mishandling. To guarantee feed safety, the sector[1] is regulated by the feed hygiene regulation which endorses the use of the HACCP system. Until recently, this regulation only included the compound feed industry exempting home mixers and producers of feed ingredients. However since December 2004[2] a new EU feed hygiene regulation is in place, covering the use of HACCP for all feed business operators including the producers of feed ingredients.

1 The feed sector is organised into the *compound feed sector* and the *ingredients feed sector.* The compound feed sector represents one third of the total feed consumed every year (140 million tonnes out of the total 450 million tonnes that EU animals consume every year) while the other two thirds represent ingredients that can be produced by the farmers themselves at the farm. Pigs and chickens are almost entirely fed with compound feed while cattle and sheep are fed with feed ingredients.

2 Applicable from 1 January 2006.

In addition to HACCP, a tool for the sector itself, the feed sector is currently regulated by a number of Directives aiming to communicate information about the products[3] to other chain actors with the broader goal of improving feed safety. In addition to traceability requirements set by the EU General Food Law the feed industry is also required to provide information about the exact types and amounts of ingredients used in the form of a label. This agreement known as the "open label declaration",[4] has caused many reactions from the feed industry in the past. It has been characterised as discriminatory (as it excludes feed used for livestock, which is usually homemade) and a potential breech of intellectual property rights. Its contribution to feed safety was not acknowledged by the industry. The president of the European association of the compound feed industry at the time (Mr. Montecot of FEFAC in 2001) described the agreement as "a seriously flawed compromise, which in no way contributes to the improvement of feed safety". The recent president of the association, Professor Tielen, also expressed the view that the European Parliament went too far with this agreement and that it should be toned down (De Molenaar 2004). While the industry concurs with the provision of information on the types of ingredients used, it opposes the disclosure of the exact percentage of each ingredient type. Currently no information is available about the progress on that issue. We can speculate that the feed industry will probably not succeed in overturning the agreement since the rest of the chain actors oppose such an output, as the chapter will later show.

Initiatives for the sector

a. European Feed Manufacturers Code (EFMC)

In implementing the EU General Food Law, the compound feed industry through its European association (FEFAC) has developed a European Feed Manufacturers Code (EFMC). The code was developed via the benchmarking of eight national codes (Netherlands, Belgium, Spain, Portugal, Germany, France, UK, and Ireland) as well as the guidance of the Codex draft code of

3 In particular the following Directives are currently in force: Council Directive 79/373/EC on the marketing of compound feedingstuffs. Commission Directive 80/511/EEC authorising, in certain cases, the marketing of compound feedingstuffs in unsealed packages or containers. Commission Directive 84/475/EEC laying down the categories of feed materials which may be used for the purposes of labelling compound feedingstuffs for pet animals. Commission Directive 86/174/EEC fixing the method of calculation for the energy value of compound poultry feed. Commission Regulation (EC) No 223/2003 on labelling requirements relating to the organic production methods for feedingstuffs, compound feedingstuffs and feed materials and amending Council Regulation (EEC) No 2092/91.

4 It reformed and strengthened the Council Directive 79/373/EC on the marketing of compound foodstuffs.

practice on good animal feeding[5] and requirements found in the Law. In addition the code is based upon the obligations imposed by a number of other EU Directives concerning feed.[6] The aim of an EU Code for the feed industry is to facilitate the mutual recognition of national codes of practice at the EU level and promote harmonisation. It should be mentioned that EFMC does not extend its requirements to feed ingredients. This is left to the discretion of member-state organisations (for instance the Feed Product Board in the Netherlands). The EU compound feed industry association is considering communicating compliance with the EFMC code through ISO 9000-9002 certification or other equivalent quality management programmes provided that they incorporate HACCP requirements and are subject to certification by an independent organisation.

b. International Feed Ingredient Standard (IFIS)

FEFAC also participates in an initiative at the international level, the International Feed Safety Alliance (IFSA). Members of the Alliance include four national European organisations –the British IC, the Belgian OVOCOM, the Dutch Product Board for Animal Feed, the German QS- and FEFAC. The aim of the Alliance is to create a single common standard for the quality (safety) assurance of feed ingredients at the international level: the International Feed Ingredient Standard (IFIS). The standard is to be created and managed by the Alliance through an International Feed Ingredient Program (IFIP) which also controls the implementation, certification, and auditing of IFIS. When such a standard is developed it will replace the standards developed at the national level (i.e. GMP+ for the Netherlands).

c. Open- Feed Days

The European compound feed industry association is also trying to project a better image of the sector to consumers through the organisation of "open

5 The Codex Code of Practice for Good Animal Feeding applies to feed manufacturing and the use of all feeds other than those consumed while grazing in open space. It specifies requirements for microbiological control, veterinary drugs, residues and contaminants in feeds. It covers the stages of the purchase, handling, storage, processing and distribution of feed for food producing animals.

6 In particular these include: the Additives Directive 70/524/EEC; the Marketing of Compound Feedingstuffs Directive 79/373/EEC; the Undesirable Substances and Products Directive 1999/29/EEC (concerns the maximum presence of dioxins and PCBs in animal feed); the Directive on the Circulation of Feed Materials 96/25/EEC (regulates the circulation of feed materials within the Community but also those that are put to direct use by livestock farmers without circulation); the Certain Constituents Directive 82/471/EEC (concerns obligations on products which act as direct or indirect protein sources, are manufactured by certain technical processes and are put into circulation within the Community as feedingstuffs or in feedingstuffs); the Medicated Feeds Directive 90/167/EEC; the Dietetic Feeds Directive 93/74/EEC; the Approval of Establishments Directive 95/69/EEC; the Control of Feedingstuffs Directive 95/53/EEC.

days".[7] In an "open day" the public can see an exhibition of feed production and ask questions about safety and other procedures. It is worthwhile noting that the organisation of open days for the public has been used for years by organic agriculture producers in order to communicate their values (based on transparency and sustainability) and their products to consumers. Scholars note that many of the symbolic actions and phrasing used by the organic movement are gradually being adopted by conventional producers with the effect of weakening the organic movement itself (Goodman 2000). The organisation of open days by the feed industry however, is not necessarily a bad initiative; it gives the public the opportunity to familiarise itself with the production of feed and confront the producers with questions. Nevertheless, a sceptical party might argue that at the moment it is primarily a matter of publicity (since the media are also invited) and a face-lift rather than transparency.

Farm, slaughter, and processing sectors

Existing policies

In the farm, slaughter, and processing sectors a number of feed and food laws exist intended to protect animal health and safety. These rules cover different areas such as animal nutrition (including medicated foodstuffs), feed and food hygiene, zoonoses, animal by-products, residues and contaminants, control and eradication of animal diseases with a public health impact, pesticides, feed and food additives, vitamins, mineral salts, trace elements and other additives, materials in contact with food, quality and compositional requirements, drinking water and controls (see Box 7.1 for a more detailed presentation). Moreover, a number of directives exist that aim to facilitate the tracking and tracing of animals and thus cover aspects of identification and registration of animals, the identification and registration of animal holdings, tracking and tracing of movements of animals as well as veterinary certificates when entering the EU, and random checks when they are moving within the EU.[8] A number of Directives cover the exchange of information

7 The feed day was launched for the first time in June 2005 on the occasion of FEFAC's Annual General Meeting in Brussels.

8 More specifically these include: Council Directive 92/102/EEC on the identification and registration of animals: competent authorities must have up-to-date list of all holdings which keep animals and are situated in its territory. This list shall also include the mark or marks which permit the identification of holdings. Any keeper of bovine and porcine animals listed in Directive 64/432/EEC should keep a register with the number of animals. The register shall include up-to-date record of all births, deaths, and movements at least on the basis of aggregate movements stating as appropriate their origin of destination and the date of movements. For animals of the porcine species it is not obligatory to include births and deaths. Animals should be marked with an eartag or tattoo; Animals imported from third countries and have passed the checks laid down by Directive 91/496/EEC and which remain within Community territory shall, within thirty days of undergoing the aforesaid checks, and, in any event, before their movement be identified by a mark. Member States shall adopt necessary administrative and/or penal measures to punish any infringement of Community veterinary

between national administrators for the notification in case of diseases, as well as the establishment of a network linking veterinary authorities in different member states, since there are no more veterinary checks at the community's internal borders (Amino).[9]

In principle animal welfare is already part of the Treaty of the European Community (1997). Protocol (No 33) of the Treaty on the protection and welfare of animals, states: "In formulating and implementing the Community's agriculture, transport, internal market and research policies, the Community and the Member States shall pay *full regard to the welfare requirements of animals*, while respecting the legislative or administrative provisions and customs of the Member States relating in particular to religious rites, cultural traditions and regional heritage" (author's emphasis).

In addition to this general statement there are also more specific rules covering the welfare of animals and specifically of animals kept in intensive farming (Council Directive 98/58/EC concerns the protection of animals kept for farming purposes). The principles laid down in articles 3 to 7, reflect the five freedoms that farming animals should enjoy as adopted by the Farm Animal Welfare Council and based on the European Convention for the Protection of animals kept for farming purposes. More specifically, these freedoms include:

- Freedom from hunger and thirst, access to fresh water and a diet for health and vigour.
- Freedom from discomfort, an appropriate environment with shelter and comfortable rest area.
- Freedom from pain, injury and disease, prevention or rapid treatment.
- Freedom to express normal behaviour, adequate space and facilities, company of the animals' own kind.
- Freedom from fear and distress, conditions and treatment which avoid mental sufferings.

legislation, where it is established that the marking or identification or the keeping of registers has not been carried out in conformity with the requirements of this Directive; Commission Decision 2000/678/EC laying down detailed rules for registration of holdings in national databases for porcine animals as foreseen by Council Directive 64/432/EEC (on animal health problems affecting intra-trade in bovine animals and swine).

9 Council Directive 82/894/EEC on the notification of animal diseases within the Community. Council Directive 89/608/EEC on mutual assistance between the administrative authorities of the Member States and cooperation between the latter and the Commission to ensure the correct application of legislation on veterinary and zoo technical matters. Commission Decision 91/398/EEC on a computerised network linking veterinary authorities (Amino). Council Decision 92/438/EEC on computerisation of veterinary import procedures (Shift project) amending Directives 90/675/EEC, 91/496/EEC and 91/628/EEC, Decision 90/424/EEC and repealing Decision 88/192/EEC. Council Regulation 515/97/EC on mutual assistance between the administrative authorities of the Member States and cooperation between the latter and the Commission to ensure the correct application of the law on customs or agricultural matters.

Box 7.1 *EU Legislation concerning Animal Health and Safety*

Council Regulation on Additives for use in animal nutrition (2002/0073 (COD)). Commission Regulation on Food Hygiene (COM(2000)438 final) concerning the application of HACCP at all levels including farms.

In January 2000 the Commission presented a complete overhaul of the legislation concerning food hygiene and veterinary issues. The overhaul contained four proposals on the following subjects: food hygiene; specific hygiene rules for food of animal origin; official controls on products of animal origin intended for human consumption; animal health rule governing the production, placing on the market and importation of products of animal origin intended for human consumption; official controls of food and feed, whose adoption is provided for in the White Paper on Food Safety. This Regulation entered into force on 20 May 2004. It is applicable from 2006. In the context of the review of food hygiene legislation "hygiene package" a number of directives have been adopted: Council Directive 2002/99/EC laying down the animal health rules governing the production, processing, distribution and introduction of products of animal origin for human consumption. Regulation 852/2004/EC on the Hygiene of Foodstuffs. This regulation also lays down specific rules for the organisation of official controls on products of animal origin intended for human consumption.

Council Directive 88/661/EEC on the zootechnical standards applicable to breeding animals of the porcine species. Council Decision 90/424/EEC as last amended, on expenditure in the veterinary field, in its Title II, provides for the possibility of a financial contribution by the Community in the eradication and monitoring of certain animal diseases. Commission Decision 2004/840/EC approving programmes for the eradication and monitoring of certain animal diseases and of checks aimed at the prevention of zoonoses presented by the Member States for the year 2005 and fixing the level of the Community's financial contribution (notified under document number C(2004) 4600). Identification and registration: Council Directive 92/102/EEC on the identification and registration of animals.

Imports of porcine animals from third countries: Council Directive 72/462/EEC laying down the animal health requirements, harmonises the rules and establishes the general animal health conditions for the import into the territory of porcine animals. Directive 91/496/EEC laying down the principles governing the organisation of veterinary checks on animals entering the Community from third countries. Council Directive 92/ 5/EEC (amending Council Decision 90/638/EEC) laying down animal health requirements governing trade in and imports into the Community if animals, semen, ova and embryos not laid down in specific Community rules referred to in Annex A (I) to Directive 90/425/EEC. Commission Decision 2001/881/EC on the inspection of live animal entering the Community. Council Commission Decision 2002/199/EC on the health conditions and veterinary certification for imports in the case of porcine animals for slaughter, breeding and production.

Intra-Community Trade in Porcine Animals: Council Directive 64/432/EEC laying down the animal health requirements for intra-Community trade in porcine animals. Directive 90/425/EEC on non-discriminatory spot checks at the point of origin and destination.

Porcine Semen: Council Directive 90/429/EEC laying down the general animal health requirements governing intra-Community trade in and imports into the Community of semen of domestic animals of the porcine species.

Although these freedoms are in principle accepted by all actors, conflicting positions arise when it comes to more specific requirements. With respect to pigs[10] conflicting issues include but are not limited to housing facilities for pigs, cage size, and their ability to walk outside and develop group behaviour. More fundamental for the purposes of this dissertation there is currently no EU requirement to communicate information concerning either compliance with basic EU animal welfare rules or more stringent rules and standards. Compliance with animal welfare standards at the EU level are only indirectly communicated through the EU logo for organic food products,[11] which also communicates information about environmental performance. Likewise the EU organic logo is the only communicative tool for environmental performance in the pork sector. This concerns information about a very small amount of organically farmed within the EU representing only 3.7% of the total EU agricultural area (EEC 2092/91 revision).

Retail sector[12]

Initiatives for the chain

The retail sector has also initiated its own transparency related schemes through its EU association Eurocommerce. In particular Eurocommerce has recently initiated a project[13] called FOODTRACE seeking to promote a European concerted action to develop a *traceability* framework for the whole food chain. The initiative aspires to create a practical framework that can be used by all the actors in the chain, including the international level, to ensure traceability throughout all stages of the chain. The proposed identification scheme is technology independent but technologically supported, enabling its use in developing countries.

In developing FOODTRACE Eurocommerce draws on the rules and procedures of existing traceability initiatives at the national and international levels. More specifically these include the Traceability of Fish- Application of EAN-UCC[14] Standards (EAN International), Traceability of Beef Guidelines

10 Council Directive 91/630/EEC of 19 November 1991 laying down minimum standards for the protection of pigs. Council Directive 2001/88/EC of 23 October 2001 amending Directive 91/630/EEC laying down minimum standards for the protection of pigs. Council Directive 2001/93/EC of 9 November 2001 amending Directive 91/630/EEC laying down minimum standards for the protection of pigs.

11 The EU logo for organic products was established in 2000 (EC regulation 331/2000), but until now the interest in the logo has been minimal. Organic products continue to be marketed under national or private labels (EEC 2092/91 revision). The Commission believes that an EU logo would help increase sales because it will increase recognition among the EU consumers. For that reason the Commission is currently performing research to investigate tools capable of facilitating the adoption of the EU logo by member states.

12 HACCP also applies here; the EUREP-GAP and Global Feed Safety Alliance initiatives also apply here but have been discussed in detail elsewhere.

13 The project is financed by DG-Research and involves a number of universities in the EU.

14 EAN (European Article Numbering) is a standard numbering system for Europe that is used by businesses who spread their activities on a global level. It started in 1974 when European

(EMEG),[15] Fresh Produce Traceability Guidelines (EAN International), Traceability in the Supply Chain (GENCOD[16] EAN France), and Traceability Implementation (EAN.UCC) project.

FOODTRACE is still in its infancy therefore terms and technical items remain in negotiation. This dissertation focuses on the type of information communicated in the chain via the traceability system. Although final decisions have not been made Eurocommerce is oriented toward the functional roles of traceability as identified by the UK Food Agency (see Box 7.2). Like other private schemes reviewed in this dissertation the emphasis rests on food safety. Transparency in this scheme is also envisaged to improve sustainability since traceability has the potential to reduce waste from various stages of the supply chain.

Box 7.2 *The Functional Roles of Traceability as Perceived by the UK Food Agency*

- Food Safety Incidents- where robust traceability can facilitate rapid response to breakdowns in food safety with supporting actions, such as withdrawals and recalls, for the purposes of protecting public safety.
- Food Residue Surveillance Programmes- in which food samples are collected at points throughout the food supply chain and tested for a wide range of residues, such as pesticides and where a traceability system is essential for tracing where in the supply chain levels causes of excessive residue levels may have occurred.
- Risk assessment from food exposure- where a traceability system can facilitate access to information concerning food or food ingredients that may relate to a food safety issue.
- Enforcement of labelling claims- where traceability can help to resolve allegations of false labelling and help determine supply chain integrity with respect to food chains.
- Fraud- wherein effective traceability, regular audit and reconciliation measures can assist in inhibiting fraud.
- Food wastage- where traceability and quality control systems may be applied to reduce food wastage.
- Meat Hygiene- where traceability can help enforce and support meat hygiene in the farm to slaughterhouse components of food supply chains.

Source: Eurocommerce, Foodtrace working document

In sum, currently policies and initiatives for transparency in the pork sector at the EU level are strongly safety oriented. The memory of BSE as well as the

manufacturers and distributors from 12 European countries decided to promote an identification system for their products. The actual EAN was formed in 1977 as a non-profit organisation operating under Belgian law with headquarters in Brussels. Due to its increasingly global status it was renamed in EAN International in 1992. UCC (Uniform Code Council) is the North American counterpart. The management of EAN.UCC is operated by GS1, which is a voluntary standards organisation. Today GS1 has 101 members operating in 103 countries. Over one million businesses use EAN-UCC standards.

15 EMEG is the European Meat Expert Group established within EAN International to develop guidelines for the traceability of beef.

16 GENCOD (*Groupement d'Etudes, de Normalisation et de Codification*) is the French branch organisation for EAN.

regular appearance of other food scares makes traceability an important recall tool after the detection of safety problems. However this does not address the roots of safety concerns which are inextricably linked with sustainability issues. Transparency in its presently narrow focus cannot enable the necessary food system transformations.

7.3 The EU pork policy network

The EU is often being examined in the literature from a network perspective (e.g. Börzel 1997; Kohler-Koch 1999; Pappi and Henning 1999; Peterson 1995; Richardson 2000; Ward and Williams 1997), to distinguish it from majority or parliamentary government. This is even more the case at the EU in comparison to the national level, because the EU is by definition a non-hierarchical, non-majoritarian and dynamic multi-level governance system (Grande 2001). Wallace (1990:19) for instance views the EU as a "diffuse network of interactions"; Bressand and Nikolaidids (1990: 41) as "a Europe of networks"; Keohane and Hoffman (1990) across the Atlantic argue that "the European Community can best be viewed as a set of complex overlapping networks, in which supranational style of decision-making, characterized by compromises upgrading common interests, can under favorable conditions lead to the pooling of sovereignty". Finally Ansell (2000:303) refers to the "network polity" of the EU.

This chapter examines the EU policy network developed around the issue of transparency in the pork chain in terms of two characteristics: communication and trust relationships among the actors involved. We also examine actor characteristics defined as their policy positions, resources and salience on the issue of transparency. In total we identified eleven actors active in EU food policy-making concerning transparency in the pork chain. We collected data in the form of structured interviews from the period 2004-2005. The question we ask in this chapter, as in all dissertation empirical chapters, deals with the political feasibility of transparency related policy options in the EU pork sector.

7.3.1 The Actors

Interviewed EU pork network actors are public, private, and civil society actors. Public actors are from the Commission specifically the Directorate General for Health and Consumer Safety (DG-SANCO), and the Directorate General for Agriculture (DG-Agriculture). Private actors are the farmers' organisation COPA-COGECA (Committee of agricultural Organisations-General Committee on Agricultural Co-operation), the compound feed industry association FEFAC (European Feed Manufacturers Federation), the industry association CIAA (*Confederation des Industries Agro-Alimentaire de l'UE* or Confederation of the Food and Drink Industries of the EU), the

meat processors organisation CLITRAVI (*Centre de Liaison des Industries Transformative de la Viande*), the consumer-retailer cooperative EUROCOOP, the retailers' association EUROCOMMERCE, and the meat traders' organisation UECBV (*Union Europeenne du Commerce du Retail et de la Viande*). Civil society organisations include the consumers' organisation BEUC (*Bureau Européenne des Consommateurs*) and the animal welfare organisation (Eurogroup for Animal Welfare).[17]

7.3.2 Actor Characteristics

This dissertation looks at three types of actors' characteristics: their policy positions, their resources and their salience on the issue of transparency. The following table summarises these characteristics.

Table 7.1 *Actors' characteristics in the EU pork network*

Actors	Positions on Vertical Degree of Transparency (PVD)	Positions on Horizontal Scope of Transparency (PHS)	Resources (r)	Salience (s)	Influence capacity (r x s)
EUROCOMMERCE	4	2	100	80	80
FEFAC	4	2	40	100	40
DG-SANCO	4	2	80	80	64
CIAA	4	2	100	20	20
CLITRAVI	4	2	40	20	8
COPA-COGECA	4	2	100	70	70
UECBV	4	2	40	80	32
BEUC	4	3	80	60	48
EGAW	4	4	40	40	16
EUROCOOP	4	4	40	100	40
DG-AGRI	4	5	80	60	48

Policy positions on degree/scope of transparency

Actors' policy positions on the degree and scope of transparency can be ranked in an ordinal fashion from the lowest/narrowest to the highest/broadest. With respect to the *vertical degree* of transparency a

17 At the EU level there are a number of environmental NGOs that are active in agricultural and food issues The most active ones include EEB (European Environmental Bureau), WWF (World Wildlife Fund), FOE-Int (Friends of the Earth-International), GREENPEACE, Birdlife International and ECOS (European Environmental Citizens' Organization for Standardization). However, none of these are active on transparency in food chains (except for WWF which as we will later see is active in the EU farmed-fish sector). There is a public health NGO, namely the European Public Health Alliance, but this too is not active in transparency related issues. The main issue for these organisations concerning provision of food information is the presence of GMOs and the labelling of those organisms when present in food. However this is not the subject of the dissertation.

position advocating the highest degree indicates that an actor demands that the policy should cover the tracking and tracing of the entire chain from the retail shelf to the production of feed ingredients (position 4). On the other hand, a position advocating the lowest degree indicates that an actor believes that it is not necessary for products to be traced backwards and forwards at all (position 0). In between lie positions 1, 2 and 3. Position 1 indicates that the actor demands only the country of origin of product to be traced; position 2 indicates that traceability should extend not only to the country origin but also to the specific farm where the product originates from; and position 3 indicates that the history of the product should be traced up to the level of the compound feed industry, without however, extending to the feed ingredients.

With respect to the ***horizontal scope*** of transparency a policy position in the broadest scope indicates that an actor demands all the subjects related to sustainability (impacts on human health and safety, animal health and safety, animal welfare and the environment) to be covered by the policy, indicated by position 5. The narrowest scope implies that the actor thinks that none of the subjects need to be covered by the policy (position 1). In between lie positions 2, 3 and 4. Position 2 indicates that an actor demands only the subject of human health and safety to be covered by the policy; position 3 indicates that in addition to human health and safety actors also favour the promotion of information on animal health and safety as well. Finally, position 4 indicates that in addition to human ***and*** animal health and safety, other types of sustainability related information are important, namely information on animal welfare or information on the environment.

Regarding the ***vertical degree*** of transparency all actors indicated in the interviews that they are favourably positioned towards the highest level. Actors consider traceability a very important tool in avoiding future food scandals and in enhancing their reliability. The picture on the ***horizontal scope*** of transparency is rather disappointing for sustainability advocates however. In particular the majority of actors, currently believe that the primary interest of transparency related policy is protecting human health and safety, without incorporating other sustainability aspects.

More specifically the feed industry association (FEFAC) finds that safety and other aspects of quality should be clearly distinguished from one another in terms of emphasis. FEFAC feels that while safety and transparency for improving safety, is considered a “must” in the EU agricultural and food policies, other issues such as animal welfare considerations should remain in the background as should transparency on those issues. The reasons provided are economic in principle. According to FEFAC, information on issues other than safety can be “misleading for the consumers” (FEFAC, 20/04/2000, Restoring consumers’ confidence as regards food safety) and “may create artificial demand” (Draft FEFAC comments on the EU commission proposal for a mid-term review of the CAP COM (2003) (23)) because it contradicts the principles of a market-oriented policy. They find that while consumers should have the choice to promote sustainability this should be confined to the

purchase of organic products and conventional production methods should be left alone.

The farmers' association, COPA-COGECA maintains the position that policy interest should focus on transparency with respect to safety rather than other issues also for economic reasons. Specifically COPA-COGECA argues that costs involved in non-safety product information labelling would incur disadvantages for EU producers in the world market. COPA-COGECA uses a fair trade argument regarding compliance to labelling rules by third producers to support its position, stating:

> Labeling would only be so for European producers if it fully applied also to imports from third countries and in compliance with the WTO rules which, moreover, have not yet been defined (Position on the Amendments to Council Directive 91/630 laying down minimum standards for the protection of pigs, 11 May 2001).

CIAA and CLITRAVI[18] also emphasize safety. Their position is that issues like transparency with respect to sustainability can better be dealt with at the national level and should not be of EU interest. EUROCOMMERCE argues in the same tone that sustainability due to its subjective character is difficult to promote at the European (or international) level. Each country has a different background and demands and as such it is the responsibility of national organizations to take action on this issue. In addition UECBV underplays transparency for sustainability aspects while strongly supporting transparency for safety matters. Surprisingly, the consumer organization BEUC also adopts a rather conservative view. BEUC finds sustainability choices should be offered through organic or other forms of environmentally friendly production but not through revealing sustainability impacts caused by conventional production methods. BEUC justifies its position by expressing reservations about consumers' willingness to pay more for sustainability. Finally DG-SANCO explains the slow progress of implementation of the EU General Food Law's traceability requirements prevent them from expanding transparency requirements to sustainability aspects of food (and pig) products and processes.

Other organizations expressed an alternative point of view. EUROCOOP argues that food choice should be based not only on safety but also on ethical concerns, like animal welfare a position supported by the Eurogroup of Animal Welfare (EGAW). DG-Agriculture expresses the highest position on transparency in sustainability aspects. They, like business actors, use economic arguments to defend this position. More specifically they argue that lack of transparency on sustainability aspects is a failure of the market system and this failure is paid by the consumers. This market failure cannot be

18 CLITRAVI is a sectoral member of CIAA.

corrected by imposing constraints to economic actors because of the international trade agreements and the WTO. For DG-Agriculture transparency is considered a realistic measure to correct market failure and reform the agricultural sector.

Resources

Based on the influence reputation mechanism the most influential actors in the EU pork network are the industry association (CIAA), the retailer association (EUROCOMMERCE) and the farmers' association (COPA-COGECA). These actors are thought to be in a position to control and affect not only the market but also their members in national associations and employees. Both the Directorate Generals (DGs) and the consumer organization are considered influential but not to the same degree as the top three actors. BEUC is considered more influential than the animal welfare NGO because consumer concerns attract particular interest in the EU, and BEUC is regarded as the legitimate consumer representative. The least influential actors are considered the animal welfare group (EGAW), the consumer-retailer cooperative (EUROCOOP), the processors' association (CLITRAVI) and the feed industry association (FEFAC).

In the EU pork policy network, expertise and financial resources (in terms of position in the market) are considered the most influential political resources, while political authority and legal rights comes second in contrast to national policy networks. This observation implies that the EU is considered primarily an economic union rather than a state in the traditional sense by network actors. Consequently the priorities of issues as well as access to decision-making are expected to be determined to a large extent by market forces. This also entails implications for the role of the Commission in network management. Specifically the Commission is expected to play a facilitator role than that of an active leader of network management.

Salience

Salience on the issue of transparency varies greatly. The most visible business actors occupying both ends of the chain (FEFAC, EUROCOOP and EUROCOMMERCE) express very high salience on this issue considering it their number one priority and professing absolute commitment. Transparency is also considered very important for the meat traders' organization (UECBV). DG-SANCO expresses the view that while transparency is its most important issue, it also has other issues to address. COPA-COGECA considers transparency one of several important issues they currently concentrate on. For both BEUC and DG-AGRI transparency is important but not critical, while for EGAW it is not a very important issue, one on which they make little effort to influence decisions. For the remaining actors transparency is a very small issue at the moment.

7.3.3 Network characteristics

Below we examine the network characteristics of patterns of communication and trust relationships among actors at the EU level with an interest in pork sector transparency.

Patterns of communication

Figure 7.1 shows patterns of communication in the EU pork network. Similar to the Dutch pork network, all actors are connected and no isolates exist. Also similar to the Dutch pork network, a pattern can be identified revealing clusters of communication among some network actors (see Table 7.2). Again this implies that although influence might take place among all the network actors, the force of influence is stronger among some of them. In particular three clusters can be identified: one includes the two NGOs (BEUC and EGAW) and the retailer-consumer cooperative (EUROCOOP); another includes the business actors and the Directorate Generals (DG-SANCO, DG-AGRI, COPA-COGECA, UECBV, CIAA, CLITRAVI, and EUROCOMMERCE); and the third one includes only the feed industry association (FEFAC). This shows that the feed remains on guard in relation to the rest of the business actors, public actors, and civil society organisations.

The communication clustering reveals that, once again, actors advocating a broader scope of transparency with respect to sustainability are scattered among the clusters, while actors advocating a narrower scope are able to pull their influence. Specifically DG-AGRI is part of the cluster of actors positioned against a broad scope of transparency and as such we expect it to quickly abandon its high policy position, similar to the way the Ministry of Agriculture did at the national level. As in the Dutch pork policy network public actors are part of the business-actor cluster. Priority in access is given to business interests[19] facilitating the advancement of their position as expected and shown in our discussion of actors' influence reputation. In contrast, NGOs do not enjoy the same state of affairs. Although they too have access to public actors their position in the network reveals that their role is marginal yet again. This observation coincides with other studies of the EU policy process showing that the EU privileges those interests with technical expertise rather than moral legitimacy (e.g. Marks et al. 1996).

With the current communication patterns in the network we expect a weakening for a broad scope of transparency. The question is will it further

19 This is also reflected in the creation of an advisory group for the clarification of Article 9 of the General Food Law regarding public consultation. The advisory group will operate under the umbrella of DG-SANCO and will have 44 permanent members. The criteria for access are first of all, the representation of a general interest in the food chain, which according to DG-SANCO's definition of "general interest" as pertaining to food safety includes the food chain actors as well as consumer organisations (hence no access to environmental and animal welfare groups) and secondly, a permanent presence in Brussels.

decline due to patterns of trust relationships as was the case in the Dutch pork network.

Figure 7.1 *Patterns of communication in the pork network in the EU*

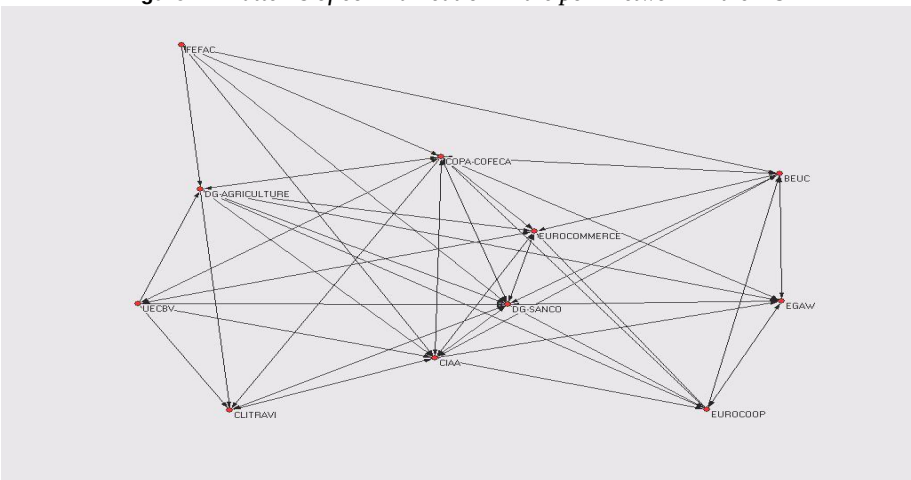


Table 7.2 *Communication clusters in the pork network in the EU*

	E	B	E		F		C	U	D	C	C	D	E
EGAW		1	1					1			1		
BEUC	1						1		1	1		1	
EUROCOOP	1	1					1		1	1		1	1
FEFAC		1					1		1	1		1	
COPA-COFECA	1	1			1			1	1	1	1	1	1
UECBV							1		1	1	1	1	1
DG-SANCO		1	1		1		1	1		1	1		1
CIAA	1	1	1		1		1	1	1		1	1	1
CLITRAVI									1	1			
DG-AGRICULTURE	1						1		1	1	1		1
EUROCOMMERCE							1	1	1	1		1	

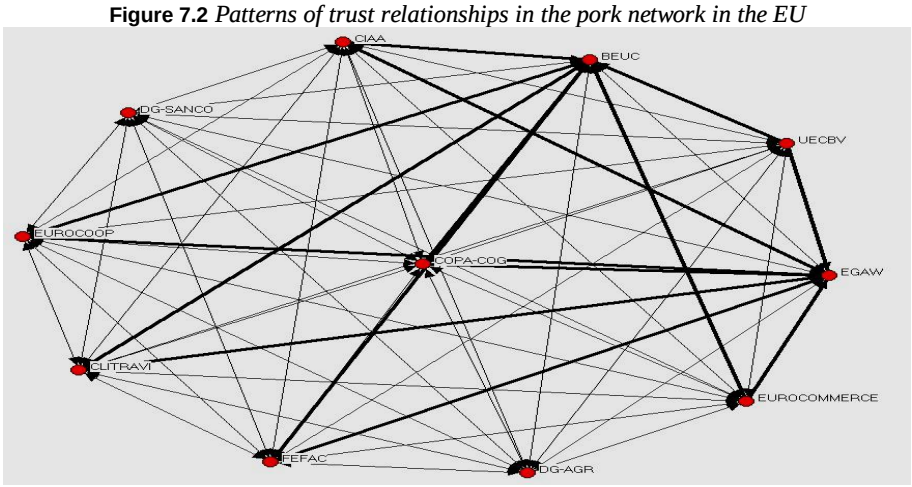
Patterns of trust relationships

When examining patterns of trust relationships at the EU, a completely different picture emerges in comparison with the national level (see Figure 7.2). The majority of actors report that they trust each other therefore we do not expect a substantial impact on actors' ability to successfully challenge the

policy positions of other actors or coalition building among similar minded actors, as found at the national level. However not all actors describe feelings of trust towards one another. Specifically the NGOs appear to be sceptical of other actors' intentions, a fact resulting in their further marginalisation in the network. We expect constraints in the creation of successful coalitions between NGOs and other actors defending similar transparency interests. In Figure 7.2 line thickness distinguishes mutual (thin) and unilateral (thick) trust relationships among actors. The figure shows that many of the relationships involving NGOs are thick; therefore trust is reportedly unilateral.

Perhaps NGO scepticism stems from their perception of actors' functions. NGOs may find it difficult to trust business actors whose function they perceive to be economic gain (which in their view frequently conflicts with sustainability objectives). In addition they may feel unease towards those public actors whom they perceive as business friendly. Interestingly the same scepticism is not reported in reverse. In particular trust reported by business actors, especially business actors with policy positions differing from those of the NGOs, may surprise observers. It seems that NGOs may renounce potential influence by their failure to reciprocate business' willingness to cooperate. A cynical explanation for business' reported trust in NGOs could link it to business' efforts to improve their moral legitimacy by showing their willingness to cooperate with NGOs, however. Such an explanation begs the question of whether the same openness would exist, if NGOs were very influential.

Figure 7.2 *Patterns of trust relationships in the pork network in the EU*

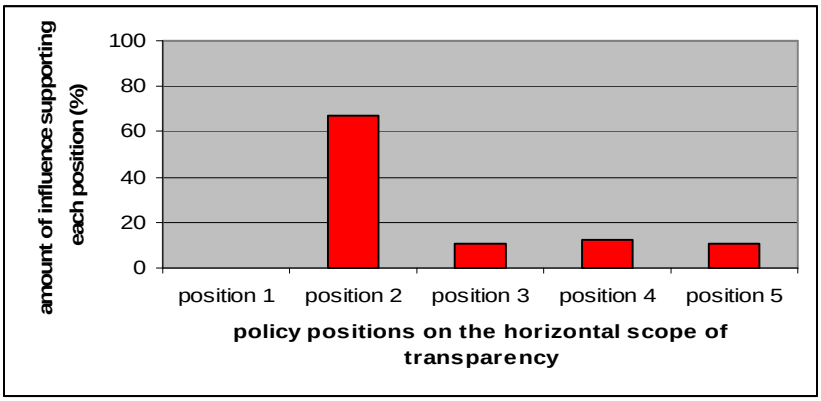


7.4 Policy outputs for transparency in the EU pork chain

Given the patterns of communication and trust relations among network actors as well as their individual characteristics, this section tries to predict policy outputs with respect to the vertical degree and horizontal scope of transparency in the pork chain.

We begin our analysis with respect to policy outputs for transparency by assigning a value to the status quo. We then compare that value to the one predicted by the base (weighted mean) and our elaborate model. With respect to the *vertical degree* of transparency the EU Regulation requires tracking and tracing to cover the whole chain from the production of raw materials to the final product. This can be interpreted as position 4, the highest level of traceability. With respect to the *horizontal scope* of transparency the EU General Food Law and other regulations reviewed in this chapter mean an agreement on the provision of information related to the protection of human health and safety. Other private schemes share the same aim while limited efforts aspire towards provision of other sustainability related information. The status quo with respect to transparency in sustainability attributes of products and processes in the chain can thus be interpreted as position 2 (or at least very close to 2).

Figure 7.3 *Distribution of policy positions on the horizontal scope of transparency in the EU pork network*



We can now compare the value assigned to the status quo with that predicted by the base (weighted mean) and elaborate model. Regarding the *vertical degree* of transparency, we found actors' positions uniformly high. All network actors support a policy output of full traceability in the chain. This output agrees with the status quo and this section devotes its attention to investigating outputs with respect only to the *horizontal scope* of transparency. The following figure (Figure 7.3) shows the distribution of actors' policy positions on the horizontal scope of transparency. The most

influential position is position 2, signifying transparency on issues of human health and safety. Positions 3 (transparency on human *and* animal health and safety), 4 (transparency on health and safety *and* animal welfare or environmental consequences) and 5 (transparency on health and safety, animal welfare, *and* environmental consequences) attract almost equal support.

Based on this alignment of actors along the continuum the weighted mean position (determined by actors' resources and salience) indicates that the policy output should be position 2.7 (close to 3): interpretable as agreement for transparency on issues of human health and safety and serious steps into including other types of sustainability related information. Though as we have indicated the current emphasis of transparency policies and initiatives in the EU pork sector lies on food safety and is represented by position 2. As such, the base model provides an overestimation of the current situation. Next we include network dynamics in our analysis to examine whether this changes the prediction of the output.

The following table (7.3) shows the elaborate model's predictions given the current network structure and actors' individual characteristics. The table shows that at the end of the negotiation process, the final policy output will be position 2.1, much closer to reality than the results predicted by the weighted mean which assumes no interaction among the actors. In accordance with our expectations, DG-AGRI quickly abandons its high policy position due to the strong influence from business actors, mainly as a result of communication patterns. Trust also plays a significant role because it enables actors to pool their influence. The business actors maintain their position throughout the negotiation process due to the strong relationships (in terms of communication and trust) that they have with each other. BEUC also keeps its initial policy position due to its scepticism of commitments to transparency from business actors. Influence from business actors is thus weakened through the remaining NGOs' positions shift despite their scepticism toward other actors' intentions. This indicates their vulnerability of marginal positioning in the communication network and exposure to influence by more powerful actors. The NGOs' compromise shows the failure to form a pro-sustainability coalition in the EU pork network and promote its position. The implications for transparency are very disappointing. In the absence of a mechanism counterbalancing powerful actors with narrow interests for sustainability, we cannot expect significant transformations in the food system in the short-term.

Table 7.3 *Position shifts on the horizontal scope of transparency (PHS) in the EU pork network*

Actors	PHS (t)	PHS (t+1)	PHS (t+2)	PHS (t+3)
EUROCOMMERCE	2	2	2	2
FEFAC	2	2	2	2
DG-SANCO	2	2	2	2
CIAA	2	2	2	2
CLITRAVI	2	2	2	2
COPA-COGECA	2	2	2	2
UECBV	2	2	2	2
BEUC	3	3	3	3
EGAW	4	4	3	3
EUROCOOP	4	3	3	2
DG-AGRI	5	3	2	2
Network position	**2.7**	**2.4**	**2.2**	**2.1**

Change could derive from a shift in communication patterns allowing more cooperation between broad-sustainability actors. An improvement in trust relationships, in particular between DG-AGRI and NGOs, could also accommodate change. The following table summarises our model's predictions for policy outputs under the assumption that those two conditions hold in reality. The table shows that although broad-sustainability actors' positions shift less sharply than before, they do shift and finally settle at position 3. This is higher than the previous case where some of these actors settled into position 2. It does not make a big difference for the overall outcome however, mainly due to the fact that even though broad-sustainability actors maintain their position they are unable to attract support from (narrow-sustainability) business actors. These remain at position 2 throughout the process. Changing the communication patterns to foster closer communication relationships between pro-sustainability actors is not enough to shift the balance of power toward their position. This observation implies that established interests in the EU pork network are clearly prioritising access to economic interests. Perhaps a more successful strategy towards promoting transparency would be to foster more communication between business actors and NGOs. Such initiatives would also require an improvement in the trust relationships between these actors. This could involve business actors showing more serious efforts towards promoting transparency and sustainability and NGOs showing more will for cooperation. Trust could also develop under the umbrella of DG-SANCO an actor mutually trusted by both parties. Given the current clusters of communication however, NGOs that represent broader consumer interests, such as environmental and animal welfare issues, are unlikely to feel equally accepted and therefore their scepticism is likely to persist.

Table 7.4 *Position shifts on the horizontal scope of transparency (PHS) in the EU pork network if broad-sustainability actors communicated and trusted each other*

Actors	PHS (t)	PHS' (t+1)	PHS' (t+2)	PHS' (t+3)
EUROCOMMERCE	2	2	2	2
FEFAC	2	2	2	2
DG-SANCO	2	2	2	2
CIAA	2	2	2	2
CLITRAVI	2	2	2	2
COPA-COGECA	2	2	2	2
UECBV	2	2	2	2
BEUC	3	3	3	3
EGAW	4	4	4	3
EUROCOOP	4	4	3	3
DG-AGRI	5	4	3	3
Network position	**2.7**	**2.5**	**2.4**	**2.3**

7.5 Evaluating the policy output in the context of regulatory practices

This dissertation argues that in evaluating the policy output, aspects of regulatory practices need to be discussed due to their impact on the degree/scope of transparency actually to be implemented and used by consumers in practice. Consequently we investigate the type of regulatory practices the pork network currently adopts in order to support the selected degree/scope of transparency.

The current situation can be interpreted as a mixed regulatory regime, with the EU Regulation issuing demands for transparency but assigning responsibility to the development and monitoring of transparency tools to business actors. As mentioned in chapter four this is considered a desirable combination consistent with the liberal goal of less governmental involvement and the associated benefits of self-regulatory schemes, while maintaining the threat of criminal prosecution in the background. The question is whether such a combination is the appropriate response for the promotion of transparency in the EU pork chain in particular.

The existence of a mixed regulatory regime for transparency in the EU is due to the strong interests of the relevant actors for both types of regulatory practices (i.e. governmental and self-regulation), resulting in a combination of both types. Business actors are strong supporters of self-regulation, with the exception of the farmers' association who worry that they will lose if everything is left to market forces. The two NGOs currently participating in the network favor governmental regulation because they do not trust the willingness of business actors to commit to transparency. When questioned, the Commission did not express a position on that issue, which might surprise some scholars. It has been argued in the literature that the Commission tends to favor the use of regulatory policy instruments as a less expensive policy option with the principal costs borne by administrative agencies of the member states and those whose activities are targeted (Coleman and Perl

1999). The reluctance of the Commission (especially DG-Agriculture which favors a broad scope of transparency) to adopt a position can be interpreted as unwillingness of this DG to force any measures with relation to transparency and may also explain its unexpectedly high position on this issue.

The current regulatory regime in combination with actors' preferences means stronger governmental regulation from the EU is unlikely to be formed for the promotion of transparency. Instead the present governmental framework and private initiatives will continue to be the main mechanisms for chain transparency. The question then is whether a combinatory regulatory regime, at least in its existing form, is an appropriate option for the promotion of the current level of transparency in the pork chain. With respect to traceability a mixed regulatory regime seems an appropriate response to the tracking and tracing of irregularities (with the development of respective systems by private actors). Regarding the promotion of sustainability related information, it is questionable whether self-regulatory schemes are the appropriate response. A number of surveys indicate that European consumers place very low trust in business actors as a source of health and environmental information in particular (Eurobarometer 58.0 2002, 2003). Even though such surveys have not been conducted focussing on consumers' trust of the source of sustainability related information of food products and processes in particular, they address the issue of consumer trust of the source of information regarding those aspects in general. As such, insights can also apply to information regarding food. Specifically, these surveys indicate that professionals in those areas, as well as environmental, consumer and animal welfare organisations are the most trusted agents for the provision of health and environmental information by consumers. Trust in the government as a source of information occupies a lower position while trust in business actors as sources of health and environmental information occupies the lowest position. These results indicate that at the EU level, governmental regulation would have more appeal than self-regulation, but the involvement of professionals as well as consumer and animal welfare and environmental organisations at various stages is essential for attributing legitimacy in the information in the eyes of the public.

7.6 Concluding Remarks

This chapter presented the dissertation's empirical findings regarding the prospects for developing transparency related policies and initiatives for the pork chain at the EU level. We showed that chances are currently very low that such an outcome will be realised. First, there is no sufficient demand for transparency with respect to sustainability at the EU. Even among actors who advocate positions for broad horizontal scope of transparency at the national level (like consumer organisations), their EU level counterparts adopt a more

conservative position. In addition, the network is currently dominated by business actors and interests who adopt a position against a broad scope of sustainability related transparency. These actors are able to successfully defend and promote their policy position even when pro-sustainability actors manage to hold their influence tightly together. The chapter argues that in order for change to take place the interaction patterns in the network have to shift to foster more communication between business actors and NGOs while simultaneously improving their trust relationships. We argue that such a shift in network patterns is more likely to succeed if it takes place under the umbrella of DG-SANCO, an actor trusted by both parties in the network. Currently DG-SANCO gives priority to business actors' interests maintaining the balance of power as is determined by the network patterns and actors' distribution of positions.

Managing the network internally does not seem to make a significant difference. In this case network structuring would perhaps offer a more successful strategy. The issue of the conventional pork sector's transparency needs to attract the attention of influential actors, like the DG-Environment as well as environmental NGOs currently focusing on other issues of agricultural and food production. The organic producers' association (IFOAM) could also make a difference in a coalition with other advocates of environmental interests. At the moment however, transparency related to sustainability in conventional chains does not seem to attract sufficient participation from the environmental lobby. One possible explanation is the many issues related to food that environmental actors have to focus on. Based on their priorities, they invest scarce resources in trying to influence those issues they think are most important. The issue of biotechnology and genetic manipulation attracts the most attention. As other research points out, actors at the EU level who cannot increase their resources tend to participate in the policy process more selectively, i.e. they become involved in a limited number of topics (Falkner et al., 1999:502). Without their participation in transparency related issues however, and with the current interests and network structure, safety on food products and processes will dominate the policy options for transparency at the EU level.

Other strategies, such as changing actors' values and perceptions, could also be engaged but would require a much longer time horizon in relation to the strategies mentioned above. Alternatively, the Commission could reframe the network by providing the "leadership to shape the debate" on transparency to move the outcomes closer to a "more socially desirable space" (Peters 1997:57). Currently, the issue of transparency in the EU is framed in rather technocratic vocabulary which does not allow its broader sustainability dimension to flourish. Such a shift in the debate will potentially change actors' relative influence in the network as well. The expertise and moral legitimacy of NGOs could gain in relation to the influence and resources of business actors. This might also affect the patterns of communication in the

network, with business actors seeking more cooperation with NGOs. However, as in many network structuring strategies (in contrast to game management) there is the danger of inducing an unexpected effect opposite of the intended one. The danger in the present case would be the inducement of more polarized and segregated communication patterns among business actors and NGOs, making it more difficult for pro-sustainability actors in both sectors to form a stable and successful coalition.

With respect to regulatory practices, the chapter has shown that a quasi-private quasi-public regime is most likely to continue governing transparency related policies. The Commission seems unwilling to show more teeth in the pursuance of transparency in conventional pork chains in its territory. Self-regulatory schemes, however, lack legitimacy in the eyes of the public and the resulting information is not expected as a decisive factor in consumers' purchasing choices.

In sum, the political feasibility of improved policies for transparency appears unlikely at the moment. We also cannot expect a serious push for transparency to be initiated by the EU to improve the situation at the national level. For better chances to design and implement more ambitious policies for transparency the network interactions as well as the network boundary and actors' frame of reference need to be profoundly transformed.

8

PROSPECTS FOR TRANSPARENCY IN THE DUTCH FARMED-FISH CHAIN

8.1 Introduction

Chapter eight presents empirical analysis for the farmed-fish network in the Netherlands. We begin with a presentation of transparency related policies, proposals and initiatives that focus on the Dutch farmed-fish chain. Section 8.2 discusses those proposals in terms of the vertical degree and horizontal scope of transparency they aim to promote in the chain. Section 8.3 presents the actors that form the Dutch farmed-fish policy network and discusses their characteristics and those of the network in which they operate. Section 8.4 presents the analysis and section 8.5 evaluates the policy outputs for transparency in the context of regulatory practices. Finally, section 8.6 interprets the results and their implications for transparency and sustainability related policies and politics.

8.2 Transparency related policies, proposals and initiatives in the Dutch farmed-fish chain in the Netherlands

This section presents transparency related policies, proposals, and initiatives in the farmed-fish chain in the Netherlands in more detail. It discusses them in terms of the degree and scope of transparency they advocate for the farmed-fish chain in the vertical and horizontal dimensions respectively. In discussing the policies, proposals and initiatives for transparency, the types of regulatory practices that currently exist for this aim are also revealed. The section provides an illustration of the status quo of transparency in the farmed-fish chain today.

Feed sector

The feed sector in the Netherlands is uniform; no separate initiatives exist for different types of feed. As explained in more detail in the chapter six, the Early Warning System and the Tracking and Tracing System combined with the Good Manufacturing Practice Code (GMP+) ensure traceability and feed safety. The sector has not taken any initiatives to promote and distribute other types of information, i.e. information regarding animal welfare or environmental consequences.

Farm, slaughter and processing sectors

Existing policies

In the farm, slaughter, and processing sectors, traceability was not entirely implemented at the time of the interviews. The reason provided was mainly the lack of organised chains.[1] Indeed, in contrast to the pork sector, business

1 In the Netherlands there are only two organized chains and efforts are being made to create a third one (for tilapia). One chain is owed by Ahold (retailer) for tilapia. Ahold is in control of the hold chain but has free contracts with feed producers (usually from abroad). The second chain

relationships between farmed-fish actors are based on market price, not on long-term contracts. The absence of stable chains in the farmed-fish sector in turn, makes the process of establishing traceability more difficult comparing to other sectors.[2] In addition, the Dutch farmed-fish sector has not been shaken by any food scandals as was the case with meat products. Hence, traceability did not seem to be such an urgent and socially demanded issue. Nevertheless, traceability has to be established for compliance with the EU General Food Law. At the moment no information has been published regarding the progress of the farmed-fish sector in that respect.

Apart from traceability, human health and safety issues involved with the consumption of farmed fish, as well as issues that concern animal health and safety, are relevant. Information on those matters is incomplete at the moment. In particular, a Ministry document (LNV 2003) reports that currently there is insufficient registration of medicines in the Netherlands for fish. The industry of animal medicine finds the sector too small to demand a detailed registration and circumvents the procedure. The same document informs us that the costs of the required research cannot be compensated on time, because returns on animal medicine in the Dutch farmed-fish sector are too small. In practice, this means that medicine used for other animal species is being applied on fish, with the so-called "minor-use" application. Without a formal basis however, the document concludes, there is a lot of room for malpractice. Moreover, due to the insufficiency of fish medicine registration, studies on medically treated farmed-fish consumption and its effects on human health are lacking. Nevertheless, since the end of 2002, a list of *forbidden* medicines[3] exists after the request of the Ministry of LNV to the Registration Office for Animal Medicine. In addition, since 2002 certain rules apply concerning the maximum amount of dioxin and PCBs.[4]

With respect to animal welfare,[5] the main issues of concern in the farmed fish sector as expressed by the animal welfare organisation (*Dierenbescherming*) are the number of fish per tank, the manner of reproduction, the use of biotechnology, the conditions under which fish are

is owned by Nutreco (feed producer). It controls the whole chain but has free contracts with retailers.

2 At the time of the interviews, the Fish Product Board (PVS) was trying to promote the organisation of chains and traceability that would cover all the links in the farmed-fish chain.

3 This list has been developed with the cooperation of Nevevi (the farmers' association) and ID-DLO Lelystad.

4 However, the EU considers these standards weak. Specifically, the EU wants to re-evaluate the current dioxin norms in 2006 and perhaps increase the standards. In addition, from 2006 fish from polluted waters will not be allowed for human or fish consumption (as fish feed). Research is also being conducted concerning the purity or the substitution of fish oil for fish feed.

5 The farmed-fish welfare is subject to the rules of the Animal Health and Welfare Act (1992) (*Gezondheids en welzijnwet voor dieren*, GWWD) and the Fisheries Decree. These represent basic standards concerning the keeping of fish in tanks, breeding methods, the use of biotechnology, transportation and animal testing.

kept in captivity and killing methods. Currently the use of antibiotics[6] for preventive diseases and the use of hormones to stipulate reproduction, also issues of animal welfare concerns, are allowed under certain conditions.

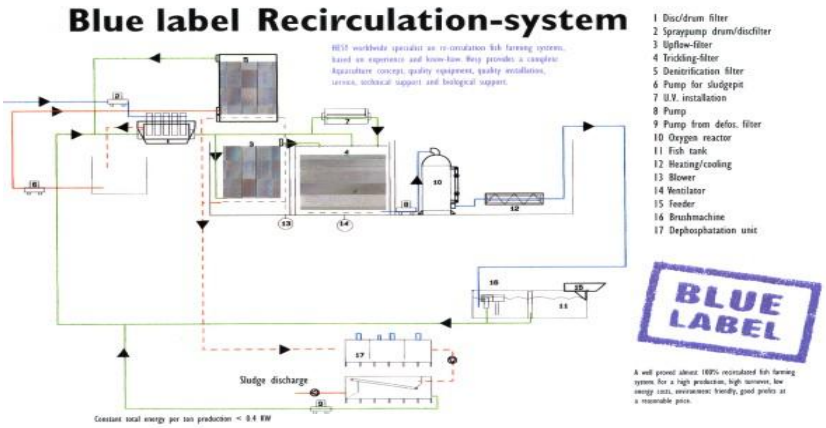
There are also a number of points to consider regarding environmental consequences. At the slaughter and processing levels, as explained elsewhere, these mainly concern the use of water and energy, the treatment of waste, and smell. At the farm level, environmental impacts mostly concern the discard of wastewater and the production of manure. Officially, certain controls are in place that manage the discard of wastewater. The procedure requires that plants provide samples to the competent authorities to be examined and licensed. According to the ministry of LNV (2003) a large number of farming plants claim to remove solid waste from the water before discarding it into the water.[7] However, the Ministry argues that due to the lack of a central database, a lot of relevant information is missing and there is a lot of room for mishandling. Another issue at the farm level is water and energy use, but this is considered minimal due to the closed re-circulation systems.[8] Farms that use such systems are issued with a label which indicates that the farm conserves water and energy. That label is intended only for the farmer. Closed systems are also considered to have other environmental advantages as well, such as minimum danger of escapees to the environment and leak of GMOs to the environment (when GMOs are used in animal feed). Moreover, those systems are also considered beneficial for fish health and safety because of the controlled conditions of oxygen levels as well as the smaller amount of preventive medication required relative to open systems.

6 Antibiotic residues in food are monitored according to the provisions of Council Directive 96/23.

7 This solid waste is either used as fertilizer or sold to third parties.

8 A water recirculation system is a closed system. Fish are kept in tanks and the water is exchanged continuously to guarantee optimum growing conditions. The supply water carries oxygen to the fish and transport away metabolic waste products (organic materials, suspended solids, ammonium and carbon dioxide). These waste products are further transformed into less harmful compounds or reduced to concentrations where they do not affect the health and growth of the fish. To guarantee the required water quality in the tanks, the water is exchanged between 2 to 4 times per hour. Compared to domestic sewage, this high flow carries relatively little waste per m3, but still requires treatment. Re-use of system water and treatment and re-use of wastewater considerably reduce the quantity and disposal of waste matter and water usage and thus energy consumption. However, 100% re-circulation is impossible as not all waste products can be converted or removed by the treatment process. Water will also be lost from various processes within the system and evaporation. As a consequence freshwater or saltwater has to be added. The last generation of culture systems requires a daily amount of make-up water of 2-30% of the total system volume which corresponds with 0.06-0.4 liter per kg feed. In comparison, water consumption in a conventional flow-trough system is approximately 70 m3 per kg feed (Source: HESY).

Figure 8.1 *Quality label for environmental protection in the farmed-fish sector in the Netherlands*



Source: Adapted from HESY (www.hesy.com)

Initiatives for the sector

Recently, efforts have been initiated by the farmers' organisation (NeVeVi) and the Fish Product Board (PBV) to promote a certification program for a number of consumer products, namely fresh and smoked fish and parts of fish, on the basis of the *Milieukeur* criteria for live fish. These criteria concern compliance with the current rules and cover issues of animal health and welfare and the environment. Regarding animal health, the use of medicines has to be made in consultation with veterinarians and in accordance with the list of forbidden medicines mentioned above. Regarding fish welfare, criteria have been included in this certification programme concerning the killing methods. In particular, farmers have to make sure that the fish are stunned before they are killed. Stunning methods for a number of species, in particular the European catfish and eel, are still in their infancy. For that reason, a constant revision of the welfare standards is proposed. Apart from slaughtering methods no other criteria concerning animal welfare are required at the moment.[9]

Regarding environmental performance, the *Milieukeur* certification program poses certain standards for the use of water, energy, and feed conversion. Moreover, it poses restrictions with respect to the use of PVC and cadmium or chlorine in packaging which is not allowed. Apart from the

9 Except that fish feed should be provided by companies that are GMP+ certified but this is a requirement that mostly concerns fish health and safety.

farmers, the industrial processors must also meet certain requirements, laid down for the HACCP or a comparable quality mark for the working and processing of fish. An environmental policy declaration is also required in the certification programme and an environmental coordinator must be appointed. In the future *Milieukeur* wants to explore the possibilities of extending its rules to other links of the chain as well, such as the cultivation of fingerlings.[10] Currently there are no certified applicants for the criteria because the initiative is very recent and the certification process takes time. However, *Milieukeur* states that several companies have shown serious interest.

Retail sector

Initiatives for the chain

At the retail level the same initiatives exist as with pork, namely the Global Food Safety Initiative (GFSI) and the EUREP-GAP initiative. The perspective of those initiatives is similar in both sectors. As far as the GFSI is concerned the focus remains on food safety and the same rules apply to all products (except if certain retailers want to include higher standards). For EUREP-GAP certification, again all "major musts" concern traceability to the farm level and food safety, while health and registration of medicines is also required. Information on environmental consequences and animal welfare fall into the categories of "minor musts" or "shoulds". Similar to the Dutch pork sector, the protection of human health and safety remains the central goal of the initiatives, while the environment and animal welfare remain secondary aspects.

The discussion about transparency in the Dutch farmed-fish sector shows that in comparison to pork, less information is currently available about farmed-fish activities and their consequences. Fish is not as systematically studied as pork, though as the sector is being developed it has to decide the kind of information it is going to base its development and marketing strategies on. In that respect we showed that efforts to improve transparency have been initiated by a number of actors. The following section explores the network governance in the Dutch farmed-fish sector and outlines the possibilities of reaching policy outputs supporting a high vertical degree and broad horizontal scope of transparency for the farmed-fish chain.

8.3 The Dutch farmed-fish policy network

This section presents the political feasibility of policies and initiatives aiming to improve transparency in the farmed-fish chain in the Netherlands. The

10 Fingerlings are the baby fish that are imported as eel and catfish are not native in the Netherlands.

analysis draws on the theoretical framework that has been presented in chapter four. A policy network approach is employed in which actors and the networks in which they operate shape transparency related policy outputs. As with the pork networks, the actors' characteristics are their policy positions on the degree and scope of transparency, their resources and salience. The network's characteristics are the patterns of communication and trust among the actors. In total we identified fourteen actors who have been active in national food policy making concerning transparency in the farmed-fish chain. Data were collected in the form of structured interviews with the relevant actors in the period 2003-2004.

8.3.1 The Actors

The actors involved in the farmed-fish network are public, semi-public and private actors. Public and semi-public actors are the Ministry of LNV (Ministry of Agriculture, Nature and Food Quality) and the Product Boards for Fish, PBV (*Productschap Vis*) and Animal Feed, PDV (*Productschap Dierenvoeder*). Private business actors are the farmers' organisation NeVeVi, NEV (*Nederlandse Vereniging van Viskwekers*), the farms Royal (ROY) and Mondiaal (MOND), the feed companies Provimi (PROV) and the processors/feed companies Coppens (COP) and Nutreco (NUT). Nutreco is also active in the fish farming and represents an integrated chain. The suppliers of equipment and suppliers of fingerlings Catvis (CAT) and Hesy (HESY) are also involved. Finally, civil society actors are the consumer organisation *Consumentenbond* (CB), the environmental organisation *Stichting Natuur en Milieu* (SNM) and the animal welfare organisation *Dierenbescherming* (DB).

8.3.2 Actor Characteristics

We examine three types of actor characteristics: policy positions, resources, and salience. The following table (Table 8.1) summarises these characteristics.

Policy positions on degree/scope of transparency

Actors' policy positions on the degree and scope of transparency can be ranked in an ordinal fashion from the lowest/narrowest to the highest/broadest. With respect to the *vertical degree* of transparency, the highest position indicates that an actor demands that the policy should cover the tracking and tracing of the whole chain from the retail shelf to the production of feed ingredients (position 4), while the lowest position indicates that the actor believes it is not necessary for products to be traced backwards and forwards at all (position 0). In between lie positions 1, 2 and 3. Position 1 indicates that the actor demands only the country of origin of product to be traced. Position 2 indicates that traceability should extend not only to the

country origin but also to the specific farm where the product originates from. Finally, position 3 indicates that the history of the product should be traced up to the level of the compound feed industry, without however, extending to the feed ingredients.

Regarding the horizontal scope of transparency, the broadest position indicates that an actor demands all the subjects related to sustainability (impacts on human health and safety, animal health and safety, animal welfare and the environment) should be covered by the policy and is indicated by position 5. The narrowest scope is indicated when the actor thinks that none of the subjects need to be covered by the policy (position 1). In between lie positions 2, 3 and 4. Position 2 indicates that an actor demands only the subject of human health and safety to be covered by the policy. Position 3 indicates that in addition to human health and safety an actor also favours the promotion of information on animal health and safety as well. Finally, position 4 indicates that in addition to human *and* animal health and safety, other types of sustainability related information are important for an actor, namely information on animal welfare or information on the environment.

Table 8.1 *Actor characteristics in the farmed-fish network in the Netherlands.*

Actors	Positions on Vertical Degree of Transparency (PVD)	Positions on Horizontal Scope of Transparency (PHS)	Resources (r)	Salience (s)	Influence capacity (r x s)
PROV	4	1	60	50	30
MOND	0	1	20	10	2
PDV	4	1	100	45	45
LNV	3	2	100	70	70
HESY	4	3	20	30	6
PBV	4	5	100	55	55
NUT	4	3	90	90	81
COP	4	3	60	50	30
CAT	4	5	20	30	6
ROY	4	5	20	75	15
NEV	4	5	80	75	60
DB	4	4	50	50	25
SNM	4	4	50	50	25
CB	4	5	60	50	30

In general the vast majority of actors expressed very high policy positions on the *vertical degree* of transparency. This is due to the fact that actors have to comply with the EU regulations on traceability but also because traceability is considered an important reliability tool. Two of the actors expressed a different position: the Ministry of Agriculture, Nature and Food Quality (LNV) adopted the position that traceability should be extended as far as the compound feed industry level (position 3) and not further. The Ministry argued that it is not realistic to expect the tracing of feed to a more detailed level. An individual farm, on the other hand, argued in favour of position 0, in

other words that traceability is not important in the farmed fish chain. However, this is a very isolated case and does not reflect a general position of the industry.

On the *horizontal scope* of transparency, the narrowest positions are expressed by the feed companies (position 1). Specifically, most feed companies focus on traceability of buyers and sellers. A number of other companies also aim to promote information on human (position 2) and animal health and safety as well (position 3). For the latter actors the main issue of concern remains health and safety but in a much broader perspective.

The Ministry adopts position 2, in sharp contrast with their position in the pork network. One possible explanation is that information on those issues in the farmed-fish sector is still incomplete and the Ministry needs to focus on developing and monitoring information on that issue at the moment. The fish industry also has a good reputation among consumers (LNV 2003) currently, both in terms of health and environmental impacts. The provision of information on those and other issues is considered either redundant by the Ministry or potentially damaging if it projects a different reality from the one consumers have in mind.

However, the farmers' association (NeVeVi) and the Fish Product Board (PBV) adopt a different perspective. For them sustainability related information *is* a marketing strategy that is expected to enhance the image of the sector. In the Netherlands there is no organic fish farming at the moment. The position of the Fish Product Board as well as fish farmers' association is to try to enable the chain to embrace more environmental friendly and animal welfare methods and advertise it (through the *Milieukeur* certification program for instance). The Fish Product Board believes that the farmed-fish business will be much more successful if it focuses on a niche market comprising of restaurants, hospitals and leading super-markets (such as Albert Heijn) rather than if they follow the route of mass production.

Finally, for the NGOs, the issue of transparency is a matter of principle. Transparency is a consumer right to information. Moreover, transparency is perceived as perhaps the only realistic tool to give consumers some choice. As both governments and businesses shy away from prescription measures, NGOs claim that consumers and businesses should at least be able to have information about the environmental impacts of a range of products and processes before bringing up the rhetoric of consumer choice in the elitist organic market. Likewise, the consumer organisation in particular, argues that transparency only in "green" niche products can result in the "greying" of the rest of production. According to *Consumentebond* opportunistic business can capitalise in the existence of an organic market to narrow the focus of the debate on sustainability, while operating the rest of the production with anonymous methods. Transparency is fundamental to ensure that such opportunistic behaviour does not remain unnoticed (or go unpunishable).

In the farmed-fish network many different actors participate, with diverse positions especially on the scope of transparency. Those actors have different types of resources and different levels of salience that enable them to promote their preferences in the network versus the preferences of others.

Resources

Based on the influence reputation method, the most influential actors in the farmed-fish network are the public and semi-public actors, namely the Ministry of LNV and the two Products Boards. Similar to the Dutch pork network, public actors enjoy the highest reputation in the farmed-fish network and potentially have a leading role to play in the network management. Next in rank is the big multinational company, the biggest in Europe and one of the biggest in the world, Nutreco, followed by the farmers' association, NeVeVi. Individual farmers or smaller companies, however, occupy a lower place in reputation hierarchy. Finally, the NGOs are also considered influential but less so than the top actors, with *Consumentenbond*, the consumer organisation, being the leader.

We asked actors to justify their responses regarding who they consider especially influential by associating actors with certain types of resources. The list contained the following: political authority and legal rights, availability of expertise and information, financial resources and moral legitimacy. Actors were asked to mention additional resources if they were not covered by the list. They were also asked to express their opinion about the types of resources they themselves hold.

When actors reported on the resources of other actors, expertise and political authority and legal rights received the most votes. Expertise was mostly associated with business actors and political authority and legal rights with public and semi-public actors. Actors also associate business actors with financial resources and civil society organisations with moral legitimacy. When actors report on themselves however, the vast majority considers expertise as the resource they themselves hold in order to be influential, while other types of resources carry less weight for them. This can be explained if we consider the role of expertise in the development and monitoring of governmental and private policies. In the development of the traceability requirements in the General Food Law for instance, one of the reasons that food chain actors themselves are asked to bear the responsibility for the development of traceability systems is the argument that those actors have all the relevant information required. Hence, actors strive for expertise in order to have legitimate reasons for access to transparency related policy making.

Salience

Actors' salience on the issue of transparency determines their willingness to mobilise resources. Table 8.1 informs us that the strongest salience is reported by a big private actor (Nutreco) while the lowest salience is reported by an individual farmer and companies providing equipment (and fingerlings). For

the public and semi-public actors transparency is an important issue but not their number one priority. The same holds for the farmers' organisation. Finally for the NGOs, transparency is one of the several issues they are interested in, a fact that also affects their influence.

8.3.3 Network characteristics

The characteristics of the network play a fundamental role in reshaping actors' positions and distributing influence to coalitions. Moreover, network characteristics play a crucial role in determining the stability of coalitions and as such, the ability of actors to promote their positions at the network level. We look at two network characteristics: patterns of communication and patterns of trust relationships.

Patterns of communication

The following figure (8.3) shows the patterns of communication in the Dutch farmed-fish network. The figure shows all the actors connected with one another with no isolates in the network. Observing the network at the global level we deduce that influence takes place among all the network actors. In other words, we expect that each actor's policy position is going to be influenced directly or indirectly by the policy positions of every other actor in the network.

Figure 8.3 *Patterns of communication in the farmed-fish network in the Netherlands*

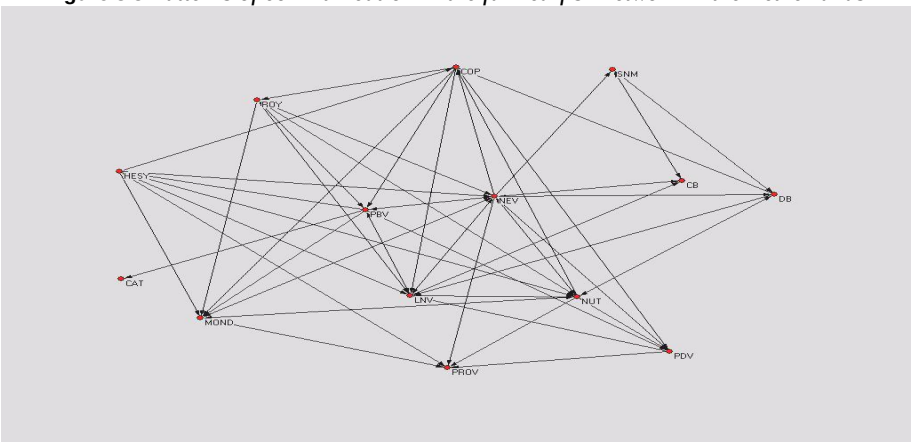


Table 8.2 *Communication clusters in the farmed-fish network in the Netherlands*

	D	C	S	N	N	L	P	P	C	M	R	C	P	H
DB			1	1	1	1			1					
CB			1			1								
SNM	1	1												
NUT	1				1	1			1	1	1		1	
NEV	1	1	1	1	1	1	1	1	1	1	1		1	
LNV		1		1	1		1							
PBV					1	1		1		1	1	1		1
PDV				1		1	1		1				1	
COP						1	1	1		1	1			
MOND				1	1								1	
ROY				1	1	1	1			1				
CAT														
PROV														
HESY				1	1	1			1	1			1	

A closer look at the communication patterns however, reveals several clusters of communication (Table 8.2). In the farmed fish network a similar pattern emerges as in the Dutch pork network. Specifically, the Ministry and the Product Boards belong to the same cluster of communication with the business actors, while NGOs form a marginal group in the network. The implication of this for the scope of transparency is the weakening of support for a policy position advocating a broad scope in the sustainability aspects. Similar to the pork network, relatively powerful business actors with a preference for promoting sustainability related transparency in the chain, in particular NeVeVi, Royal and the Fish Product Board are influenced more by their narrow-sustainability counterparts than by the actors who advocate the same policy position. As in that 'central'[11] cluster the weak-sustainability actors are relatively more influential, we expect influence processes to shape policy outputs supporting a narrower instead of broader scope of transparency in sustainability attributes.

Patterns of trust relationships

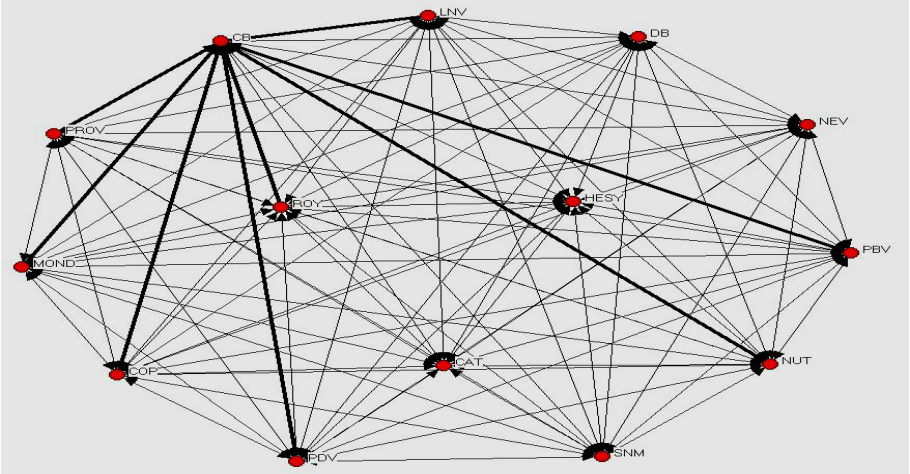
The patterns of trust relationships among the actors in the network plays an important role in determining the ability of actors to maintain coalitions and find support from similarly minded actors. Figure 8.4 illustrates the patterns

11 In terms of influence in the network.

of trust relationships in the Dutch farmed-fish network and shows a sharp contrast in relation to the Dutch pork network. The figure shows that the network displays particularly dense trust relationships. Hence, actors are expected to be better able to find and maintain support for their positions. In addition, in the farmed-fish network trust at a more general level implies the support of cooperation and influence at the dyadic level. However, in the farmed-fish network too, NGOs appear skeptical about other actors' intentions. A similar situation has been encountered in the EU pork network as well. We argue that the reported distrust from the NGOs may stem from the different roles they perceive actors to perform: in their view economic benefits compete with sustainability objectives and are often incompatible with business interests. The reluctance of the government to pursue sustainability related transparency with legal requirements may further NGO skepticism about business intentions to actually implement transparency (we discuss this point further in section 8.5). However, their distrust lowers the chances of a coalition with business actors advocating a high scope of transparency and chances of promoting transparency.

In the following Figure (8.4), line thickness distinguishes mutual (thin) and unilateral trust relationships (thick) among the actors. The figure shows that many of the relationships that involve NGOs are thick and trust is reportedly unilateral. We expect those actors to be less willing to form coalitions with their potential business allies and be more resistance to influence by potential challengers of their position.

Figure 8.4 *Patterns of trust relationships in the farmed-fish network in the Netherlands*



8.4 Policy outputs for transparency in the Dutch farmed-fish chain

Based on patterns of communication and trust in the farmed fish network, we turn to discussing the expectations regarding the policy outputs for

transparency. We ask the questions: what types of positions are more likely to be supported and what types of regulatory practices are more likely to emerge? This section provides answers to those questions with the help of the formal model presented in Chapter four.

Our analysis regarding policy outputs for transparency begins by assigning a value to the status quo. For the vertical degree of transparency, the EU regulation requires tracking and tracing to cover the whole chain from the production of raw materials for feed to the final product. It can be interpreted as position 4, the highest level of traceability. With respect to the horizontal scope of transparency, the Ministry's efforts and private schemes, especially *Milieukeur* aim to promote transparency in the chain on aspects of sustainability beyond safety, but in the absence of certification we cannot guarantee that such broad transparency is widely provided. We estimate thus, the value of the status quo to be position 3-plus. In other words, this position represents agreement about the provision of information on human and animal health and safety and first steps towards providing information on other sustainability aspects as well.

We can now compare the value assigned to the status quo with that predicted by the base (weighted mean) and elaborate model. Regarding the *degree* of transparency, Figure 8.5 graphically presents actors' alignment in policy positions at the beginning of the policy process. Based on this alignment of actors along the continuum and performing a weighted average calculation (provided by actors' resources and salience), one should expect a policy output at 3.8 (or very close to 4). The base model therefore provides a good prediction of the status quo regarding the vertical degree of transparency.

Figure 8.5 *Distribution of positions on the vertical degree of transparency in the farmed-fish network in the Netherlands*

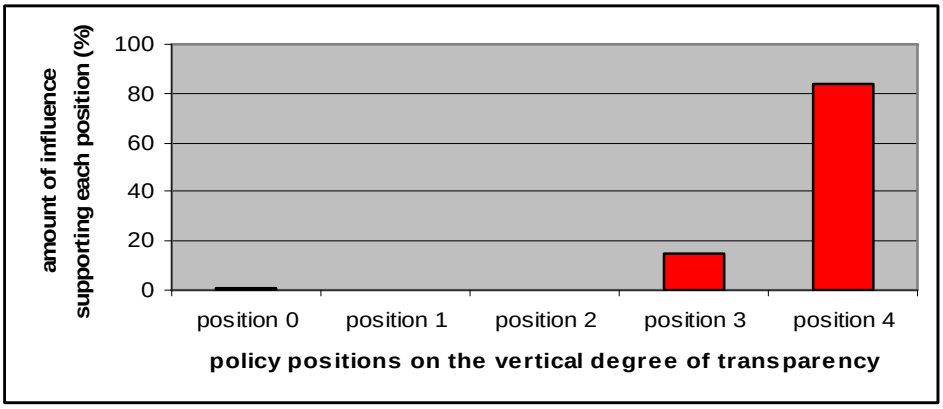
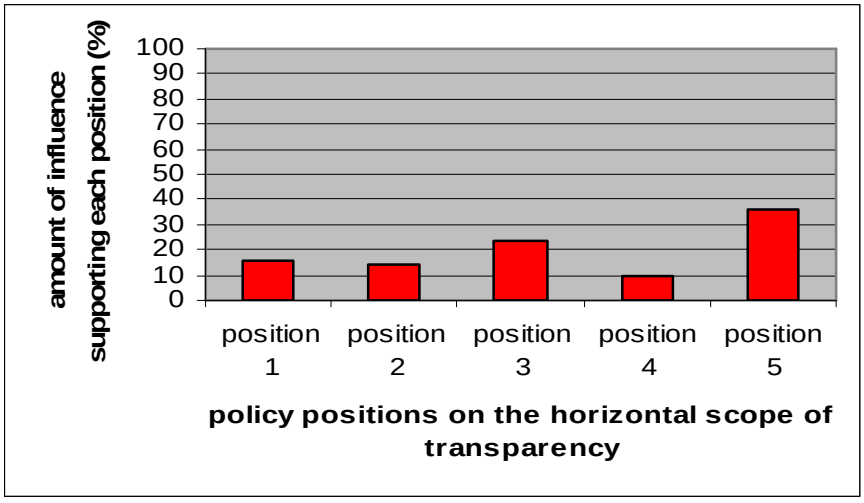


Table 8.3 summarises actors' position shifts as well as the policy output regarding the vertical degree of transparency in the Dutch farmed-fish network as predicted by our elaborate model. The table shows that in only one negotiation round actors adopt the highest policy position (4). This is also the policy position of the network and the output represented by the status quo. The elaborate model therefore provides a good prediction of the current situation with respect to the tracking and tracing in the Dutch farmed-fish chain.

Table 8.3 *Position shifts on the vertical degree of transparency (PVD) in the Dutch farmed-fish network*

Actors	**PVD (t)**	**PVD (t+1)**
PROV	4	4
MOND	0	4
PDV	4	4
LNV	3	4
HESY	4	4
PBV	4	4
NUT	4	4
COP	4	4
CAT	4	4
ROY	4	4
NEV	4	4
DB	4	4
SNM	4	4
CB	4	4
Network position	**3.8**	**4**

Figure 8.6 *Distribution of the policy positions on the horizontal scope of transparency in the farmed-fish network in the Netherlands*



With respect to the *horizontal scope* of transparency, Figure 8.6 graphically presents actors' alignment in policy positions at the beginning of the policy process. The amount of influence (weighted by actors' resources and salience) supporting each policy position is almost evenly distributed among the actors. Based on this alignment we would expect a policy output of 3.3 if we take the weighted mean. In other words, we would expect agreement on the provision of information on human and animal health and safety and steps towards providing information on other sustainability issues. This is similar to the value we assigned to the status quo. The base model therefore provides a good prediction of the current situation regarding the scope of transparency in the Dutch farmed-fish network. The base model predicts the policy output assuming no interaction among the actors. Proceeding further, we want to check whether the prediction of the output differs when we include the network dynamics.

Table 8.4 summarises actors' position shifts as well as the final policy output with regarding the horizontal scope of transparency in the Dutch farmed-fish network as estimated by the application of our model. The model assumes interactions among the actors in terms of their communication and trust relationships significantly affect the determination of policy outputs. The table shows that as a result of first round negotiations, actors' positions shift in a way presented in column PHS (t+1). This column shows the actors originally adopting the narrowest positions in the network (position 1) are moving towards a broader position (position 2). Those NGOs originally in position 4 move towards position 5. At the same time, the business actors and the Fish Product Board (PBV) at 5 move to position 4, a step closer to the rest of the business actors. The network position at this round gives an output of 3.5. This is the highest output the network can reach given the distribution of positions and influence among the relevant actors as well as the network structure. The network output then follows a declining trend settling down to position 3.2, or agreement on the provision of information on human and animal health and safety and first steps towards the inclusion of other sustainability related information. This result is also in agreement with the status quo.

The question is why the base and the elaborate model predict the same output in this case. A possible explanation is that the structure of the network favours compromise position shifts by *all* network actors. In particular, the high level of trust relationships among the actors does not weaken influence at the dyadic level. That alone would not be a full explanation though, since in the EU pork network trust relationships were also relatively dense and yet the output predicted by the two models differed. In this case however, actors' policy positions on the issue of transparency are almost evenly distributed, in contrast to the EU case where position 2 attracted the support of the most powerful actors. The combination of the compromise environment that the

network structure facilitates and the fact that actors at narrow and broad policy positions do not have sufficient power to successfully resist pressure, explains why in the Dutch farmed-fish network, the base and the elaborate model produce the same predictions. We must be aware of both actors' positions and their influence as well as the structure of the network to have that knowledge however, i.e. the network enables compromise position shift by all and that the weighted compromise outcome of actors' initial policy positions is possible.

Table 8.4 *Position shifts on the horizontal scope of transparency (PHS) in the Dutch farmed-fish network*

Actors	PHS (t)	PHS (t+1)	PHS (t+2)	PHS (t+3)
PROV	1	2	3	3
MOND	1	2	3	3
PDV	1	2	3	3
LNV	2	3	3	3
HESY	3	3	3	3
PBV	5	4	3	3
NUT	3	3	3	3
COP	3	3	3	3
CAT	5	4	3	3
ROY	5	4	3	3
NEV	5	4	3	3
DB	4	5	4	4
SNM	4	5	5	4
CB	5	5	5	4
Network position	**3.3**	**3.5**	**3.3**	**3.1**

Table 8.5 *Position shifts on the horizontal scope of transparency (PHS) in the Dutch farmed-fish networkIf broad-sustainability actors communicated with one another*

Actors	PHS (t)	PHS' (t+1)	PHS' (t+2)
PROV	1	2	3
MOND	1	2	3
PDV	1	2	3
LNV	2	3	3
HESY	3	3	3
PBV	5	4	4
NUT	3	3	3
COP	3	3	3
CAT	5	4	4
ROY	5	4	4
NEV	5	4	4
DB	4	5	4
SNM	4	5	4
CB	5	5	4
Network position	**3.3**	**3.4**	**3.6**

We now examine whether the results would be different if the broad-sustainability actors communicated more closely with each other. Table 8.5 shows evolution of actors' policy positions if the broad-sustainability actors belonged to the same cluster of communication and trusted each other. The table shows a broader policy output as a result of business actors' slighter shift in their policy positions (from 5 to 4 where they settle). The policy output would be at 3.6 (closer to 4), which can be interpreted as agreement on information on human and animal health and safety and *significant* (rather than *initial*) steps towards the inclusion of other types of sustainability information. A change in the communication patterns therefore does have an influence on policy outputs determined by the network actors. Specifically, closer communication relationships between actors who advocate a broad scope of transparency in relation to sustainability and trust have a positive influence on the adoption of better policy outputs for transparency by the network.

8.5 Evaluating the policy output in the context of regulatory practices

This dissertation argues that in evaluating the policy output, aspects of regulatory practices need to be discussed due to their impact on the degree/scope of transparency actually to be implemented and used by consumers in practice. Consequently we investigate the type of regulatory practices the pork network currently adopts in order to support the selected degree/scope of transparency. In the Dutch farmed-fish chain we can identify a mix of governmental regulation and private self-regulatory schemes. The EU General Food Law is the primary tool in terms of governmental regulation. In terms of self-regulation, a number of self-regulatory schemes exist, the *Milieukeur* certification program being the most important.

The combination of governmental and self-regulation for transparency in the Dutch farmed-fish chain is due to the strong interests for both types of regulation among the network actors which results in their coexistence. The Ministry in particular, the Product Board for Fish and a number of private actors strongly support self-regulation. Government is seen as having a consultative role, not prescriptive and/or intervening. Observations similar to the pork case with respect to the legitimacy of private schemes in the eyes of the public as for the pork case can be made here. In particular, Dutch consumers do not particularly trust food chain actors to provide information about sustainability attributes of food products and processes, including information about their health and safety. Instead, they trust the government and official authorities to provide information on those aspects. They also trust consumer organisations and independent experts, especially on issues related to health and safety. The appeal of private initiatives for transparency without the involvement of the aforementioned actors might not be strong

enough for the public to actually use that information in their consumption decisions.

On the other hand, the farmers' association, individual farmers, and NGOs are more enthusiastic about governmental regulation. This is not surprising since the farmers were under the umbrella of the Ministry of agriculture in the Netherlands and elsewhere in the EU for many years and are not ready to give in completely to free market economic forces. For NGOs, governmental regulation can guarantee that food chain actors abide by transparency rules. Just as in the Dutch pork network, actors advocating a high scope of transparency have divergent positions on types of regulatory practices, a fact that could also affect their ability to form a stable coalition.

Finally, several actors support a mixed regulatory regime. The Product Board for Animal Feed as well as a leading feed company aim for a combination of both practices, where governmental regulation would provide the umbrella under which private initiatives can thrive.

What does the current regulatory regime mean for the transparency related outputs? For issues related to traceability of safety risks this combination seems to be the appropriate response. However, it is evidently not the most suitable option for issues related to sustainability in more general terms. As explained the limited legitimacy of private schemes for transparency in the eyes of the public, indicate that self-regulation is likely to undermine the information provided by such schemes thus limiting their impact on consumer choices. Similar to the Dutch pork case, the government needs to re-evaluate its position and reconsider its role and the role of other societal actors besides business in fostering sustainability related information in the chain.

8.6 Concluding Remarks

The discussion shows that the network is more likely to support policies that focus on health and safety rather than sustainability in a broader sense. Transparency with respect to sustainability is most likely to become an area where food companies are willing to compete, promoting one segment of their products as sustainable but not referring to a large scope of products and processes. As such, we expect options for sustainability to be limited in their range and targets.

The situation could improve if the patterns of communication in the network supported a strong coalition between broad-sustainability actors. In theory this could be easily achieved in the farmed-fish network due to the high trust relationships among the vast majority of the network actors. A change in the communication patterns, however, could imply a shift in the trust relationships. In the absence of strong support from the Ministry it is unlikely that the farmers' association for instance, would remain in a coalition with NGOs against the rest of the business actors. The Fish Product Board has as

a function to defend the interests of the industry and we can only expect pressures from within rather than an open confrontation. The Ministry seems to be an important link though it currently adopts a narrower position with respect to transparency. Its influence reputation in the network shows its potential role in steering network relations. At the moment, however, the Ministry is unlikely to want to initiate change since it appears contend with the current situation.

However, we have shown that an outcome better than the current status quo is possible. The question is who can initiate the transformations that will lead to better outputs for transparency in the absence of Ministerial leadership? Both pro-sustainability business actors and NGOs have a role in that respect: business actors in particular, can enhance cooperation with NGOs by proving the validity of their claims for transparency. The initiation of the *Miliekeur* certification of farmed-fish products is an important step forward. The NGOs can also initiate more cooperation with those business actors who have shown they seriously pursue transparency and sustainability. However, with their current marginalised position in the network, NGOs are more likely to maintain their concerns on business actors' true intentions instead of dropping them altogether.

Perhaps a more successful strategy would be the inclusion of policy mediators. The combination of inadequate governmental motivation to alter the network (due to its narrow policy position on transparency) and the NGO distrust, makes an independent organisation that is trusted by all parties a particularly appealing manager. Such an actor could also facilitate improving the mutual relationships in the network, with the ultimate target of better outputs for transparency and sustainability.

Regarding regulatory practices, the network supports self-regulation with governmental regulation in the background. It sees a greater role for industry rather than the government, a position the government shares. With the current situation at the Ministry a governmental framework does not seem likely to pose particularly strong demands to the industry regarding transparency. At the same time, private schemes carry the disadvantage of a possible lack of appeal from consumers. Some form of governmental involvement is necessary for the legitimacy of such schemes in the public's eyes and the related support of transparency and sustainability in the market.

A change for transparency related decisions in the farmed-fish chain could possibly come from the EU. Many issues related to agriculture and food are framed at the EU level and influence decisions at the national level. The following chapter investigates the chances of promoting transparency by examining the EU policy network around this issue. It identifies the relevant actors, their characteristics and their relationships and predicts policy outputs for transparency. We aim to find out whether better outputs
for transparency in the farmed-fish chain can be anticipated by the EU and eventually lead to improved transparency in the Netherlands as well.

9

PROSPECTS FOR TRANSPARENCY IN THE EU FARMED-FISH (AQUACULTURE) CHAIN

9.1 Introduction

Chapter nine presents the empirical analysis regarding the aquaculture[1] network in the EU. We use the term "aquaculture" instead of "farmed-fish" because other aquatic organisms are cultivated at the EU level apart from fish. We begin with a presentation of transparency related policies, proposals, and initiatives that focus on EU aquaculture (section 9.2). We discuss them in terms of the vertical degree and horizontal scope of transparency they advocate for the chain. The following section (9.3) presents the actors that form the policy network on the issue of transparency in the European aquaculture sector and discusses individual characteristics as well as those of the network. Section 9.4 presents and discusses the findings regarding the degree and scope of transparency selected by the EU aquaculture policy network. Section 9.5 evaluates the outcome in the context of regulatory practices and section 9.6 summarises and presents the conclusions on the political feasibility of transparency related policy options in the aquaculture sector at the EU level.

9.2 Transparency related policies, proposals, and initiatives in the EU aquaculture chain

This section presents specific transparency related policies, proposals, and initiatives at the EU aquaculture sector.[2] It discusses developments in different parts of the chain separately and provides an assessment on the degree and scope of transparency they advocate for European aquaculture and as such offers an illustration of the current state of transparency.

Feed sector

Existing policies

Fish feed, like any other animal feed, is often the source of health and safety related problems and therefore regulations are in place to protect public health. Regulations concerning fish feed define the level of dioxins and other

1 Aquaculture means the rearing or culture of aquatic organisms using techniques designed to increase the production beyond the natural capacity of the environment; the organisms remain the property of a natural or legal person throughout the rearing or cultural stage, up to and including harvesting (Council Regulation 2792/99 of 17 December 1999 laying down the detailed rules and arrangements regarding Community structural assistance in the fisheries sector (OJ L 337 of 30/12/1999).

2 The EU General Food Law and its traceability requirements also applies here but will not be discussed as this has been done elsewhere.

undesirable substances in fishmeal, fish oil, and feed.[3] The EU feed hygiene regulation on the use of HACCP for feed business operators described in chapter seven for the EU pork sector also applies here. It is important to note that the EU is a net importer of fishmeal (442,000 tonnes) and fish body oils (63,000 tonnes), while it is a significant importer of raw materials (65% of fishmeal supplies from South America) (Brown and Ahmed, 2004). As such, legislation with respect to fish feed at the EU level clearly does not cover the majority of feed used by the European aquaculture sector. International initiatives that bind feed industries worldwide are vital in that respect.

Initiatives for the sector

The FEFAC code of conduct discussed in chapter seven for the EU pork sector also applies for aquaculture. Again we should state that the purpose of the code is to develop a uniform framework for codes of practice at the EU level. Its central focus with respect to transparency is traceability for safety purposes.

Farm, slaughter, and processing sectors

Existing policies

EU legislation covering animal health in aquaculture dates back to 1991. More detailed and harmonised legislation is in place today. The primary legislation on animal health and safety includes conditions governing the placing of aquaculture animals and products into the market,[4] measures for the control of certain fish diseases[5] and of certain diseases affecting bivalve molluscs.[6] Other legislation concerns the use of antibiotics[7] while efforts are being made to reduce them and replace them with vaccinations. Other rules govern the importation of fish from third countries,[8] microbial water quality,[9]

3 In particular Council Directive 2001/102/EC amending Directive 1999/29/EC on the undesirable substances and products in animal nutrition, introducing maximum limits for dioxins in fishmeal, fish oil and feeds for fish. Also, Council Regulation 2375/2001/EC amending Commission Regulation 466/2001/EC setting maximum levels for certain contaminants in foodstuffs, including maximum level of dioxins in fish.

4 Council Directive 91/67/EEC as last amended by Directive 98/45/EC. Commission Decision 2004/453/EC implementing Directive 92/67/EC

5 Council Directive 93/53/EC as last amended by Commission Decision 2001/288/EC.

6 Council Directive 95/70/EC as last amended by Commission Decision 2001/293/EC.

7 Antibiotic residues in food are monitored according to the provisions of Council Directive 96/23.

8 Commission Decision 2003/804/EC laying down the animal health conditions and certification requirements for imports of molluscs, their eggs and gametes for further growth, fattening, relaying or human consumption as amended by Commission Decision 2004/319/EC, Commission Decision 2004/609/EC, Commission Decision 2004/623/EC.
(Safeguard Measures): Council Directive 97/78/EC and Council Directive 91/496/EC lay down provisions that allow Member States or the Commission to take immediate action in the event of an outbreak of a disease presents a serious threat to human health.

and biotoxin levels.[10] Also, hygiene rules cover all the sectors, including processing.

Animal welfare in aquaculture is covered by the EU Protocol (No 33) of the Treaty establishing the European Community (1997) and Council Directive 98/58/EC concerning the protection of animals kept for farming purposes. There are no specific EU rules concerning fish welfare in transportation or slaughtering. As the chapter later shows, the sector is developing its own initiative in that respect.

The Commission identifies the main environmental problems from aquaculture as eutrophication, pressure on wild fish (through the demand of juveniles for stock and feeding), escapees and alien species, and finally the presence of GMOs (Communication from the Commission to the Council and the European Parliament: A Strategy for the Sustainable Development of European Aquaculture 2002). Other environmental problems include energy consumption and emissions to air and water (Brown and Tyedmers 2004). In addition, fish processing also results in significant environmental pressures, including water consumption, effluent generation, energy consumption, generation of by-products, and in some cases noise and odour generation (Brown and Tyedmers 2004). The Commission proposes to reduce the negative environmental impacts of aquaculture by developing a set of norms and/or voluntary agreements which will try to prevent environmental degradation.[11] None of these norms however, mentions transparency as a strategy for promoting sustainability of the sector.

Although there is some organic aquaculture representing 0.4% of EU production (Hilge and Halwart 2004), there are no EU rules governing organic aquaculture. While the Commission has expressed an interest in

9 Directive 91/429/EEC.

10 Biotoxin levels are monitored by the Member States.

11 Relevant environmental legislation for aquaculture: (a) *Location and other environmental constraints*. Nature conservation requirements: (Directive 79/409/EC on the conservation of wild birds and Directive 92/43/EC on the conservation of wild fauna and flora). Water quality standards: (Directive 76/160/EEC on the quality of bathing water, Directive 75/440/EEC on drinking waters, Directive 78/659/EEC on the quality of fresh waters in order to support fish life, Directive 79/923/EEC on the quality required for shellfish waters and Directive 2000/60/EC which establishes a framework for Community action in the filed of water policy); (b) *Procedural formalities and authorisation requirements*: Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment which embodies preventive approach to environmental protection. Directive 76/446/EEC on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community; (c) *Operational controls*: Directive 76/464/EEC to ensure that aquaculture enterprises respect emission standards; (d) *Protecting the resource base*: Directive 79/923/EEC aiming to protect the water resource on which shellfish depends. Directive 76/464/EEC establishing the general regime for pollution standards. Directive 91/271/EEC concerning urban wastewater treatment and achieving better conditions for aquaculture.

including norms for organic aquaculture in Council Regulation 2092/91 for the production, labelling, and inspection of organic farming, such developments have not yet taken place. There is also no EU-label to communicate conformity of organic aquaculture standards. The only mandatory EU labelling for aquaculture requires the labelling of fish products along the production chain indicating the production site location, producer name, and whether the product is wild or farmed (EC 2065/2001). The Commission however, has expressed the interest to assist forms of aquaculture beneficial for environmental protection and restoration (not necessarily organic) and communicate that information through a label though no specific steps in that direction have yet been taken.[12]

Initiatives for the sector

a. The FEAP Code of Conduct

The Commission has encouraged the sector to develop its own code of conduct in the absence of detailed and specific Community legislation for aquaculture. In 2001 FEAP (Federation of European Aquaculture Producers) developed the FEAP Code of Conduct, a voluntary code which aims to create the basis for more concrete national codes. The FEAP Code of Conduct covers all aspects from animal health and safety to animal welfare and the environment. With respect to health, requirements include avoidance of unnecessary stress of the fish, regular inspections, avoidance of the introduction of diseases, proper diagnosis if disease presence is suspected, use and application of therapeutic agents under prescription dosage, and where appropriate, withdrawal times to avoid the accumulation of residues in the flesh. The code also requires that only licensed or approved therapeutic agents should be used. The spreading of diseases should be avoided; dead or dying fish should be removed from the growing area in a way that does not affect the welfare and health of the remaining stock. The effective disposal of dead fish should be done in a way that does not affect the environment negatively.

12 There are private initiatives at the national level. In particular Reyntjens and Cox (2004) report that at least 18 organic aquaculture associations within Europe have developed criteria for organic fish, mussel and crustacean farming. As a consequence of the large numbers of eco-labelling schemes in operation the EU issued a draft publication entitled *A community approach towards eco-labelling of fisheries products*, in February 2001. This stresses that national authorities should require that all fisheries' eco-labelling schemes comply with the following requirements: objective verifiable criteria, independent assessment and control, open access (which means that eco-labelling schemes shall not discriminate in terms of access to certification) and accurate information to the consumer, implying that the criteria used to assess the eligibility of the product for the eco-label shall be available to the consumer. However, scholars report that many of the standards still vary significantly in their targets and limits, with some of them creating more environmental burden than benefit (Hilge and Halwart, 2004).

With respect to animal welfare, rules cover the welfare of animals at the farm (sufficient water quantity and quality), the banned use of genetically modified fish, nutritious feeding (labelled if possible), handling and transport (avoidance of stress and injury and adequate oxygen supply in water), stocking density (taking into account health and behavioural needs), slaughter (quick, painless death), and treatment of predators.[13]

Finally, the FEAP code of conduct has also developed certain rules concerning the environment. These cover the areas of water use and quality, site selection and site management. The code advises limiting impacts on water and the use of water. Specifically, all fish farms should be designed, developed, and managed with a view to equitable and efficient use of resources. Producers are asked to use only those sites compatible with long-term sustainable operations and acceptable ecological effects as well as making an effort to integrate harmoniously with the site surroundings. Finally, producers are asked to take escapes, disinfecting agents, and therapeutic actions into account whose effect on contaminating the environment should be minimised.

FEAP intends to promote compliance with the initiative by stressing its benefits for effective self-regulation. Effective monitoring through written and computer-assisted records (transparency) is stressed as vital. Monitoring includes the water quality (on and off-site), the quality of other inputs and resources used in the production process, off-site environmental parameters of immediate and direct relevance to the production process, environmental standards and objectives ideally agreed on with local authorities, and product quality and safety standards.

b. International Initiatives for the Sector

Other initiatives for aquaculture are the 1991 FAO code of conduct for responsible fisheries adopted in 1995 by over 170 Member governments of FAO (www.fao.org/fi). The code provides guidelines to manage responsible fisheries and aquaculture; it is voluntary and based on international agreements.[14]

13 Predators are species that eat fish and affect aquaculture. Many predators are protected species, including birds. FEAP code of conduct requires that whenever possible, predators should be excluded from areas where live fish are held. Where this is not possible, however, lethal methods of predator control can only be used when this action is legally permissible for the species in question.

14 In particular, those reflected in the United Nations Convention on the Law of the Sea of 10 September 1982 and the Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High seas, 1993.

The Global Aquaculture Alliance (GAA) (www.gaalliance.org), an international non-profit trade association dedicated to advancing environmentally responsible aquaculture, has developed its own initiative. It has developed a Responsible Aquaculture Program of certifiable standards to be used by producers across the globe. Third party verification is required and certified operations can label their products with the GAA logo. At the moment the program focuses on shrimp but many of its elements can be applied to other species.

Finally, the Marine Stewardship Council (MSC) has also initiated its own scheme. Currently concerned with the certification of sustainable managed marine resources, it may be extended to aquaculture in the future.

Retail sector

Initiatives for the chain

At the retail level, the Global Food Safety Initiative (GFSI), EUREP-GAP and FOODTRACE initiatives explained earlier also apply for EU aquaculture. To clarify, GFSI focuses exclusively on the safety of products. EUREP-GAP includes strong requirements for traceability and safety while weak demands for sustainability are also incorporated. FOODTRACE focuses primarily on traceability for food safety purposes while some requirements for sustainability in terms of waste generation, might also be involved.

Non-Governmental-Organisations (NGOs)

Initiatives for the chain

Finally, NGOs play a vital role in promoting environmental transparency at the EU aquaculture sector. The WWF (World Wildlife Fund) in collaboration with Greenpeace, the NorthSea Foundation, and the UK Marine Conservation Society have formed the European Seafood Alliance to assess the sustainability of seafood products and provide relevant information in the form of a colour guide. For instance, while green represents a good choice for the environment and health, red represents the worst possible choice both for the environment and health. Although sustainability scholars consider these guides simplistic, they represent a vivid and effective communicative instrument for the consumer.

European Commission

Initiatives for the chain

Under the thematic programme “Quality of Life and Management of Living Resources” the European Commission has financed a project to develop common traceability rules for the chain. The project has been coordinated by the Norwegian Institute of Fisheries and Aquaculture and involved business

actors and research institutes. At a later stage WWF was also invited to participate. The project started in 2002 and ended two years later with the establishment of TRACEFISH, a set of international standards to ensure the traceability of seafood and aquaculture products. The information concerning farmed-fish and aquaculture products covers the whole chain and includes feeding type, ingredients, presence of GMOs, scientific and commercial name of fish, production method and production area, weight, and preservation. Similar to other traceability projects, the main emphasis of TRACEFISH is protection of human health and safety, while sustainability related information is not included.

This section reveals that considerable effort is being made to support sustainability and transparency at the EU aquaculture sector. The desirability to establish the sector as a viable sustainable alternative to marine fishing is important. Most of the policies and initiatives however, focus on the farming sector and a chain approach is still lacking. The question for the EU aquaculture sector is whether policy options for transparency in terms of sustainability are likely to be supported by the aquaculture policy network for the chain as a whole. The following sections explore that question in detail.

9.3 The EU aquaculture policy network

We examine the EU aquaculture network in terms of the actors involved, their characteristics, and their communication and trust relationships. In total we identified 10 actors who have been active in EU food policy-making concerning transparency in the pork chain. Data were collected in the form of structured interviews with all of those actors in the period 2004-2005.

9.3.1 The Actors

The actors involved in the EU aquaculture network are public, private, and civil society actors. The public actor is the Commission, specifically the Directorate General for Health and Consumer Safety (DG-SANCO), and the Directorate General for Fisheries (DG-Fisheries). Private actors are the farmers' organisation FEAP (Federation of European Aquaculture Producers), the compound feed industry association FEFAC (European Feed Manufacturers Federation), the fish processors organisation AIPCE (*Association des Industries du Poisson de l' UE* / EU Fish Processors Association), the consumer-retailer cooperative EUROCOOP and the retailers' organisation EUROCOMMERCE. Civil society organisations include the consumers' organisation BEUC (*Bureau Européenne des*

Consommateurs), the animal welfare organisation Eurogroup for Animal Welfare, and the environmental organisation WWF (World Wildlife Fund).

9.3.2 Actor Characteristics

Three actor characteristics are of interest: positions, resources, and salience. The actors and their characteristics are depicted in the following table.

Table 9.1 *Actor Characteristics in the EU Aquaculture Network*

Actors	Positions on Vertical Degree of Transparency (PVD)	Positions on Horizontal Scope of Transparency (PHS)	Resources (r)	Salience (s)	Influence capacity (r x s)
EUROCOMMERCE	4	2	100	80	80
FEFAC	4	2	40	100	40
DG-SANCO	4	2	80	80	64
BEUC	4	3	80	60	48
DG-FISHERIES	4	4	80	80	64
AIPCE	4	4	80	65	52
EGAW	4	4	40	40	16
EUROCOOP	4	4	50	100	50
FEAP	4	5	70	100	70
WWF	4	5	70	100	70

Policy positions on the degree/scope of transparency

Actors' policy positions on transparency can be ranked in an ordinal fashion from the lowest/narrowest to the highest/broadest degree/scope. With respect to the *vertical degree* of transparency, a position advocating the highest degree indicates that the policy should cover the tracking and tracing of the whole chain from the retail shelf to the production of feed ingredients (position 4). A position advocating the lowest degree indicates that it is not necessary for products to be traced backwards and forwards at all (position 0). In the middle lie positions 1, 2 and 3. Position 1 indicates that traceability should extend to the country of origin. Position 2 indicates that traceability should extend not only to the country origin but also to the specific farm where the product originates from. Position 3 indicates that the history of the product should be traced up to the level of the compound feed industry, without extending to the feed ingredients.

Regarding the *horizontal scope* of transparency, a policy position on the broadest scope indicates that all the subjects related to sustainability (impacts on human health and safety, animal health and safety, animal welfare and the environment) should be covered by the policy. This is indicated by position 5. The narrowest horizontal scope is indicated when none of the subjects need to

be covered by the policy (position 1). Positions 2, 3 and 4 lie in the middle. Position 2 means that only the subject of human health and safety should be covered by the transparency policy. Position 3 indicates that in addition to human health and safety actors also favour the promotion of information on animal health and safety. Position 4 indicates that in addition to human *and* animal health and safety, other types of sustainability related information are important such as information on animal welfare or information on the environment.

Many actors participating in the aquaculture network are also in the EU pork network. These actors expressed the same position with respect to aquaculture as they did with pork. FEFAC and DG-SANCO for instance, focus their interest on transparency for human health and safety based on economic and implementation reasons (see chapter 7). Just as in the pork case, BEUC focuses its interest on transparency related to health and safety (including animal health and safety). The retailer cooperative EUROCOOP advocates the provision of information on environmental aspects related to farmed-fish products and processes. The same position is advocated by the Fisheries Directorate General (DG-Fisheries) and the processors/ manufacturer's association AIPCE. AIPCE in particular argues that environmental consequences have a significant impact on the suppliers and this type of information is considered very relevant for them. However, AIPCE expressed scepticism with respect to the choice between conflicting scientific data. DG-Fisheries on the other hand, expressed concerns about the difficulties involved in labelling environmental information. Finally, the aquaculture producers' organisation FEAP and WWF advocate the highest positions with respect to availability and distribution of sustainability related information. FEAP considers it an important self-regulatory tool and WWF considers it an appropriate and realistic condition for sustainability.

Resources

Based on the influence reputation method the most influential actor in terms of resources is the retailers' association (EUROCOMMERCE). Next to the retailers, the farmers' and processors' associations (FEAP, AIPCE) are also considered very influential. The same holds for the Commission and the NGOs (BEUC, WWF) which occupy a high place in the reputation hierarchy. The EGAW and EUROCOOP are less important in the determination of policy outputs and the same is true for the feed industry association (FEFAC).

Similar to the EU pork network, expertise and financial resources are considered the most influential political resources in contrast to national policy networks where political authority and legal rights are at the top of the hierarchy. This implies that at the EU aquaculture network economic actors

are also expected to play a leading role in the decision-making process. Apart from that, a significant result from this survey is that the majority of actors reported that they consider *themselves* the most influential actors in the network. This was not the case in any of the previous networks examined. Actors in the EU aquaculture network apparently feel they are able to achieve their goals because this has been their experience in the past. Yet as we have shown, business actors hold a more prominent position in terms of their influence reputation in the network in relation to other actors.

Salience

Transparency seems to be of higher interest among the aquaculture actors in comparison to the pork actors in terms of salience. A number of actors made it their number one priority and expressed absolute commitment towards it (FEFAC, EUROCCOP, FEAP, WWF). The Commission has chosen transparency as the most important issue, acknowledging that there are other issues it needs to address (DG-SANCO, DG-FISHERIES). BEUC and AIPCE consider transparency one of several important issues they are committed to, but they would drop this issue if another more important issue arose. Finally EGAW, although they care about transparency, does not consider it critical. In general they focus on other issues first.

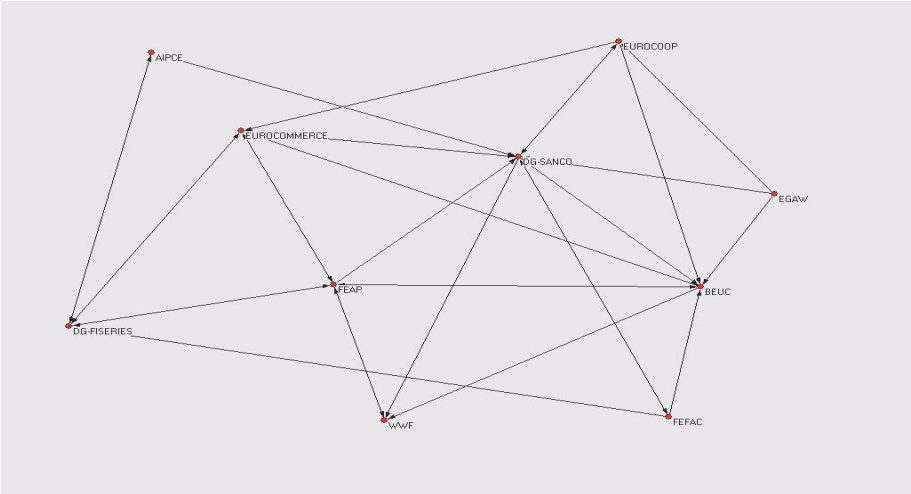
9.3.3 Network characteristics

The network characteristics of patterns of communication and trust relationships among actors with an interest in influencing transparency decisions for the aquaculture sector are examined at the EU level.

Patterns of communication

Figure 9.1 shows the patterns of communication in the EU aquaculture network. Similar to the previous examined networks, all the actors are connected with one another and no isolates exist. We expect actors' policy positions to be influenced directly and indirectly by the policy positions of every other actor in the network. Just as in the other networks, a pattern can be identified which reveals several clusters of communication among some of the network actors (see Table 9.2).

Figure 9.1 *Patterns of Communication in the EU Aquaculture Network*



The pattern is slightly different here than in the other networks. In particular WWF, an environmental NGO, is part of a communication cluster including influential business actors such as EUROCOMMERCE and FEAP but also influential public actors, DG-SANCO in particular. The consumers' organisation BEUC is also part of that communication cluster. At first glance, we expect better outputs for transparency in terms of sustainability supported by the EU aquaculture network in relation to other networks. A closer look reveals that the processors' association (AIPCE), DG-Fisheries, the animal welfare organisation (EGAW), and the consumer-retailer cooperative (EUROCOOP) (all advocating policy positions for a broad horizontal scope of transparency) are allocated to different communication clusters. The disassociation of those actors by the communication patterns is expected to weaken the overall support for extended transparency in the sustainability aspects of the aquaculture chain. Finally, the feed industry association FEFAC forms an individual cluster similar to its role in the EU pork network. This shows that in the aquaculture sector the feed industry is again not accepted on equal terms by the rest of the network actors.

Table 9.2 *Communication Clusters in the EU Aquaculture Network*

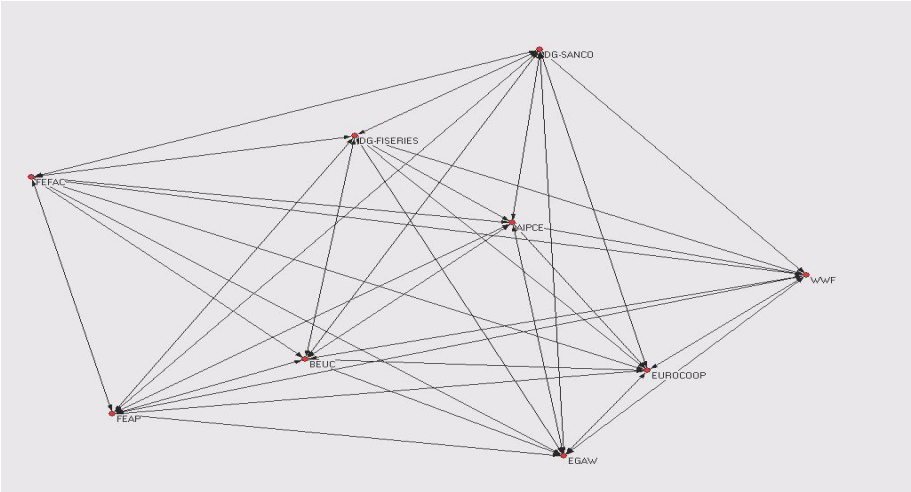
	F	D	B	W	E	D	A	E	E	F
FEAP		1	1	1	1	1				
DG-SANCO			1	1	1			1	1	1
BEUC	1	1		1	1					
WWF	1									
EUROCOMMERCE	1	1				1				
DG-FISERIES	1				1		1			
AIPCE		1				1				
EGAW		1	1					1		
EUROCOOP		1	1		1					
FEFAC		1	1			1				

Patterns of trust relationships

Examining the pattern of trust relationships among the actors, our results reveal that even for the NGOs distrust is not an issue in the EU aquaculture network. This general level of trust implies that actors become more open to influence even by those who traditionally perform different and occasionally antagonistic roles in the network (see chapter 4). Therefore we expect influence to flow unobstructed among all the network actors and coalition building and maintenance of support is not expected to be negatively affected by distrust.

To the sceptical reader, the high level of trust relationships among actors in the EU aquaculture network can be explained by actors' reports on their ability to affect decisions. As this chapter explains, actors in that network expressed the opinion that they consider themselves especially influential in the network next to other actors. Their confidence shows that they do not feel threatened to be betrayed by potential allies or actors who could challenge their positions. This facilitates the generation of trust as the actors regard themselves as equals instead of superior or inferior to others. Communication patterns in the network also support this trend; NGOs are not marginalised and do not feel excluded from the policy process which also affects their trust.

Figure 9.2 *Patterns of Trust Relationships in the EU Aquaculture Network*



9.4 Policy Outputs for transparency in the EU aquaculture chain

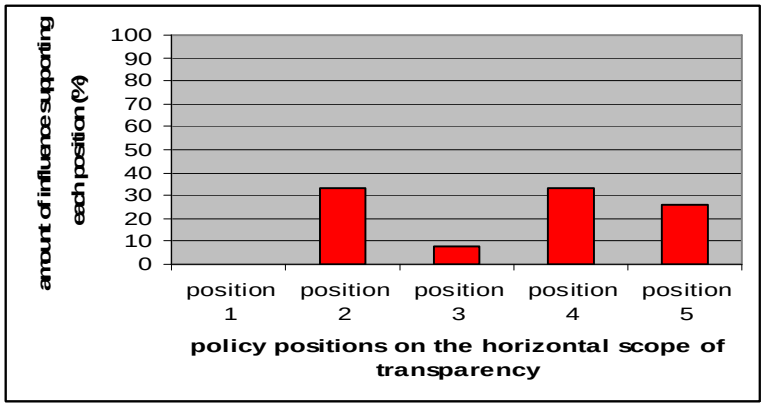
The policy outputs on the vertical degree and horizontal scope of transparency given the current network structure and actors' individual characteristics are presented below. Specifically our analysis begins with assigning a value to the status quo. We then compare that value to the one predicted by the base (weighted mean) and our elaborate model. With respect to the *vertical degree of transparency*, the EU Regulation requires tracking and tracing to cover the whole chain from the production of raw materials for feed to the final product which can be interpreted as position 4, the higher level of traceability. With respect to the *horizontal scope of transparency*, the Commission's and private schemes aim to promote transparency on issues of health and safety. Schemes also are in place that aim to promote transparency on other aspects of sustainability. In the absence of information regarding participation in such schemes we estimate the value of the status quo to be position 3-plus. In other words, this equals agreement on the provision of information on human and animal health and safety and steps towards providing information on other sustainability aspects as well.

We can now compare the value assigned to the status quo with the value predicted by the base (weighted mean) and elaborate models. Regarding the *vertical degree of transparency*, we have already mentioned that actors' positions on that issue are uniformly high. A policy output of full traceability in the chain is supported by all the network actors. Moreover, this output agrees with the status quo, therefore this section investigates outputs with

respect to the *horizontal scope of transparency* only. The following figure shows the distribution of actors' positions on the horizontal scope of transparency. Figure 9.3 shows that positions 2 (promotion of information on human health and safety), 4 (promotion of information on human and animal health and safety *and* environmental consequences), and 5 (promotion of information on human and animal health and safety, environmental consequences *and* animal welfare) attract almost equal levels of support. Position 3 (promotion of information on human *and* animal health and safety) attracts less support, advocated only by the consumer organisation BEUC. This brings to mind the distribution of policy positions on the horizontal scope of transparency among the actors in the farmed-fish network in the Netherlands, which will also have implications for the policy outputs as predicted by the two models.

Based on this alignment of policy positions along the continuum, performing an average weight calculation (determined by actors' resources and salience) one can expect a policy output of 3.5. In other words, the base model predicts transparency on issues of human health and animal health and safety and steps towards including information on environmental consequences. This was also the evaluation of the status quo. The base model therefore provides a good prediction of the status quo with regarding the horizontal scope of transparency in the EU aquaculture network.

Figure 9.3 *Distribution of policy positions on the horizontal scope of transparency in the EU aquaculture network*



Employing the network model we predict that the final policy output should be position 3.6 (see Table 9.2). As this is closer to 4 than 3, our model predicts a slightly better policy option for transparency than the status quo due to the interaction patterns shaped in the network. Similar to the Dutch

farmed-fish network, the structure of the EU network favours compromise steps by all network actors. Importantly, the high level of trust relationships among the actors does not weaken influence at the dyadic level. Similar to the Dutch farmed-fish network, actors' policy positions on the issue of the horizontal scope of transparency are almost evenly distributed (except for the minority at position 3) and no coalition can attract more support due to its power differential. However, the fact that our model gives a more optimistic evaluation of the status quo is because of the access of influential broad-sustainability actors (WWF in particular), to the coalition aligned in favour of a narrower scope. In this case, broad-sustainability actors can directly influence the policy positions of narrow-sustainability actors. But that condition alone would not be enough for the explanation of a policy output supporting a relatively broad scope of transparency in the horizontal dimension. In previous networks examined it was often the case that relatively influential broad-sustainability actors belonged to the same communication cluster as narrow-sustainability actors and yet the network output remained at a narrow scope. In that case the WWF is an NGO having ties with other broad-sustainability NGOs outside the "central"[15] cluster. Additionally, the high level of trust relationships enable broad-sustainability actors to maintain a strong policy position for transparency despite their allocation to different communication clusters and induce sharper position shifts for instance, from other actors in relation to the national (Dutch) level. With the current network structure and actors' distribution of policy positions, our model's prediction implies that better outputs for transparency than the status quo can be anticipated from the EU aquaculture network in the future.

Table 9.2 *Position shifts on the horizontal scope of transparency (PHS) in the EU aquaculture network*

ACTORS	PHS (T)	PHS (T+1)	PHS (T+2)
EUROCOMMERCE	2	3	3
FEFAC	2	2	3
DG-SANCO	2	3	3
BEUC	3	3	3
DG-FISHERIES	4	4	4
AIPCE	4	4	4
EGAW	4	4	4
EUROCOOP	4	4	4
FEAP	5	4	4
WWF	5	4	4
Network position	**3.5**	**3.5**	**3.6**

15 Central in terms of influence.

The policy options for transparency can improve further if the network patterns change to enhance communication among broad-sustainability actors and create more favourable conditions for the promotion of their policy position in the network. As mentioned earlier, broad-sustainability actors belong to different communication clusters and their overall ability to promote their position in the network is relatively weakened. A shift in the communication patterns could therefore produce better outputs for transparency. The following table summarises actors' position shifts under the assumption that actors who favour a broad horizontal scope of transparency communicate more closely with one another. The table shows that a shift in the communication patterns among those actors can improve the policy output, bringing it to position 4, or agreement on the provision of information on human and animal health and safety *and* environmental consequences. This is due to the fact that broad-sustainability actors are not only able to maintain their common position throughout the negotiation process but also able to induce bigger position shifts from the rest of the network actors by drawing their overall power together. In that case the high level of trust among the network actors also plays a vital role. Due to the general high level of trust in the EU aquaculture network, a shift in the communication patterns can have significant benefits for transparency and sustainability.

Table 9.3 *Position shifts on the horizontal scope of transparency (PHS) in the EU aquaculture network if broad-sustainability actors communicated closely with one another*

ACTORS	PHS (T)	PHS' (T+1)	PHS' (T+2)	PHS' (T+3)
EUROCOMMERCE	2	3	3	4
FEFAC	2	2	3	4
DG-SANCO	2	3	4	4
BEUC	3	4	4	4
DG-FISHERIES	4	4	4	4
AIPCE	4	4	4	4
EGAW	4	4	4	4
EUROCOOP	4	4	4	4
FEAP	5	4	4	4
WWF	5	4	4	4
Network position	**3.5**	**3.6**	**3.8**	**4.0**

9.5 Evaluating the policy output in the context of regulatory practices

This dissertation argues that in evaluating the policy output, aspects of regulatory practices need to be discussed due to their impact on the degree/scope of transparency actually to be implemented and used by consumers in practice. Consequently we investigate the types of regulatory

practices the pork network currently adopts in order to support the selected degree/scope of transparency. Specifically in the EU aquaculture chain the status quo can be interpreted as a combined regulatory regime, with the EU Regulation issuing demands for transparency but assigning responsibility to the development and monitoring of transparency tools to business actors. Self-regulatory tools also exist with the most important one the FEAP code of conduct.

The choice of regulatory practices among network actors displays a similar picture as the EU pork network. The majority of business actors favour self-regulation. In contrast, the NGOs and the manufacturers' association have spoken in favour of governmental regulation. Finally, similar to the EU pork network the Commission has not expressed a position on that issue, once again raising scepticism about its willingness to force any measures regarding transparency.

The current regulatory regime means that a stronger regulation from the EU is unlikely to be formed for the promotion of transparency. However, the Commission is unlikely to assign full responsibility for transparency to business actors, particularly because of strong demands for governmental involvement by the civil society actors. Transparency is most likely to continue to be supported by a loose governmental framework coupled with private schemes. As stated, this is considered a desirable combination in general consistent with the liberal goal of less governmental involvement and the associated benefits of self-regulatory schemes while maintaining the threat of criminal prosecution in the background. The question is whether such a combination is the appropriate response for the promotion of transparency in the EU aquaculture chain.

A mixed regulatory regime seems an appropriate response to tracking and tracing in the chain with the development of respective systems by private actors. Regarding the promotion of sustainability related information it is questionable whether self-regulatory schemes are the appropriate response. European consumers place very low trust in business actors as a source of health and environmental information (see chapter 7). They are more likely to put their trust in professionals and environmental, consumer and animal welfare organisations. Their trust in governmental authorities as sources of health and environmental information is not as high as that in the aforementioned groups of actors but higher than trust on business actors. This indicates that governmental regulation would have more appeal than self-regulation, but the involvement of professionals and consumer and animal welfare and environmental organisations at various stages is essential for its legitimacy in the eyes of the public at the EU level.

9.6 Concluding Remarks

This chapter presented our empirical findings regarding the feasibility of transparency related policies, proposals, and initiatives for the aquaculture chain at the EU level. We showed that the EU aquaculture policy network currently supports transparency on health and safety matters but is also favourably positioned towards improving transparency on environmental aspects. The chapter showed that the network is likely to support even better options for transparency if communication patterns among the actors change in the future. This can be initiated by the Fisheries Directorate General for instance, which currently limits communication on transparency related issues with business actors. To facilitate the development of better policies for transparency the DG needs to offer access to civil society organisations as well. Change could also be initiated by the environmental organisation WWF, which currently focuses its attention to the farmers' association. Its influence and reputation in the network allows WWF to push for transparency options along the whole range of aquaculture chain actors. WWF will also need the support from other influential actors with similarly high positions on sustainability related transparency in order to succeed in that effort. An obstacle might be the diverging positions of policy actors on issues of regulation. The majority of business actors strongly support self-regulation while NGOs mainly support governmental regulation. Conflicting positions might prevent pro-sustainability actors from communicating more closely.

Policies supporting a broader scope of transparency *can* be expected to come from the EU influencing decisions at the national level as well. A shift in the network patterns has a great potential to lead to transparency on a large range of sustainability aspects. It is doubtful that such transparency will actually be used by consumers however, because of the lack of legitimacy of self-regulatory schemes in the eyes of the public. Governmental intervention and support and the involvement of actors trusted by consumers is necessary in order to materialise a broader scope of transparency supported by the EU aquaculture network in practice.

10

SUMMARY AND IMPLICATIONS

10.1 Introduction

This chapter summarizes the most important insights gained by the dissertation and discusses the potential for policy network governance on the issue of transparency. We begin with a synopsis of the research problem, the dissertation's approach, and the main results from the empirical analysis (section 10.2). Then we present an evaluation of the model in terms of its usefulness in predicting policy outputs (section 10.3). The general implications of the dissertation's analysis for transparency and sustainability policies and politics are the subject of section 10.4. Finally section 10.5 concludes this dissertation and highlights its most important messages.

10.2 Synopsis

This dissertation analysed the politics and policies for transparency in the food chain, beginning with the realization that there is a need to transform the food system into a more sustainable one and the role of transparency in such transformation. Transparency, the provision of information on food products and processes, has a great potential in "greening" consumption patterns by influencing consumers' selection criteria. Instead of focusing solely on decisions made by final consumers however, the dissertation stressed the need to consider the entire range of actors who decide about how food is produced, processed, distributed, and marketed.

In chapter two we presented the need for transparency in the food chain in more detail, based on the changes that transformed the food system in the past decades. Specifically, we highlighted the structural changes that took place resulting in extremely complex product chains and the diffusion of responsibility among a variety of actors. We also introduced the normative changes of increased awareness among the public and stronger demands for sustainability from governments as well as certain food chain actors. We argued that transparency *is* a condition for responding to the normative and structural transformations. Transparency has been conceptualized in two dimensions, one vertical representing the need to address the complexity of the food chain, and one horizontal representing the need to shed light on impacts on sustainability resulting from the activities in the food chain.

The overview of transparency as currently implemented in the food chain has shown that considerable efforts have been made to minimize complexity in the vertical dimension. The EU General Food Law demands the establishment of tracking and tracing systems to identify suppliers and customers one step back and one step forward in the chain from food and feed

business operators to the retail shelf. However, the implementation of the Regulation has proven slow and problematic. In the horizontal dimension, efforts to improve transparency have been assessed as considerably narrower. The focus rests primarily on food safety, while attention to sustainability in a broader sense has been either minimal or incidental. Hence, we decided to investigate the politics for transparency in the food chain with a double aim. First assess whether policies and initiatives that seek to improve transparency in the food chain are feasible from a political perspective and second identify bottlenecks and opportunities for intervention and change in order to attain better policy outputs for transparency. The central research question of the dissertation has been formulated as follows:

What is the political feasibility of policies and initiatives that aim to improve transparency in the food chain?

The subject of political feasibility was decided on the basis of the complexity of the decision-making process on issues related to food. Indeed, the plurality of the actors involved, their different ideologies, their diverging interpretations and policy positions on the issue of transparency, as well as their power differentials, compelled us to investigate whether it is possible at all, to initiate and implement better policies for transparency in the food chain from a political perspective. In order to facilitate this endeavour, the research question was broken down into three sub-questions:

1. Who are the policy actors that emerge around the issue of transparency in the food chains under study?
2. What are their policy positions on the issue of transparency?
3. What are the opportunities and constraints actors face in their efforts to advance their goals?

We first reviewed the major approaches that could contribute to the study of the political feasibility of transparency in a multi-actor context in chapter three. We reviewed two different perspectives which represent a major distinction in the literature of policy formation: the individualistic perspective that emphasises individuals and their actions and the network perspective that emphasises individuals' context in the form of their interactions. We chose to combine the two perspectives under the umbrella of the formal methodological approach to networks.

Having reviewed the major approaches, our analytical perspective has been presented in chapter four. We view the formation of outputs for transparency as a result of both actor strategies and network structures; the network sets the context within which individual strategies can evolve. Three actor and two

network characteristics are important: actors' policy positions, resources and salience determine actors' preferences towards transparency and their ability and willingness to pursue them. Patterns of communications and trust relationships among the actors shape influence flows and determine coalitions. Drawing on Stokman (1996, 2004) and Stokman and Van den Bos (1992), the chapter concluded with the elaboration of a formal model that captures those dynamics and predicts the potential to improve transparency. The way actor and network characteristics are operationalised and measured was presented in chapter five. The methodology for the collection and analysis of data and the selection of cases was also presented in that chapter. Empirically, we focused on the pork and farmed-fish chains and examined the policy networks that formed around the issue of transparency in the Netherlands and the European Union.

Chapters six through nine presented the empirical analysis. All chapters began with a presentation of the status quo focusing on the specific chain (pork/farmed-fish) and level (national/EU). The network was then delineated presenting the actors and their characteristics as well as those of the network in which they operate. The prediction of policy outputs for transparency, namely vertical degree and horizontal scope, as well as the evaluation of policy outputs in the context of regulatory practices followed. Each chapter concluded with a discussion of the implications of the policy outputs for transparency as well as recommendations for change.

The focus of chapter six was on the pork chain in the Netherlands. In assessing the status quo of transparency, chapter six argued that this can be interpreted as an agreement to promote transparency on issues related to human health and safety in the chain, and initial steps towards including other sustainability related information. In assessing the feasibility of better policies for transparency, we examined the policy network formed around that issue in the Dutch pork chain. We identified a number of public and private actors that participate in the network and in examining their policy positions on the vertical degree of transparency, we found that all actors agree on the highest level of tracking and tracing in the chain. Due to the convergence of actors' policy positions on that issue, as well as their coincidence with the status quo, there was no reason to investigate the political feasibility of that option further. The situation was different with the horizontal scope. We proceeded in investigating the political feasibility of policy options aiming to promote sustainability related information in the chain. In examining actors' positions and influence (based on individual resources and salience), the chapter showed that actors advocating a broad scope of transparency in the horizontal dimension should in principle, be able to advance their positions in the network. The status quo should be higher than its current level. Despite the

willingness of relatively powerful actors to promote a broad horizontal scope of transparency, such an option has not appeared feasible in the current network structure. Patterns of communication in the network and the low level of trust relationships among broad-sustainability actors in particular, have not allowed them to express a unified voice and advance their goals. The chapter suggested a number of strategies to reverse network patterns in favour of transparency and sustainability. The proposed strategies correspond mainly to "game management" i.e., changing interactions within the network, rather than "network structuring" or changing the institutional arrangements that make up the network. It was possible to show that by shifting the network patterns in the existing network, better policies for transparency can be achieved. Regarding the types of regulatory practices, the chapter showed that the particular network supports a mix of governmental and self-regulation practices for the promotion of transparency. However, private information on sustainability attributes of food products and processes including information about health and safety, is not particularly trusted by Dutch consumers. Governmental and independent expert involvement as well as consumer organisations, all trusted actors by Dutch consumers, are considered necessary for transparency related schemes to have an impact on pork consumption patterns.

Chapter seven discussed the chances of promoting transparency in the pork chain focusing on the policy network at the EU level. As in the Dutch case, a number of public and private actors participate in the EU pork policy network. The status quo was assessed as an agreement to promote transparency on issues related to human health and safety along the entire chain without steps to include additional sustainability related information. In examining actors' policy positions on the vertical dimension of transparency, the chapter found that all actors agree on the highest degree of tracking and tracing in the chain. However, again the situation differs with respect to the horizontal scope. As at the national level, EU actors advocating a broad horizontal scope of transparency should have been able to pull the policy output closer to their position than the status quo implied. However, broad-sustainability EU actors were not drawing their influence together. Although trust relationships among the actors appeared significantly higher, scepticism from the side of civil society organisations towards business actors and DG-Agriculture's intentions, coupled with the communication patterns in the network, resulted in the marginalisation of civil society in the network. The marginalisation of NGOs in turn, resulted in the inability of the potential pro-sustainability coalition to induce the necessary transformations in other actors' policy positions to sufficiently influence policy outputs for transparency. In that case, the dissertation also proposed recommendations for

change. However, shifting the network interactions has not made a sufficient impact on the status quo. Consequently, we have considered network structuring in the form of including new actors with broad-sustainability interests in the network as well as changing the framing of the issue of transparency to expose its sustainability dimension, more appropriate to this particular case. Regarding the types of regulatory practices, the chapter showed that the network supports governmental regulation with self-regulation. European consumers' distrust in private information on sustainability attributes of food products and processes at the EU level however, means that governmental intervention and support as well as the involvement of other trusted parties (experts as well as environmental, consumer and animal welfare organisations) is essential for transparency to have an impact on consumption choices.

Chapter eight presented the case for the Dutch farmed-fish chain. There the status quo was assessed as agreement for transparency on issues related to human and animal health and safety alongside the chain and initial steps towards the promotion of other types of sustainability related information. In an examination of the policy network for transparency, we identified a number of public and private actors with an interest in influencing decisions concerning transparency in the farmed-fish chain. Assessing the vertical dimension, we showed that although a couple of actors do not consider full traceability practical, the outcome is an agreement on the highest vertical degree. A diversity of policy positions were identified with the horizontal scope. A policy output similar to the status quo was identified taking into account actors' policy positions and respective influence. The chapter showed that the combination of the network structure with actors' distribution of policy positions and respective influence supports a compromise output of actors' initial positions on that issue. However, the scepticism of NGOs towards other broad-sustainability actors' intentions prevents better policies for transparency from being promoted in the chain. We suggested management strategies that focus on game management with particular attention to the inclusion of policy mediators. Similar to the Dutch and EU level pork networks, the Dutch farmed-fish network is also a combination of governmental and self-regulation. Here too, observations similar to the Dutch pork case have been suggested. Due to the suspicion of consumers towards private information schemes, governmental involvement and the involvement of trusted independent experts as well as consumer organisations, is necessary for transparency related schemes to appeal to the public.

Finally, we examined the political feasibility of transparency in the aquaculture chain with a focus on the EU in chapter nine. Observations regarding the status-quo were interpreted as an agreement on issues related to

human and animal health and safety and initial steps towards promoting information on other sustainability aspects as well along the chain. The policy network for transparency is comprised of public and private actors just as in the previous cases. Moreover, similar to most of the previous cases, actors adopt the highest policy position on the vertical degree of transparency. Actors' policy positions on the horizontal scope of transparency appear controversial just as in the previous cases. In contrast to all previous networks a different picture emerges however. In particular, ambitious and capable actors at the EU level are able to attract support for transparency in the aquaculture chain to promote its sustainability. This is due both to communication and trust patterns that include NGOs and allow the broad-sustainability coalition to defend and promote its policy position. Even better options for transparency approaching the broadest scope would also be possible with a shift in the network communication patterns. Finally, similar to all previous cases a combination of governmental and self-regulation is supported by the network though consumers' distrust in information originating in business actors means that the broader scope of transparency supported by the EU aquaculture network may be undermined due to the lack of legitimacy of private initiatives in the eyes of the public.

10.3 Empirical analysis and model evaluation

We examine the political feasibility of transparency related policies and initiatives in the food chain by focusing on pork and farmed fish in the context of the Netherlands and the European Union (EU). The empirical analysis is presented in chapters six through nine. In this section we examine the predictive power of our model and its usefulness in estimating policy outputs.

We examined five issues in which we have applied the model presented in chapter four. The model proposes that policy outputs are determined by actors' position shifts as they result from negotiation dynamics in policy networks. An actor's new position, in turn, is a weighted sum of her own policy position and that of other actors who interact with her at a particular time. Interactions in this dissertation are conceptualised as communication and trust relationships among the network actors. We use this model to predict policy outputs in five cases. Specifically, we use it to predict policy outputs for the issue of the horizontal scope of transparency in four cases, pork and farmed-fish chains in the Netherlands and the European Union. We also use the model to predict policy outputs for the issue of the vertical degree of transparency in the only case where the actors' positions diverged: the farmed-fish chain in the Netherlands.

In addition to the elaborate model, we also use a base model to predict policy outputs in the issues we examine, with the aim of comparing its predictions with those of the elaborate one. The base model examined in this dissertation is a weighted mean of actors' initial positions determined by resources and salience. The base model differs from the elaborate model in that it does not take into account the network structure (in terms of communication and trust relationships) and belongs to the individualistic models discussed in chapter three.

The elaborate network model makes good prediction of the policy outputs in all cases but one – the estimation of the horizontal scope of transparency in the aquaculture network in the EU. In this single case where the model is less than successful it provides an overestimation of the current situation. The base model provides accurate predictions in three out of the five cases. It provides an overestimation of the status quo in the two cases where it fails, the Dutch and EU pork networks.

When comparing the two models we find that in three of the five cases the elaborate model performed better than the base model, significantly better in two of those. This shows that taking into account network patterns allows sound predictions on a wider range of cases than an individualistic model.

The simpler individualistic model is unable to offer good predictions of policy outputs in cases where we find stratified communication and trust patterns in networks. These are the cases of the pork network in both the Netherlands and the European Union. In each case, the base model offers an overestimation of the current situation. It predicts an agreement on transparency in sustainability issues that has not taken place yet. This false prediction is based on the implicit assumption that pro-transparency pro-sustainability actors will have sufficient power to pull the outcome closer to their policy position. In both cases a network model reveals that the network patterns do not allow the establishment and maintenance of the collective influence of potential coalitions at high policy positions for transparency. Instead, the patterns of communication and trust relationships result in the dissipation of those coalitions in the negotiation process, while at the same time facilitate the maintenance of rival ones. In cases where the networks are characterised by stratified communication and trust patterns ignoring the structural variables leads to false predictions on policy outputs.

We have to acknowledge that including network characteristics in the analysis does not always *add* significantly to the prediction of policy outputs. Policy networks matter, at least in the form examined in terms of communication and trust relationships, but there are conditions in which a simpler model could provide roughly similar predictions. This was the case where the network, in particular the Dutch farmed-fish network, encouraged

compromise position shifts among all the network actors. The patters of communication and trust relationships allowed actors to shift their policy positions but not dramatically move away from potential allies. The result was a compromise output of actors' initial position in the network. While the network model still performs marginally better even in these cases, the difference in explanatory power is not significant.

Finally, in the EU aquaculture network, the base individualistic model provided a better prediction than the elaborate network one. In that case, the absence of significant network constraints in the pro-transparency coalition to maintain its influence and promote its policy position resulted in an overestimation of the status quo by the elaborate model. This indicates that the role of structure may be overestimated in cases where stratification is not present. In those cases, actors' individual power (determined by their resources and salience) is possibly a better predictor of policy output.

In addition to comparing the two models' successes and failures in absolute terms, we compare their accuracy by calculating their margin of error. One of the most prominent tests to assess the accuracy of a model is the mean absolute error (MAE) which takes the absolute value of the difference between the predicted and observed outcomes and divides by the range of issue continua, which represents the maximum possible predictive error. Then, it calculates the average across issues, which is the reported MEA. The absolute value of the difference between the predicted and observed outcomes in our study for the elaborate model is 1.7 (normalised value) and the range of normalised issue continua is 100. Hence, the maximum possible predictive error is 1.7%. Since we have five issues, the average across all issues is 0.085% which also gives the value of the MEA. For the base model, the absolute value of the difference between the predicted and observed outcomes in the two cases where of a false prediction, the error was 20.35% (normalised value) in each case. Consequently, the average MAE across the five issues in that case is 2.035%. Comparing the MAE of the two models, we observe that the elaborate model has a smaller margin of error.

The elaborate network model can explain cases the base model can explain, and also additional ones. Specifically, the elaborate model is able to capture the network dynamics and reveal their influence on policy outputs when they matter most. In the analysis of the policy process and prediction of policy outputs, the employment of the network model should be preferred over the individualistic one because it adds substantial predictive power while not taking any away.

In sum, we indeed found evidence for our claim of adding value to the prediction of policy outputs by combining actor and network dynamics. Even

though the number of cases examined is not sufficient to issue a statistical verdict about the predictability and accuracy of the model, we show that there are cases where the network interactions make a substantial difference in the estimation and explanation of policy outputs. A model that does not capture the characteristics of the network in such cases fails the analysis. It is important to invest more scholarly work in identifying the conditions under which network structures make a difference. Our results suggest that these could be situations where the stakes are very high and a change in the status quo may have a substantial impact in dominant interests, as in the Dutch and EU pork networks. In cases where the stakes are lower and dominant interests are not substantially threatened by a change in the status quo, as in the Dutch and EU farmed-fish and aquaculture networks, we suggest that the network plays a lesser role. As the number of cases examined was not sufficiently large, the aforementioned statements need to be regarded with caution. More research to confirm one or the other trend and identify more factors influencing the relevance of communication and trust patterns in networks would make a valuable contribution to the study of the policy process from a policy network perspective, and improve the prediction of policy outputs.

10.4 Results and implications

In this section, we discuss the implications of the results of this dissertation. Though this has already been done in individual chapters, we find it useful to present a reflective synthesis here and ponder various solutions for attaining better outputs for transparency and sustainability. We begin by making general observations regarding the actors that form around the issue of transparency in the food chains under study. Following that we discuss actors' policy positions, and try to identify whether specific types of actors advocate specific policy positions. Next, we discuss the opportunities and constraints actors face in their efforts to advance their goals on the basis of their individual influence and network structure. Finally, we assess the implications of those observations for the political feasibility of transparency and sustainability and the possibilities for change.

Both public and private actors are involved in the policy networks examined. National level public actors include the Ministry of Agriculture and the Product Boards. At the European level, public actors include the Commission and more specifically, the Directorate General for Consumers and Food Safety (DG-SANCO), the Directorate General for Agriculture (DG-Agriculture) and the Directorate General for Fisheries (DG-Fisheries). Public actors representing general sustainability interests, like the Ministry of the

Environment at the national level and the DG-Environment at the EU level, are missing. The public actors currently participating in the networks focus more on technical and economic aspects of food production as well as the function of food markets at the national, European, and global levels. Private actors at both levels are food chain actors, represented mostly from their peak organisations, and civil society actors representing consumer, animal welfare, and environmental interests. Two general observations can be made regarding actor participation in the networks. First, the networks do not shut out public actors and do not operate autonomously. This has important implications for the ability of public actors, at least in principle, to manage the networks. Second, the types of actors participating in the network represent different interests in the food chain and society in general. This carries connotations both for the relatively open character of the policy networks on the issue of transparency in the Netherlands and the EU, but also for problems that might appear in decision-making due to the different nature of the actors involved.

Regarding policy positions on the vertical degree of transparency, in all four networks actors appear in favour of the highest vertical degree. Traceability is regarded as a safety tool and a powerful marketing tool for economic actors. Regarding the horizontal scope of transparency, actors provided a variety of responses. However, we cannot attribute particular policy preferences to certain types of actors. Actors who wish to promote a broad horizontal scope of transparency for instance, can be found in all three types: public, business, and civil society organisations. We cannot make assumptions about actors' policy positions on the issue of transparency and sustainability beforehand, but these need to be carefully examined. We can safely assume, however, that civil society organisations will be among those with the highest policy positions on that issue. The dissertation has shown that civil society organisations have *consistently* high preferences towards transparency.

Examining the types of regulatory practices, a clearer pattern in actors' responses emerges. In principle, business actors and national public actors are in favour of self-regulation. Government's role is regarded as supportive and consultative, in the background rather than assuming a more leading and interventionist role. On the other hand, both national and EU pork farmers' associations favour governmental regulation for different reasons. For civil society organisations, a governmental regulation is insurance that economic actors will actually pursue and implement transparency. For the farmer associations, governmental regulation is a protective shield from other private economic interests; a guarantee that their business partners will not demand more than expected from them. Finally, a number of (typically business) actors are situated in the middle advocating a regulatory mix. For them

governmental regulation should take the form of minimum standards on health and safety issues while self-regulation should cover transparency on other sustainability aspects without the obligation of developing such rules.

Comparing actors' policy positions on the issue of transparency with the issue of regulatory practices, does not clarify whether a broad horizontal scope of transparency for instance, goes hand-in-hand with specific types of regulatory practices. Rather, positions on the two extremes of the regulatory continuum can be identified with both high and low preferences towards transparency and sustainability. This raises the question about the extent to which actors' diverging policy positions on that issue are –and will continue to be- an obstacle towards a meaningful coalition of interests in favour of a broad horizontal scope of transparency. After all, the adoption of different views on regulatory practices *does* represent a chasm about assumptions on the distribution of responsibility on transparency and sustainability. It is a strong ideological factor and can be crucial in terms of coalition building. One could also argue that sustainability and transparency represent strong ideological values. A number of examples indicate that on matters of sustainability and ethics actors with divergent worldviews and ideologies have been able to set aside their differences for the benefit of a successful cooperation.[1] Evidence from this dissertation suggests that preferences on regulatory practices might represent strong enough values to overshadow common views on sustainability and transparency and should be considered in an analysis of the policy process.

To address the question of what sort of opportunities and constraints actors face in their efforts to advance their goals, we first discuss actors' sources of influence as opportunity and constraint, and proceed to discuss the role of the network structure in that respect. In all of the cases examined we witnessed the fact that it is not a lack of resources or salience that prevents broad-sustainability actors from influencing decisions concerning transparency. It is true that some improvement in resources or salience could induce better outputs for transparency though in general the influence of a potential pro-sustainability, pro-transparency coalition does not prohibit the

1 Indicative examples include the Chiquita Brand International and the Rainforest Alliance for the promotion of sustainability and human rights in Latin America cultivating bananas (Wootliff and Deri, 2001); the Forest Stewardship Council of environmental NGOs, forest industry representatives, community forestry groups, and forest product certification organizations for the promotion of sustainability in tropical forests; and the "Project to Eliminate Child Labor in the Pakistan Soccer Ball Industry", involving children rights' NGOs, UNICEF (a specialized United Nations agency concerned with children needs and welfare), and representatives from the sporting goods industry (United Nations Research Institute for Social Development, 1999).

promotion of its position. What significantly constraints pro-sustainability actors is their inability to form a stable coalition due to the network structure. As the empirical chapters show and as we will soon discuss further, the patterns of communication and trust relationships in the network play a crucial role in distributing influence to coalitions, establishing their stability, and determining policy outputs.

In most of the networks examined by the dissertation a similar theme appears. In terms of communication patterns, public and business actors appear more integrated in the network while NGOs tend to play marginal roles. Moreover, in most of the cases, NGOs are reluctant to trust business actors and those public actors they perceive as sympathetic to business interests. This results in a dilution of the potential pro-transparency, pro-sustainability coalitions in the progress of the negotiations. Public and private actors originally advocates of transparency and sustainability become more influenced by other coalitions than their potential partners. With the current network structures pro-sustainability actors are deprived of valuable allies. At the same time, actors representing positions on the narrow scope of transparency are able to defend and promote their common position, both because they are relatively powerful actors, but most importantly because they are able to hold their power together. In other words, better policies for transparency are not politically feasibly due to the current network structures. Moreover, policies for transparency are most likely to continue to be supported by a mixed regulatory regime, with weak requirements from governments. This may be limited to health and safety issues and private initiatives with limited appeal in the eyes of the public and therefore severe constraints on their potential effectiveness.

Do policy networks then produce decisions which are less than optimal for society as some scholars have claimed due to the joint decision trap (Peters 1997:57; Scharpf 1988); and is that an inherent flaw of policy network governance? If we assume that the optimal policy output for society is complete transparency in all aspects of sustainability, then less than optimal decisions appear to be the case in all four networks examined here. Even after changing the interaction patterns, the outcomes for transparency *improve* but are not optimal. To answer the first question, evidence from our study supports the argument that policy networks can produce outcomes that are socially less than optimal. Can we claim that this is an inherent disadvantage of policy network governance? Imagine for a moment that the government alone would be able to decide what level of transparency should be implemented in the chain. In the case of pork, the government would indeed produce the optimal output for society as its policy position coincides with the

highest horizontal scope of transparency. The farmed-fish sector reveals a different side of the story in a similar scenario. The government in reality adopts a position for limited transparency in that case. If that were to be the supposed policy output, then not only would it be less than optimal but worse than the network output. At the EU level, in the extreme scenario that the European Commission alone had the power to decide policy outputs for transparency, similar observations would be made. In fact, an optimal output would not be achieved, as the Commission's average policy position is below the optimal.[2] The outcome would be better than the current network outcome in the pork sector however, while it would be worse in the aquaculture network. Even though policy networks in the cases produce less than optimal outputs for society, it is not certain that government or public actors alone would produce optimal or even better outputs.

A fundamental aspect of policy network governance that should not be ignored however, is that if the government wants to foster the provision of superior outputs for society, they theoretically have the ability to do so. How much freedom does a motivated government have to initiate change in policy networks? In chapter three we mentioned that there is an ongoing debate between scholars who argue that governmental steering is difficult to imagine and those who argue that governments have an important or even central role in networks. We argued that examples of both networks can be found and that this is an empirical rather than theoretical question. In the cases studied in this dissertation we postulate that the networks belong to the second category; government or public actors participate and are not shut out of the network, they occupy a high rank in the influence reputation hierarchy and they hold a prominent location in the network. Considering this, we argue that they are able to initiate change if they are willing.

In the individual chapters we discussed how the government can engage in management processes to transform the network in favour of sustainability related transparency. Different strategies have been proposed for different networks. Most focused on game management i.e., the managing of interactions ***within*** the network. Network structuring or the changing of institutional arrangements that form the network, has also been proposed. In

2 We assume that the policy position of the Commission is represented by the average of both DG's positions (DG-Sanco and DG-Agriculture for pork and DG-Sanco and DG-Fisheries for aquaculture). The average of the DGs policy is 3.5 for pork (with DG-Sanco advocating position 2 and DG-Agriculture position 5) which can be interpreted as agreement for transparency on issues related to human and animal health and safety and steps towards the promotion of information on other aspects of sustainability as well and 3 for aquaculture (with DG-Sanco advocating position 2 and DG-Fisheries position 4). In the case of pork the outcome was at 2.1 (worse than 3.5) and in the case of aquaculture it was 3.5 (better than 3).

this case we expressed the reservation of possible unpredictable and unwanted outcomes associated with the network structuring.

It is important to remember that network management does not respond to the normative issues associated with network governance (democratic legitimacy and accountability in particular) even if it leads to desired decisions. Concerns expressed in the literature associated with network governance include the uncertainty that network outputs will be reflected in formal policy, the potential failure to reach optimal outcomes, the difficulty of citizens to identify those responsible for that failure and to be held accountable for governance failure, the frequent dominance of the most resourceful actors in decision-making, and the increasing authority of network decisions versus those from representative bodies Aars and Fimreite 2005; Gogverde and Nelissen 2002). Several remedies are proposed in the literature to address these problems including the representation of a wide array of interests, the sanction of network decisions by representative public bodies, the surveillance of the democratic quality of network processes, the enhancement of deliberation, interdependency and actors' autonomy, and so on (Aars and Fimreite 2005; March and Olsen 1995; Olsson and Montin 1999; Peterson 2001; Sørensen and Torfing 2005; Vabo et al. 2004; Young 2000). It is beyond the scope of this dissertation to offer solutions for the legitimacy problem associated with policy network governance. From the point of view of the networks we examined, it is critical for public actors to avoid the "capture of interests" and retain their autonomy and associated ability for intervention and change. This applies even more for the EU level than the national one, because consequences are more readily felt and mobilisation of citizens takes place more easily at the national level. Network management needs to offer adequate responses to the failures associated with network governance and try to change the status quo when necessary with the aim of producing better policies for society.

10.5 Concluding remarks

What have we learned about the state of transparency related policies and politics? First, the issue of transparency and sustainability is currently negotiated predominately among public and business actors, while civil society plays a marginal role in most cases. The participation of civil society organisations, typically advocates of sustainability, offers little contribution to decisions concerning transparency. Their role in the network might be considered as attributing moral legitimacy to decision-making. Second,

governments and business actors lose valuable allies and fail to promote transparency in the chain.

Going back to our central research question: "*What is the political feasibility of policies and initiatives that aim to improve transparency in the food chain?"* we observe that there are very low chances for an agreement on a broad scope of transparency at the moment. Transparency can only be expected to cover selective facets of the sustainability aspects of food products. Consequently, the chances of influencing consumer choices by providing information on sustainability attributes of products and processes in conventional chains remains very low. Consumers will have to continue to demonstrate their attitudes towards sustainability by trading their constrained budget with their environmental, ethical, and social values. We argued that selected and incidental provision of information is not sufficient to make a difference. Nonetheless, we also showed possibilities for intervention and change. The use of such chances by public actors will show whether they are really motivated and determined to actually pursue transparency or whether transparency is just another political rhetoric.

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APPENDIX A

Mandatory labelling of Foodstuffs in the EU[1]

A. General Requirements

Directive 2000/13/EC of the European Parliament and of the Council of 20 March 2000 on the approximation of the laws of the Member states relating to labelling, presentation and advertising of foodstuffs for sale to the ultimate consumer (Official Journal L 109 of 6.05.2001).

Compulsory Labelling Particulars

- Name under which product is sold.
- List of ingredients, preceded by the word "ingredients" in descending order of weight (except in the case of mixtures of fruit or vegetables) and designated by their specific name.
- Quantity of ingredients or categories of ingredients expressed as a percentage: This requirement applies where the ingredients included in the name under which the product is sold are emphasized in the labelling or are essential to characterize a foodstuff. However, there are certain exceptions. Important exceptions include added water in foods reconstituted from concentrates and cheese, which is covered by special rules. The following ingredients require a specific statement on the label: GMO's (Regulation EC 1139/98, Official Journal L 159 of 3.06.1998) and traceability of GMOs and the traceability of food and feed products produced from GMOs (Regulation EC 1830/2003 of the European Parliament and the Council, Official Journal L 268 0f 18.10.2003), packaging gases (Directive 94/54/EC Official Journal L 300 of 23.11.1994), sweeteners (Council Directive 96/21/EC, Official Journal L 88 of 5.04.1996), aspartame and polyols, quinine and caffeine (Commission Directive 2002/67/EC).
- Allergens (Directive 2003/89/EC).
- Labelling of products containing meat as an ingredient (Commission Directive 2001/101/EC of 26 November 2001, Official Journal L 130 of 28.11.2001).
- Net quantity of packaged foodstuffs in metric units.
- Date of minimum durability. This date consists of the day, month and year, except in the case of foodstuffs which will not keep for more than three months (the day and month are sufficient), foodstuffs which will not keep for more than 18 months (the month and year are sufficient), and foodstuffs that will keep for more than 18 months (year is sufficient). In the case of highly perishable foodstuffs, the "use by" date must be indicated.

Special conditions for keeping or use:
- Name or business name and address of the manufacturer or packager or of a vendor established in the Community.
- Place of origin or Provenance, where the omission of such information might mislead the consumer; Instructions for use, where appropriate; Indication of the acquired alcoholic strength for beverages containing more than 1.2% alcohol by volume.

1 The information provided in the appendix was obtained from the official site of the European Union (www.europa.eu) and from the USDA Foreign Agricultural Service, GAIAN Report, *European Union: Food and Agricultural Import Regulations and Standards, 2003,* Number: E23195.

B. Nutrition and Health Claims

Nutrition labelling is voluntary in the EU and is covered by Council Directive 90/496/EC. According to the Directive when nutritional labelling is provided, the information to be given should consist of either group 1 or group 2 in the following order:

Group 1	Group 2
energy value amount of protein, carbohydrate and fat	energy value amount of protein, carbohydrate, sugar, fat, saturates, fibre and sodium

The energy value and the proportion of nutrients must be declared in specific units per 100 grams or millimeters. Information on vitamins and minerals must be expressed as a percentage of the recommended daily allowance (RDA).The information must always be provided in a tabular form.

Due to the increasing number of nutrition and health claims by the industry that often mislead the consumers the Commission made a Proposal for a Regulation on nutrition and health claims made on foods (COM/2003/0424 final- Not published in the Official Journal). The proposal covers nutrition claims, such as “rich in vitamins” or “low in fat” and health claims (i.e. claims of a positive relationship between a specific food and improved health). It sets the rules for making such claims and also allows health claims (including “reduction of disease risk” claims) that were previously prohibited, but it also includes certain restrictions (MEMO/03/188, The Proposed Regulation on health and nutrition claims: myths and misunderstandings).

C. Product Specific Labelling

Some products are covered by specific labelling rules

• **Genetically Modified Organisms (GMOs) in Food and Feed**
Since 1997 Community legislation has made labelling of GM food mandatory for:
products that consists of GMO or contain GMO;
products derived from GMO but no longer contain GMO if there is still DNA or protein resulting form the genetic modification present.
The legislation that covers labelling of GMOs is Regulation (EC) 1830/2003 concerning the traceability and labelling of genetically modified organisms and the traceability of food and feed products produced from genetically modified organisms (Official Journal L 268 of 18.10.2003). Regulation (EC) 1139/98 concerning the compulsory indication of the labelling of certain foodstuffs produced from genetically modified organisms or particulars (Official Journal L 159 of 3.06.1998). In addition, all GM additives and GM flavorings must be labeled according to Regulation (EC) 50/2000 on the labelling of foodstuffs and food ingredients containing additives and flavorings. Moreover, the labelling of 4 out of 8 authorized GMOs for use in feed is mandatory according to Directive 90/220/EEC. Finally, genetically modified seed and varieties must be labeled according to Council Directive 98/95/EEC.

• **Novel Foods**
Novel foods are foods and food ingredients that have not been used for human consumption to a significant degree within the EU before 15 May 1997. Novel food labelling is covered by the Regulation (EC) 258/97.

• **Dietetic Foods**
Foods intended to satisfy particular nutritional requirements or specific groups of the population are called “foods for particular nutritional uses” or “dietary foods”. Labelling of such foods is covered by the framework Council Directive 89/398/EEC. Specific rules are set for:
food for infants and young children (Commission Directive 96/5/EC);
foods intended for use in energy restricted diets for weight reduction (Commission Directive 96/8/EC);
foods for special medical purposes (Commission Directive 1999/21/EC);
foods for sports people (Commission Directive 89/398/EEC).
Also, the framework Directive requires the Commission to prepare a report on foods intended for people suffering from diabetes.

• Frozen Foodstuffs
Council Directive 89/108/EEC sets the rules for quick-frozen foodstuffs and for their packaging and labelling (except for ice-cream and other edible ices). In addition to the requirements provided by the general labelling Directive 2000/13/EC, quick-frozen foodstuffs must carry the following additional labelling identifications:
the product name with the indication “quick frozen”;
the date of minimum shelf-life, the period during which the purchaser may store the product, the storage temperature and/or storage equipment;
batch identification;
a clear indication of the type “do not re-freeze after defrosting”.

• Irradiated Foodstuffs
The framework Directive 1999/2/EC of the European Parliament and the Council on the approximation of the laws of the Member States concerning foods and food ingredients treated with ionizing radiation outlines the marketing, labelling, import and control procedures and technical aspects of food irradiation (Official Journal L 66 of 3.13.1999). According to the Directive, food treated with irradiation must be labeled “irradiated” or “treated with ionizing radiation”. This applies also in cases where the irradiated ingredients used in compound ingredients constitute less than 25% of the finished product.

• Fruits and Vegetables
The Commission Regulation (EC) 907/2004 amending the marketing standards applicable for fresh fruit and vegetables with regards to presentation and labelling (Official Journal L 163/50 of 30.4.2004). According to the Regulation all packages of fruits should be labeled with all the information required with regard to identification of the packer or the dispatcher, the nature of product, its origin and commercial specifications. Special provisions apply for pre-packages and transport packages. Stickers on individual fruits can be affixed only if when removed they leave neither visible traces or glue not lead to skin defects.

• Seafood
Regulation (EC) 2065/2001 lays down the labelling requirements for fishery and aquaculture products, according to which the following information should be provided:
commercial name of the species (each Member State) has established a list of commercial designations);
product method: “caught in…”, “caught in freshwater”, “farmed” or “cultivated”;
catch area: for products caught at sea, a reference to one of the areas listed in the annex of the regulation; for products caught in freshwater, a reference to the country of origin; for farmed products, a reference to the country in which the product undergoes the final development stage. The information can be provided either on a label or in the form of an accompanied document.

• **Organic Foods**
Council Regulation 2092/91/EC on organic production of agricultural products and indications covers the following requirements and definitions: production and processing methods, labelling and marketing, inspection and imports from third countries (Official Journal L 198 of 22.07.1991). The regulation only allows information referring to organic production methods to be used on labelling and in advertising if certain conditions are met: the information must indicate the method of agricultural production and the products must have been produced in accordance with the rules laid down by the regulation. Additional Regulation 1804/1999/EEC harmonizes the rules of organic production for the main livestock species (origin, feeding, veterinary care, environment, etc.) as well as labelling and rules of production. Also the regulation states that GMOs and products derived from GMOs are not compatible with the organic production method.

• **Animal Products**

Beef

Commission Regulation (EC) 1825/2000 (Official Journal L 216/8 of 26.08.2000) and Regulation (EC) 1760/2000 lay down the rules for beef labelling. According to these Regulations, labels for all bovine meat must indicate the following information:
"born in: name of country";
"reared in: name of country or countries";
for beef derived from animals born, raised and slaughtered in the same country, the above indications must be combined as "origin: name of country";
"slaughtered in: country/approval number of slaughterhouse";
"cutting in: country/approval number of cutting plant";
a traceability code linking the meat to the animal or group of animals representing the production of maximum one day.

Eggs

From 1 January 2004 a mandatory marking of grade A eggs (fresh eggs for human consumption) by a code designating the producer and farming method entered into force. Eggs should be stamped individually with one of the following codes indicating the farming method: 0=organic, 1=free range, 2=barn, 3=cage.

D. Animal Nutrition/Feed Labelling

• Compound Feedingstuffs

Compound Feedingstuffs are mixtures of feed materials which may contain additives for use as animal feed in the form of complete or complementary feedingstuffs. Council Directive 79/373/EC sets out the rules on marketing and labelling of compound feedingstuffs.

• Feed Materials

Feed materials are raw or processed materials intended for use as animal feed or for manufacturing compound feedingstuffs. Council Directive 96/25/EC sets out the rules for marketing and labelling of feed materials. The Annex to Directive 96/25/EC gives a non-exhaustive list of the feed materials that need to be identified on the label. This Annex has been entirely replaced and updated by Commission Directive 98/67/EC.

• Bioproteins in Animal Nutrition

Special rules have been set for feed materials which may act as direct or indirect protein sources, such as those extracted as by-products from fermentation processes. Council Directive 82/471/EEC lays down the rules for the authorization of the use of certain products in feed, particularly the use of Bioproteins. The Annexes of this Directive contain a positive list of the authorized sources of proteins. Certain groups of products must be scientifically evaluated on the basis of a dossier established following the guidelines of Council Directive 83/228/EEC. Scientific advice can also be requested by the European Food Safety Authority and, in particular cases, from the Scientific Committee for Food.

• GM Feed

Regulation (EC) 1829/2003 establishes the criteria for evaluating the potential risks, harmonized procedures for risk assessment and authorization as well as provisions for the labelling of feed consisting of and containing GMOs and produced from GMOs.
Also, the Regulation (EC) 1830/2003 concerns the traceability and labelling of genetically modified organisms and the traceability of food and feed products produced form genetically modified organisms. Commission Regulation (EC) 65/2004 establishes a system for the development and assignment of unique identifies for genetically modified organisms.
Commission Regulation (EC) 641/2004 establishes detailed rules for the implementation of the Regulation (EC) 1829/2003 as regards the application fro the authorization of new genetically modified food and feed, the notification of existing products and adventitious or technically unavoidable presence of genetically modified materials.

• **Organic Feed**

Regulation (EC) 223/2003 concerns the labelling requirements related to the organic production methods for feedingstuffs, compound feedingstuffs and feed materials. It sets out the conditions under which labelling, advertising and commercial documentation relating to the products mentioned above may refer to organic production methods. It also specifies that the labelling content must enable producers to easily identify these feedingstuffs. Also, the Regulation introduces a new section in Annex III that prohibits the equipment used in units preparing compound feedingstuffs produced by organic farming to be used for compound feedingstuffs not covered by the regulation.

E. Language Requirements (COM(93) 532 final-Official Journal C 345 of 23.12.1993).

Labelling must be at a language easily understood by the consumers, which generally means the official language(s) of the country of marketing. However, foreign terms or expressions easily understood by the purchaser must be allowed. Labelling may be in several languages:

EU country	Labelling language
Austria	German
Belgium	French and Dutch, also German recommended
Cyprus	?
Czech Republic	Czech
Denmark	Danish
Estonia	Estonian
Finland	Finnish
France	French
Germany	German
Greece	Greek
Hungary	Hungarian
Ireland	British English
Italy	Italian
Latvia	Latvian
Lithuania	Lithuanian
Luxemburg	French or German
Malta	English or Maltese or Italian
Netherlands	Dutch
Poland	Polish
Portugal	Portuguese
Slovakia	Slovak
Slovenia	Slovene
Spain	Spanish
Sweden	Swedish
United Kingdom	British English

APPENDIX B

I The Position of the Netherlands Agricultural Production and Trade in the World Economy

The Netherlands is the largest third exporter of food and agricultural produce in the world (United States and France are the first two). About 75% of agricultural production goes abroad, of which 80% remain in the EU (Germany, Belgium, France and UK). This brings revenues of 39,000 million EUR. Moreover, the agricultural sector is particularly important for the national economy, since it represents a gross added value of 33,000 million EUR, that is 12% of the GDP and 10% of national employment. It is the third most important sector in the Dutch economy, in terms of income generation and employment. The first two, as in most other industrial countries, are the service sector and the manufacturing industry.

The Netherlands relies heavily on international markets. Within the EU it accounts for 9% of total agricultural imports and 15% of total agricultural exports (1998 data), hence it is a net exporter. Most agricultural imports are arable products, exotic products, wine and animal feeds. Most exports are ornamental products (15% of total Dutch exports to the EU) and meat and meat products (14% of total agricultural products to the EU). Agricultural exports to third countries consist mainly of dairy products.

In the intra EU trade of agricultural products, the Netherlands holds a strong position especially in meat products. The following data from 2001 support this claim (% of billion EUR).

Intra trade in the European Union- Imports

EU member states	Food and live animals (Mio Euro, 2001)					
	Total trade	Total	Live animals	Meat and meat products	Fish and fish products	Feeding stuff
EU 15	1 506 837	115 088	3 006	17 603	9 987	5 727
Belgium	133 272	10 000	252	888	633	731
Denmark	34 508	2 878	11	456	287	585
Germany	307 253	21 303	388	2 921	1 193	1 075
Greece	17 002	2 275	34	635	131	142
Spain	115 662	7 750	284	634	1 613	271
France	239 197	16 707	233	2 611	2 068	818
Ireland	37 050	2 641	131	365	130	176
Italy	146 945	13 092	972	2 900	1 838	505
Luxemburg	10 662	792	14	119	55	33
Netherlands	120 354	11 905	257	1 196	543	518
Austria	56 797	3 357	68	371	178	258
Portugal	33 072	3 224	133	516	555	518
Finland	23 137	1 213	3	81	46	105
Sweden	46 114	2 738	4	387	165	160
United Kingdom	185 812	15 213	222	3 523	553	566

Source: Eurostat 2002.

(not included dairy products, cereals, vegetables and fruit and other)

Intra trade in the European Union- Exports

EU member-states	Food and live animals (Mio Euro, 2001)					
	Total trade	Total	Live animals	Meat and meat products	Fish and fish products	Feeding stuff
EU 15	1 594 903	120 090	3 234	19 426	10 358	22 413
Belgium	154 793	14 561	264	2 713	569	2 708
Denmark	37 915	7 703	165	2 580	2 453	671
Germany	351 490	15 736	329	2 241	846	3 249
Greece	4 680	1 086	0	10	214	32
Spain	92 976	12 616	263	1 403	1 495	823
France	219 565	19 511	1 115	2 661	898	3 154
Ireland	58 179	4 359	153	1 519	329	806
Italy	144 731	8 460	15	936	336	1 199
Luxemburg	10 105	389	21	33	20	57
Netherlands	202 878	24 628	574	4 135	1438	7 415
Austria	48 609	2 256	47	458	5	357
Portugal	21 893	907	14	11	266	104
Finland	25 925	328	0	31	2	98
Sweden	46 121	1 306	4	71	475	278
United Kingdom	175 045	6 245	217	623	986	1 460

Source: Eurostat 2002.

II. The Position of the EU Agricultural Production and Trade in the World Economy

Trends in extra-EU trade by product

Trade Balance

Product list	Value (Mio ECU/Euro)				
	1990	1998	1999	2000	2001
Food and live animals (total)	-12 805	-13 541	-14 390	-13712	-15 623
Live animals	-360	81	184	95	-98
Meat and meat preparations	230	957	985	759	-72
Fish, crustances, mollusks	-5 515	-8 900	-8 589	-9 633	-10 506
Feeding stuff for animals	-3592	-2 614	-2 650	-3 514	-4 188

Source: Eurostat 2002.

Main EU trade partners- Food products-Exports

(meat and meat preparations, dairy products and birds' eggs, cereals and cereal preparations, beverages)

Meat and Meat Products

Partner	**Value (Mio Euro)**					**Share (%)**				
	1990	**1998**	**1999**	**2000**	**2001**	**1990**	**1998**	**1999**	**2000**	**2001**
	Meat and meat preparations									
Extra EU	**2 842**	**4 010**	**4 203**	**4 449**	**4 246**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**
Japan	451	577	830	1 052	983	15,8	14,3	19,7	23,6	23,1
Russia	363	919	991	670	862	12,7	22,9	23,5	15,0	20,3
United States	300	231	228	299	275	10,5	5,7	5,4	6,7	6,4
Switzerland	148	167	175	204	197	5,2	4,1	4,1	4,5	4,6
Hong Kong	37	154	134	141	124	1,2	3,8	3,1	3,1	2,9
Saudi Arabia	148	158	170	60	118	5,2	3,9	4,0	3,5	2,7
South Korea	6	100	171	143	116	0,2	2,4	4,0	3,2	2,7
Romania	100	39	17	43	104	3,5	0,9	0,4	0,9	2,4
Hungary	1	44	21	61	88	0,0	1,1	0,4	1,3	2,0
Benin	4	21	34	63	82	0,1	0,5	0,8	1,4	1,9
Total for all 10	**1 559**	**2 409**	**2 772**	**2 836**	**2 948**	**54,8**	**50,0**	**65,9**	**63,7**	**69,4**

Source: Eurostat 2002.

Main EU Food Trading Partners-Food Products-Imports (fish etc., vegetables and fruit, coffee, tea, cocoa and spices, feeding stuff for animals)

Partner	Value (Mio Euro)					Share (%)				
	1990	1998	1999	2000	2001	1990	1998	1999	2000	2001
	Fish, crustaceans, molluscs									
Extra EU	6 272	10 528	10 316	11 554	12 593	100,0	100,0	100,0	100,0	100,0
Norway	994	1 944	2 016	2 171	1 968	15,8	18,4	19,5	18,7	15,6
Iceland	718	755	819	858	914	11,4	7,1	7,9	7,4	7,2
Argentina	179	424	395	465	642	2,8	4,0	3,8	4,0	5,0
China	59	298	317	436	600	0,9	2,8	3,0	3,7	4,7
Morocco	240	383	398	532	573	3,8	3,6	3,8	4,6	4,5
United States	322	434	465	434	572	5,1	4,1	4,5	3,7	4,5
Russia	127	465	402	474	540	2,0	4,4	3,8	4,1	4,2
Faroe Islands	274	305	341	362	438	4,3	2,8	3,3	3,1	3,4
Thailand	329	585	380	297	377	5,2	5,5	3,6	3,4	2,9
Canada	326	280	323	348	361	5,1	2,6	3,1	3,0	2,8
Total for all 10	3 568	5 873	5 856	6 476	6 984	56,8	55,7	56,7	5,0	55,4
	Feeding stuff for animals									
Extra EU	4 304	4 507	4 361	5 449	6 188	100,0	100,0	100,0	100,0	100,0
Brazil	1 400	1 071	1 053	1 504	2 007	32,5	23,7	24,1	27,5	32,4
Argentina	653	1 070	1 379	1 762	1 893	15,1	23,7	31,6	32,3	30,5
United States	1 106	1 241	905	954	970	25,6	27,5	20,7	17,5	15,6
Peru	103	128	118	202	191	2,3	2,8	2,7	3,7	3,0
Malaysia	98	40	87	94	100	2,2	0,8	1,9	1,7	1,6
Iceland	41	115	73	80	90	0,9	2,5	1,6	1,4	1,4
Indonesia	72	38	61	77	85	1,6	0,8	1,3	1,4	1,3
Norway	21	149	110	88	81	0,4	3,3	2,5	1,6	1,3
Poland	23	41	44	44	80	0,5	0,9	1,0	0,8	1,3
Lithuania	:	24	26	52	64	:	0,5	0,5	0,8	1,0
Total for all 10	3 516	3 917	3 855	4 856	5 562	81,6	86,9	88,4	89,1	89,8

Source: Eurostat 2002.

Meat Production (slaughtering) in EU and in the World

Meat	World	Europe	EU-15	Russia	N+C America	USA	South America	Africa	Asia	Oceania
	1 000 t									
Total meat										
1991	183 836	:	33 284	:	36 807	29 554	16 610	8 946	:	4 507
2001	236 541	51 446	35 863	4 518	48 479	37 741	25 394	11 239		
Beef and veal										
1991	53 896	:	9 389	:	13 156	10 534	9 598	3 475	:	2 321
2001	56 647	11 695	7 454	1 916	15 233	11 980	11 813	4 064	11 188	2 654
Sheep and Goat meat										
1991	9 878	:	1 234	:	257	165	362	1 582	:	1 243
2001	11 291	1 390	1 034	124	207	103	331	2 027	6 101	1 236
Pig meat										
1991	70 908	:	15 096	:	9 434	7 256	1 992	585	:	401
2001	91 188	25 049	17 544	1 620	11 967	8 690	3 130	605	49 938	499
Poultry meat										
1991										
2001	43 139	:	6 734	:	13 561	11 324	4 468	2 069	:	491
	66 510	12 093	8 852	778	20 731	16 748	9 913	3 046	23 337	827

Source: Eurostat 2002.

APPENDIX C

TRANSPARENCY IN THE FOOD CHAIN[1]

Questionnaire for Actors Participating in Transparency Related Policy Making Processes

Interviewer _____

Organisation ID: _____

Organisation Type: _____ .
Site of Interview: _____.
Organisation Interviewee: _____.
Interviewee's Title: _____.
Interviewee's Telephone:_____.
Second Interviewee (IF ANY): _____.
Interviewee's Title: _____.
Interviewee's Telephone: _____.

Date: _____.

[1] The questionnaire has been based on Laumann and Knoke (1987).

TRANSPARENCY IN THE FOOD CHAIN

This questionnaire is developed for the purposes of a research project, which is interested in studying the process by which national and EU policy concerning transparency in the food chain is made and implemented. We regard transparency, in the context of this project, as the communication of food and feed product and process information among all the actors in the food chain, from producer to the final consumer. We have identified a range of organisations as significant actors in this policy-making process. We would like to talk with you about transparency policies and the role that your organisation is taking in their development. The information you will give us is completely confidential and will be used only for the purposes of this study. Since interviews should be carried out with **all** the important actors in the food chain, it is important that we complete the whole questionnaire.

PART I: GENERAL INFORMATION

A1. First, we would like to ask you a few questions about your organisation in general. How would you describe the main activities and functions of your organisation in the pork/farmed-fish chain?

A2. In general, would you characterise your organisation participation in **national food policy making and implementation** as:

i) a predominant concern
ii) one of several concerns
iii) incidental to its regular business
iv) of little concern
v) of no concern

A3. Organisations can be active in many different areas of **national** food policy making. Could you tell me those policy areas on this list in which your organisation is particularly active? PLEASE LIST ACCORDING TO IMPORTANCE

Food Policy Areas at the National Level

1. Biotechnology
2. Organic Farming

3. Food Safety
4. Transparency
5. Consumer Rights
6. Animal Welfare
7. Environmentally friendly farming practices
8. Health
9. International Trade
10. Other, PLEASE NAME

A4. Taking into account the efforts to affect all those areas of national food policy making, could you say what percentage of this effort is directed towards transparency in the pork chain?

A5. In general, would you characterise your organisation's participation in **EU food policy making and implementation** as:

vi) a predominant concern
vii) one of several concerns
viii) incidental to its regular business
ix) of little concern
x) of no concern

A6. Organisations can be active in many different areas of **EU** food policy making. Could you tell me those policy areas on this list in which your organisation is particularly active? PLEASE LIST ACCORDING TO IMPORTANCE

Food Policy Areas at the EU Level

11. Biotechnology
12. Organic Farming
13. Food Safety
14. Transparency
15. Consumer Rights
16. Animal Welfare
17. Environmentally friendly farming practices
18. Health
19. International Trade
20. Other, PLEASE NAME

A7. Taking into account the efforts to affect all those areas of EU food policy making, could you say what percentage of this effort is directed towards transparency in the pork chain?

PART II. POLICY POSITIONS

.

B1. Please tell me which of the following statements represents better the level of interest that your organisation has on the issue of transparency.

1. This issue is my number one priority when it comes up and I am absolutely committed

2. This is my most important issue but I have other issues to address

3. This is one of the several important issues that I am committed to. I would drop this issue if another one of my important issues arose.

4. I care about this issue but it is not critical. There are many more important issues to deal with that I would commit to first. I generally focus on other issues

5. This is a minor issue and I pay little attention or make extra effort.

6. I am aware of this issue but do not care enough to get involved.

B2. Transparency can be viewed in two dimensions: one represents the tracking and tracing of products through the chain and the other represents the type of information that can be included in tracking and tracing systems. Please tell me which of the following statements represents better your point of view towards tracking and tracing in the pork chain.

1. Tracking and tracing should cover all stages of the pork chain, from feed ingredients to the final pork product.

2. Tracking and tracing should cover some of the stages of the pork chain, from compound feed to the final pork product.

3. Tracking and tracing should cover some of the stages of the pork chain, from the place of farm origin of the pork to the final pork product.

4. Tracking and tracing should cover some of the stages of the pork chain from the place of country origin of the pork to the final pork product.

5. Tracking and tracing is not important in the pork chain.

B3. Could you describe verbally your policy position on that issue?

B4. Please tell me which of the following statements represents better the kind of information you want to be included in the system of tracking and tracing in the pork chain. YOU CAN CHOOSE MORE THAN ONE ANSWERS

I want the information included in the system of tracking and tracing in the pork chain to cover the following subjects:

1. Human health and safety
2. Animal health and safety
3. Environmental consequences
4. Animal welfare
5. Other ethical concerns, such as child labour
6. None of the above

B5. Could you describe verbally your policy position on that issue?

B6. You said that you would like (type of)…… information to be included in the systems of tracking and tracing. Please tell me with which of the following statements you agree:

1. The information must be provided only when there is scientific certainty about the impacts of the product/process in question (on health, environment, etc.) and these impacts are *positive*.

2. The information must be provided only when there is scientific certainty about the impacts of the product/process in question and these impacts are *negative*.

3. The information must be provided only when there is scientific certainty about the impacts of the product/process in question and these impacts are *either positive or negative*.

4. The information must be provided even when there is scientific uncertainty about the impacts of the product/process in question. In that case the information provided must focus on the ***kind of uncertainties*** and on ***what is not known*** about the product.

B7. Please tell me which of the following actors you would like to be involved in the creation of the information you would like to be included in the tracking and tracing systems. YOU CAN CHOOSE MORE THAN ONE ANSWERS

I would like the following actors to be involved:

1. Feed companies
2. Food companies
3. Farmers
4. Slaughterhouses/Processors
5. Retailers
5. Public actors (mention specifically which)
6. Private Research Institutes
7. Public Universities
8. Consumer Organisations
9. Environmental Organisations
10. Animal Welfare Organisations
11. Other NGOs (mention the type of NGOs)
12. None of the above

B8. Which of the actors mentioned above you would like to be involved in the certification process?

B9. Please tell what regulatory types you would prefer in order to ensure that your preferred level of transparency is present in the pork chain?

1. Governmental Regulation (Command-and-Control)
2. Self-Regulation
3. Governmental Regulation and Self-Regulation

B.10. What types of instruments do you think would better be adopted in order to ensure that your preferred level of transparency is present in the pork chain? YOU CAN CHOOSE MORE THAN ONE ANSWERS

I would like the following measures to be taken:

Legal sanctions
Economic sanctions
Economic incentives
Consumer taxes
Business taxes
Information campaigns
Education
Other, PLEASE NAME
None of the above

B11. Currently, is your organisation involved in the development of policy options for transparency?

i) Yes **(Go to B12)** STATE WHAT THE POLICY OPTION IS
ii) No **(Go to B16)**

B12. Does your organisation formulate this policy option, is it developed in collaboration with others or does it adopt another organisation's policy option?

i) Formulated policy option
ii) Collaborated with others
iii) Adopted another organisation's policy option

B13. Which are the major organisations, including governmental agencies, which support your policy option?

B14. Which are the major organisations, including governmental agencies, which are opposed to your organisation's policy option?

B15. What do you think are the reasons each of these organisations have for their opposition?

Reasons for other organisations' opposition

1. Motivated by private economic gain
2. Tried to enhance its public image
3. Sought to protect or extend its sphere of influence
4. Because of its ties to other organisations

5. Other issues that are relatively more important to it, were in opposition with that issue
6. It always holds an opposed position
7. Other (PLEASE MENTION)

B16. What is the current activity of your organisation regarding transparency in the pork/farmed fish chain?

Activities of your organisation regarding transparency in the pork/farmed fish chain

Conducting research on a topic
Acting as a clearinghouse of information
Formulating policy alternatives
Providing technical advice
Advocating a policy position
Collaborating with other organisations with long-term interest in this topic
Recruiting organisations not usually involved in this topic
Mobilising public opinion using mass-media
Co-ordinating the various efforts to influence the outcome

PART III. NETWORK QUESTIONS

C1. Here is a list of the most important organisations that operate at the **national/EU** pork/farmed-fish chain and which we have compiled from various sources. (LIST at the end of the questionnaire)
Would you indicate the organisations of this list with whom your organisation **regularly and routinely** communicates regarding matters of transparency?

C2. Are there any organisations *not* on that list with whom your organisation regularly and routinely discusses matters of transparency?

C3. Is this communication typically carried out through:
telephone
meetings
reports
emails

C4. How often does this communication take place?

C5. To which associations (i.e. trade associations, special commissions, panels) does your organisation belong?

C6. With which organisations on the list I showed you does your organisation often find itself on opposite sides? (INDICATE NUMBER)

C7. With which organisations on the list I showed you does your organisation often find itself on the same side? (INDICATE NUMBER)

C8. Would you indicate which organisations of the list, you trust and which organisations you do not trust (in terms of their intentions)?

C9. As we have indicated, all the organisations on the list are very important and influential actors. But we would like you to check those organisations, which you think, are especially influential. (INDICATE NUMBER)

C10. Are there any other organisations, which are influential and are not included in the lists? Please tell me the names of those organisations.

C11. Organisations may be regarded as influential participants in national and EU food policy because they possess certain resources. A list of such resources appears in the following list.

Resources

1. Political authority and legal rights
2. Financial resources
3. Availability of expertise on this field
4. Moral Legitimacy

Would you please tell me for each organisation that you selected as influential all the resources on which those organisations' influence is based? Are there resources not on this list that any of these organisations possesses?

C12. Now, would you indicate the most important resources held by your organisation? Are there resources not on this list that your organisation possesses?

THANK YOU FOR YOUR COOPERATION!

APPENDIX D

This dissertation is part of a larger program financed by the Dutch Organization for Scientific Research (NWO), with the acronym FIDES (Food Information as a Determinant for Sustainability). In the program four universities in the Netherlands participate, namely the University of Twente, the University of Groningen, the Vrije University of Amsterdam and the University of Amsterdam, all studying different aspects of sustainability and transparency in the food system. The FIDES group has initiated a survey which was in principle coordinated and performed by researchers at the Vrije University of Amsterdam, with the aim to integrate perspectives from the various projects. The survey has recently been completed and first round outcomes have been reached. In this appendix we will only present a few tables, which will back up our claims for the Dutch consumers' trust on various sources of sustainability related information. Information on consumer attitudes towards the role of government in making compulsory the provision of information on food products and processes by food actors is also displayed. The survey was conducted in Dutch and what follows is an (own) translation.

Table 1 *For news related to food health and safety I trust information from official authorities, like the VWA.*

			sex		Total
			Male	Female	
For news related to food health and safety I trust information from official authorities, like the VWA.	Completely agree	Count	84	77	161
		%	17.9%	16.4%	17.1%
	Agree to a large extent	Count	238	228	466
		%	50.6%	48.6%	49.6%
	1\2 agree-1\2 disagree	Count	100	105	205
		%	21.3%	22.4%	21.8%
	Disagree to a large extent	Count	17	21	38
		%	3.6%	4.5%	4.0%
	Completely disagree	Count	6	8	14
		%	1.3%	1.7%	1.5%
	Do not know	Count	25	30	55
		%	5.3%	6.4%	5.9%
Total		Count	470	469	939
		%	100.0%	100.0%	100.0%

Table 2 *For news related to food health and safety I trust information from the supermarkets.*

			sex		Total
			Male	Female	
For news related to food health and safety I trust information from the supermarkets.	Completely agree	Count	11	8	19
		%	2.3%	1.7%	2.0%
	Agree to a large extent	Count	60	62	122
		%	12.8%	13.2%	13.0%
	1\2 agree-1\2 disagree	Count	202	182	384
		%	43.0%	38.8%	40.9%
	Disagree to a large extent	Count	112	118	230
		%	23.8%	25.2%	24.5%
	Completely disagree	Count	59	73	132
		%	12.6%	15.6%	14.1%
	Do not know	Count	26	26	52
		%	5.5%	5.5%	5.5%
Total		Count	470	469	939
		%	100.0%	100.0%	100.0%

Table 3 *For news related to food health and safety I trust information from experts in this area.*

			sex		Total
			Male	Female	
For news related to food health and safety I trust information from experts in this area.	Completely agree	Count	55	56	111
		%	11.7%	11.9%	11.8%
	Agree to a large extent	Count	227	217	444
		%	48.3%	46.3%	47.3%
	1\2 agree-1\2 disagree	Count	134	133	267
		%	28.5%	28.4%	28.4%
	Disagree to a large extent	Count	22	21	43
		%	4.7%	4.5%	4.6%
	Completely disagree	Count	11	8	19
		%	2.3%	1.7%	2.0%
	Do not know	Count	21	34	55
		%	4.5%	7.2%	5.9%
Total		Count	470	469	939
		%	100.0%	100.0%	100.0%

Table 4 *For news related to food health and safety I trust information from consumer organizations.*

			sex		Total
			Male	Female	
For news related to food health and safety I trust information from consumer organizations.	Completely agree	Count	56	64	120
		%	11.9%	13.6%	12.8%
	Agree to a large extent	Count	245	229	474
		%	52.1%	48.8%	50.5%
	1\2 agree-1\2 disagree	Count	121	132	253
		%	25.7%	28.1%	26.9%
	Disagree to a large extent	Count	17	12	29
		%	3.6%	2.6%	3.1%
	Completely disagree	Count	8	7	15
		%	1.7%	1.5%	1.6%
	Do not know	Count	23	25	48
		%	4.9%	5.3%	5.1%
Total		Count	470	469	939
		%	100.0%	100.0%	100.0%

Table 5 *For news related to environmental consequences from food production I trust information from official authorities.*

			sex		Total
			Male	Female	
For news related to environmental consequences from food production I trust information from official authorities.	Completely agree	Count	65	58	123
		%	13.8%	12.4%	13.1%
	Agree to a large extent	Count	209	188	397
		%	44.5%	40.1%	42.3%
	1\2 agree-1\2 disagree	Count	131	148	279
		%	27.9%	31.6%	29.7%
	Disagree to a large extent	Count	27	30	57
		%	5.7%	6.4%	6.1%
	Completely disagree	Count	13	18	31
		%	2.8%	3.8%	3.3%
	Do not know	Count	25	27	52
		%	5.3%	5.8%	5.5%
Total		Count	470	469	939
		%	100.0%	100.0%	100.0%

Table 6 . *For news related to environmental consequences from food production I trust information from supermarkets.*

			sex		
			Male	Female	Total
For news related to environmental consequences from food production I trust information from supermarkets.	Completely agree	Count	11	6	17
		%	2.3%	1.3%	1.8%
	Agree to a large extent	Count	61	56	117
		%	13.0%	11.9%	12.5%
	1\2 agree-1\2 disagree	Count	192	177	369
		%	40.9%	37.7%	39.3%
	Disagree to a large extent	Count	116	127	243
		%	24.7%	27.1%	25.9%
	Completely disagree	Count	62	74	136
		%	13.2%	15.8%	14.5%
	Do not know	Count	28	29	57
		%	6.0%	6.2%	6.1%
Total		Count	470	469	939
		%	100.0%	100.0%	100.0%

Table 7 *For news related to environmental consequences from food production I trust information from experts in this field.*

			sex		
			Male	Female	Total
For news related to environmental consequences from food production I trust information from experts in this field**.**	Completely agree	Count	56	57	113
		%	11.9%	12.2%	12.0%
	Agree to a large extent	Count	228	202	430
		%	48.5%	43.1%	45.8%
	1\2 agree-1\2 disagree	Count	122	142	264
		%	26.0%	30.3%	28.1%
	Disagree to a large extent	Count	26	26	52
		%	5.5%	5.5%	5.5%
	Completely disagree	Count	12	9	21
		%	2.6%	1.9%	2.2%
	Do not know	Count	26	33	59
		%	5.5%	7.0%	6.3%
Total		Count	470	469	939
		%	100.0%	100.0%	100.0%

Table 8 *For news related to environmental consequences from food production I trust information from environmental organizations.*

			sex		
			Male	Female	Total
For news related to environmental consequences from food production I trust information from environmental organizations.	Completely agree	Count	30	41	71
		%	6.4%	8.7%	7.6%
	Agree to a large extent	Count	131	132	263
		%	27.9%	28.1%	28.0%
	1\2 agree-1\2 disagree	Count	166	179	345
		%	35.3%	38.2%	36.7%
	Disagree to a large extent	Count	86	58	144
		%	18.3%	12.4%	15.3%
	Completely disagree	Count	34	29	63
		%	7.2%	6.2%	6.7%
	Do not know	Count	23	30	53
		%	4.9%	6.4%	5.6%
Total		Count	470	469	939
		%	100.0%	100.0%	100.0%

Table 9 *For news related to animal welfare I trust information from official authorities.*

			sex		
			Male	Female	Total
For news related to animal welfare I trust information from official authorities.	Completely agree	Count	61	51	112
		%	13.0%	10.9%	11.9%
	Agree to a large extent	Count	197	192	389
		%	41.9%	40.9%	41.4%
	1\2 agree-1\2 disagree	Count	148	150	298
		%	31.5%	32.0%	31.7%
	Disagree to a large extent	Count	31	27	58
		%	6.6%	5.8%	6.2%
	Completely disagree	Count	15	18	33
		%	3.2%	3.8%	3.5%
	Do not know	Count	18	31	49
		%	3.8%	6.6%	5.2%
Total		Count	470	469	939
		%	100.0%	100.0%	100.0%

Table 10 *For news related to animal welfare I trust information from supermarkets.*

			sex		
			Male	Female	Total
For news related to animal welfare I trust information from supermarkets.	Completely agree	Count	13	7	20
		%	2.8%	1.5%	2.1%
	Agree to a large extent	Count	57	57	114
		%	12.1%	12.2%	12.1%
	1\2 agree-1\2 disagree	Count	188	177	365
		%	40.0%	37.7%	38.9%
	Disagree to a large extent	Count	117	123	240
		%	24.9%	26.2%	25.6%
	Completely disagree	Count	65	79	144
		%	13.8%	16.8%	15.3%
	Do not know	Count	30	26	56
		%	6.4%	5.5%	6.0%
Total		Count	470	469	939
		%	100.0%	100.0%	100.0%

Table 11 *For news related to animal welfare I trust information from experts in this field.*

			sex		
			Male	Female	Total
For news related to animal welfare I trust information from experts in this field.	Completely agree	Count	40	47	87
		%	8.5%	10.0%	9.3%
	Agree to a large extent	Count	222	208	430
		%	47.2%	44.3%	45.8%
	1\2 agree-1\2 disagree	Count	145	147	292
		%	30.9%	31.3%	31.1%
	Disagree to a large extent	Count	24	22	46
		%	5.1%	4.7%	4.9%
	Completely disagree	Count	13	13	26
		%	2.8%	2.8%	2.8%
	Do not know	Count	26	32	58
		%	5.5%	6.8%	6.2%
Total		Count	470	469	939
		%	100.0%	100.0%	100.0%

Table 12 *For news related to animal welfare I trust information from animal welfare organizations.*

			sex		Total
			Male	Female	
For news related to animal welfare I trust information from animal welfare organizations.	Completely agree	Count	30	46	76
		%	6.4%	9.8%	8.1%
	Agree to a large extent	Count	134	136	270
		%	28.5%	29.0%	28.8%
	1\2 agree-1\2 disagree	Count	183	168	351
		%	38.9%	35.8%	37.4%
	Disagree to a large extent	Count	66	55	121
		%	14.0%	11.7%	12.9%
	Completely disagree	Count	37	29	66
		%	7.9%	6.2%	7.0%
	Do not know	Count	20	35	55
		%	4.3%	7.5%	5.9%
Total		Count	470	469	939
		%	100.0%	100.0%	100.0%

Table 13 *I have enough information about food products and processes; the government/food companies do not have to do anything extra.*

			sex		Total
			Male	Female	
I have enough information about food products and processes; the government/food companies do not have to do anything extra.	Completely agree	Count	30	17	47
		%	6.4%	3.6%	5.0%
	Agree to a large extent	Count	78	75	153
		%	16.6%	16.0%	16.3%
	1\2 agree-1\2 disagree	Count	157	173	330
		%	33.4%	36.9%	35.1%
	Disagree to a alrge extent	Count	126	107	233
		%	26.8%	22.8%	24.8%
	Completely disagree	Count	47	63	110
		%	10.0%	13.4%	11.7%
	Do not know	Count	32	34	66
		%	6.8%	7.2%	7.0%
Total		Count	470	469	939
		%	100.0%	100.0%	100.0%

Table 14 *The food companies are responsible to inform me about food products and processes; the government need not do anything.*

			sex		
			Male	Female	Total
The food companies are responsible to inform me about food products and processes; the government need not do anything.	Completely agree	Count	44	41	85
		%	9.4%	8.7%	9.1%
	Agree to a large extent	Count	106	90	196
		%	22.6%	19.2%	20.9%
	1\2 agree-1\2 disagree	Count	112	111	223
		%	23.8%	23.7%	23.7%
	Disagree to a large extent	Count	114	133	247
		%	24.3%	28.4%	26.3%
	Completely disagree	Count	74	69	143
		%	15.7%	14.7%	15.2%
	Do not know	Count	20	25	45
		%	4.3%	5.3%	4.8%
Total		Count	470	469	939
		%	100.0%	100.0%	100.0%

Table 15 *The government needs to make the provision of information on food products and processes by food companies compulsory.*

			sex		
			Male	Female	Total
The government needs to make the provision of information on food products and processes by food companies compulsory.	Completely agree	Count	145	144	289
		%	30.9%	30.7%	30.8%
	Agree to a large extent	Count	188	174	362
		%	40.0%	37.1%	38.6%
	1\2 agree-1\2 disagree	Count	80	79	159
		%	17.0%	16.8%	16.9%
	Disagree to a large extent	Count	23	35	58
		%	4.9%	7.5%	6.2%
	Completely disagree	Count	13	11	24
		%	2.8%	2.3%	2.6%
	Do not know	Count	21	26	47
		%	4.5%	5.5%	5.0%
Total		Count	470	469	939
		%	100.0%	100.0%	100.0%

The information presented in the above tables shows that Dutch meat and farmed-fish consumers have low trust on business actors as sources of information regarding health, environmental and animal welfare aspects of food production. In contrast they trust governmental authorities, experts and consumer organizations, the latter especially when they provide information on health and safety. Moreover, the results presented in this appendix show that Dutch consumers feel that they do not have enough information about food products and that the government should step in and make the provision of such information compulsory.

These results are directly related to the dissertation's discussion on the regulatory practices. More specifically, the desirability of different types of regulatory practices for the promotion of transparency, i.e. self-regulation, governmental regulation or a combination of both, will depend to a large extent on the legitimacy of such practices in the eyes of the public. Indeed, self-regulatory or governmental regulatory schemes for the provision of information on products and processes will be severely limited in influencing consumption choices when relevant business or governmental actors are not trusted by the public in that respect. In the absence of trust in the source of information the result might simultaneously be extensive transparency but extremely ineffective.

Summary in Dutch

In dit proefschrift zijn politiek en beleid rond transparantie in de voedselketen geanalyseerd, met als uitgangspunt dat er een behoefte bestaat aan de transformatie naar een meer duurzame voedselketen en dat transparantie daarvoor belangrijk is. Transparantie, informatievoorziening inzake voedingsproducten en –processen, heeft een groot potentieel in het "groener" maken van consumptiepatronen. In plaats van zich te concentreren op alleen de beslissingen van de consumenten, benadrukt het proefschrift de noodzaak om alle actoren die bepalen hoe voedsel wordt geproduceerd, verwerkt, gedistribueerd en vermarkt te beschouwen.

In hoofdstuk twee hebben we meer gedetailleerd de behoefte aan transparantie gepresenteerd, gebaseerd op de veranderingen in het voedselsysteem gedurende de afgelopen decennia. In het bijzonder hebben we aandacht geschonken aan de structurele veranderingen die hebben geresulteerd in een extreem complexe productieketen en de spreiding van verantwoordelijkheid over een reeks van actoren. We hebben ook de normatieve veranderingen geïntroduceerd die betrekking hebben op een toegenomen bewustwording bij de consumenten en een grotere vraag naar duurzaamheid door zowel overheden als sommige actoren in de voedselketen. We betoogden dat transparantie een voorwaarde is voor een reactie op deze normatieve en structurele transformaties. Transparantie is geconceptualiseerd in twee dimensies, een verticale die de noodzaak weergeeft zich te richten op de complexiteit van alle schakels in de voedselketen en een horizontale die de noodzaak weergeeft om zoveel mogelijk aspecten van duurzaamheid van de activiteiten in de voedselketen te belichten.

Het overzicht van transparantie zoals momenteel geïmplementeerd in de voedselketen heeft laten zien dat aanzienlijke inspanningen ondernomen zijn om de transparantie in de verticale dimensie te vergroten. De Algemene Voedselwet van de EU vereist de inrichting van volgsystemen om leveranciers en consumenten te identificeren, een stap terug en een stap vooruit in de keten van de voedsel- en voedingsindustrie tot de winkel. Echter, de implementatie van de Regeling is langzaam en problematisch gebleken. De inspanningen om de transparantie te vergroten in de horizontale dimensie zijn beperkter. De aandacht richt zich vooral op voedselveiligheid, terwijl de aandacht voor duurzaamheid in een bredere zin ofwel minimaal ofwel incidenteel was. Daarom besloten we het beleid voor transparantie in de voedselketen te onderzoeken met twee doelen. De eerste vraag is of beleid en initiatieven die er toe moeten leiden de transparantie te verbeteren vanuit beleidsperspectief haalbaar zijn en ten tweede is het doel het identificeren van bottlenecks en mogelijkheden voor interventie en verandering voor het bereiken van een beter beleid voor transparantie.

De centrale onderzoeksvraag van de dissertatie is als volgt geformuleerd:

Wat is de politieke haalbaarheid van beleid en initiatieven die erop gericht zijn transparantie in de voedselketen te verbeteren?

Het onderwerp politieke haalbaarheid is gekozen op grond van de complexiteit van beslissingsprocessen betreffende onderwerpen gerelateerd aan voedsel. De verscheidenheid aan betrokken actoren, hun verschillende ideologieën, hun uiteenlopende interpretaties en beleidsposities aangaande het onderwerp transparantie, en ook hun verschil in macht, dwong ons om te onderzoeken of het mogelijk is beter beleid voor transparantie in de voedselketen te initiëren en implementeren. Om de poging te vergemakkelijken, werd de onderzoeksvraag in drie sub-vragen verdeeld:

1. Wie zijn de beleidsactoren rond het onderwerp van transparantie in de bestudeerde voedselketens?
2. Wat zijn hun posities aangaande beleid betreffende transparantie?
3. Wat zijn de mogelijkheden en beperkingen die actoren tegenkomen in hun pogingen hun doelen te bereiken?

Eerst hebben we de belangrijkste benaderingen die bij konden dragen aan het onderzoek naar politieke haalbaarheid van transparantie in een multi-actor context besproken in hoofdstuk drie. We bespraken twee benaderingen, die een groot verschil in de literatuur over beleidsformatie vertegenwoordigen: het individualistisch perspectief dat de nadruk legt op individuen en hun gedrag en het netwerk perspectief dat de context van het individu in hun interacties benadrukt. We hebben er voor gekozen de twee perspectieven te combineren onder de paraplu van de formele methodologische benadering van netwerken.

In hoofdstuk vier werd het analytisch perspectief gepresenteerd. We bekeken de beleidsvorming voor transparantie als een resultaat van zowel actor strategieën als netwerkstructuren. Het netwerk is de context waarin individuele strategieën zich kunnen ontwikkelen. Drie actor- en twee netwerkkenmerken zijn belangrijk: de beleidspositie van de actor, zijn bronnen en karakteristieken bepalen de voorkeuren ten aanzien van transparantie en de mogelijkheid en bereidheid ze te bereiken. Communicatiepatronen en betrouwbaarheid van relaties tussen de actoren vormen invloedstromen en bepalen coalities. Gebaseerd op Stokman (1996, 2004) en Stokman en Van den Bos (1992), besloot het hoofdstuk met een uitwijding over een formeel model dat deze punten bevat en de mogelijkheid om transparantie te verbeteren belooft. De manier waarop actor- en netwerkkarakteristieken worden geoperationaliseerd en gemeten presenteerden we in hoofdstuk vijf,

waarin ook de methode van het verzamelen en analyseren van data en het selecteren van de cases werd beschreven. Empirisch, richtten we ons op de productieketens rond varkensvlees en gekweekte vis en bestudeerden de beleidsnetwerken die rond het onderwerp transparantie zijn ontstaan in Nederland en de Europese Unie.

In de hoofdstukken zes tot en met negen presenteerden we de empirische analyse, beginnend met een presentatie van de status quo toegespitst op de bestudeerde keten en het bestuursniveau. Daarna volgde een omschrijving van het netwerk: wie zijn de actoren en wat zijn hun kenmerken en de kenmerken van het netwerk waarin ze opereren. Vervolgens volgt een voorspelling van beleids uitkomsten voor transparantie, zowel in de verticale dimensie als in de horizontale dimensie, als ook de evaluatie van beleids uitkomsten wat betreft de gekozen typen van regulering. Elk hoofdstuk eindigt met een discussie over de gevolgen van de beleids uitkomsten voor transparantie en met aanbevelingen voor veranderingen.

Hoofdstuk zes richtte zich op de varkensketen in Nederland. Bij het bepalen van de status quo van transparantie, werd in hoofdstuk zes gesteld dat dit geïnterpreteerd kan worden als een overeenkomst om transparantie te promoten voor onderwerpen gerelateerd aan gezondheid en veiligheid in de keten, en een aanzet tot het toevoegen van andere aan duurzaamheid gerelateerde informatie. Bij het bepalen van de haalbaarheid van beter beleid voor transparantie, bestudeerden we het beleidsnetwerk dat zich heeft gevormd rond dit onderwerp in de Nederlandse varkensketen. We identificeerden een aantal publieke en private actoren die deelnemen in het netwerk en door het bestuderen van hun beleidspositie in de verticale dimensie van transparantie, vonden we dat alle actoren het eens zijn over het hoogste niveau van tracking and tracing in de keten. Als gevolg van de overeenkomst van de beleidspositie van de actoren op dit punt, als ook hun overeenstemming met de status quo was er geen reden de politieke haalbaarheid van deze optie verder te onderzoeken. De situatie in de horizontale dimensie was heel anders. We vervolgden met onderzoek naar de politieke haalbaarheid van beleidsopties gericht op de bevordering van aan duurzaamheid gerelateerde informatie in de keten. Tijdens het bestuderen van de positie en invloed van de actor (gebaseerd op individuele bronnen en karakteristieken), laat het hoofdstuk zien dat actoren die een breed gebied van transparantie voorstaan in de horizontale dimensie in principe in staat moeten zijn hun positie in het netwerk te verbeteren. De status quo zou hoger moeten zijn dan het huidige niveau. Ondanks de bereidheid van relatief machtige actoren om een brede horizontale kijk op transparantie te promoten, bleek zo'n optie niet haalbaar in

de huidige netwerkstructuur. Communicatiepatronen in het netwerk en het lage niveau van vertrouwensrelaties tussen met name actoren die een brede invulling van duurzaamheid voorstaan, hebben het voor hen niet mogelijk gemaakt om tot eendracht en meer resultaat te komen. Het hoofdstuk stelt een aantal strategieën voor om de netwerkpatronen te veranderen in het voordeel van transparantie en duurzaamheid. De voorgestelde strategieën komen vooral overeen met "spel management", het veranderen van interacties in het netwerk, in plaats van "structurering van het netwerk"of het veranderen van institutionele arrangementen die het netwerk vormen. Het was mogelijk om te laten zien dat bij verschuiving van de netwerkpatronen in een bestaand netwerk, een beter beleid voor transparantie kan worden bereikt. Wat betreft regulerende praktijken, laat dit hoofdstuk zien dat het netwerk een mix van overheids- en zelf-regulerende instrumenten ondersteunt voor de bevordering van transparantie. Private informatie over duurzaamheids kenmerken van voedselproducten en processen, waaronder ook informatie over gezondheid en veiligheid, wordt door Nederlandse consumenten niet altijd vertrouwt. Betrokkenheid van overheid en onafhankelijke instanties alsook van consumentenorganisaties, allemaal actoren die worden vertrouwd door de Nederlandse consument, is noodzakelijk om impact te hebben op consumptiepatronen van varkensvlees.

Hoofdstuk zeven besprak de kansen om transparantie te promoten in de varkensketen in het beleidsnetwerk op EU niveau. Net als in de Nederlandse case, spelen een aantal publieke en private actoren een rol. De status quo was bepaald als een overeenkomst om transparantie te bevorderen over onderwerpen gerelateerd aan gezondheid en veiligheid. In de hele keten waren geen stappen om additionele informatie over duurzaamheid te verstrekken. Bij het bestuderen van de beleidspositie van de actoren in de verticale dimensie van transparantie, vond het hoofdstuk dat alle actoren het eens zijn over het hoogste niveau van tracking en tracing in de keten. Maar wederom is de situatie ten aanzien van de horizontale dimensie heel anders. Zoals op het nationale niveau, zouden op EU niveau actoren die een brede horizontale scope van transparantie voorstaan in staat moeten zijn om de beleidsuitkomsten dichter bij hun doelen te brengen dan de status quo aangeeft. Maar, EU actoren die voorstander zijn van brede duurzaamheid hebben hun krachten niet gebundeld. Ondanks dat vertrouwensrelaties tussen de actoren aanmerkelijk hoger leken, resulteerde een koppeling van sceptisme van de kant van de civil society organisaties ten opzichte van zakelijke actoren en de intenties van het ministerie, en het communicatie patroon in het netwerk, in een marginale rol van civil society organisaties. De marginalisatie van de rol van NGO's op haar beurt resulteerde in de onmogelijkheid voor het

potentieel pro-duurzaamheid de nodige veranderingen in de beleidspositie van andere actoren door te voeren om de nodige invloed op beleidspositie voor transparantie te hebben. In dit geval geeft het boek een aantal aanbevelingen voor verandering. Maar, veranderingen in de interacties in het netwerk hebben niet genoeg impact gehad op de status quo. Daarom overwogen we structurering van het netwerk in de vorm van het toevoegen van nieuwe actoren met een brede duurzaamheidsscope, als ook verandering in de opzet van het onderwerp transparantie om de duurzaamheidsdimensie meer naar voren te laten komen, meer toegesneden op deze case. Betreffende de regulerende praktijken, liet het hoofdstuk zien dat het netwerk overheidsregels ondersteunt in combinatie met zelfregulering. Het wantrouwen van Europese consumenten in private informatie over duurzaamheidsaspecten van voedselproducten en processen op EU niveau, betekent dat ingrijpen van de overheid en steun en betrokkenheid van andere betrouwbare partijen (experts en milieu-, consumenten- en dierenbeschermingsorganisaties) essentieel is voor de invloed van transparantie op het koopgedrag.

Hoofdstuk acht presenteerde de case van Nederlandse gekweekte vis keten. Hier is de status quo bepaald als een overeenkomst over transparantie op onderwerpen gerelateerd aan menselijke en dierlijke gezondheid en veiligheid langs de keten en beginnende stappen naar de bevordering van andere typen duurzaamheids-gerelateerde informatie. Bij de bestudering van het beleidsnetwerk voor transparantie, vonden we een aantal private en publieke actoren met interesse in beslissingen aangaande transparantie in de gekweekte vis keten. Bij het vaststellen van de verticale dimensie, lieten we zien dat ondanks dat een aantal actoren volledige naspeurbaarheid niet praktisch vinden, de uitkomst een overeenkomst is op het hoogste verticale niveau. Een verscheidenheid aan beleidsposities werd gevonden voor de horizontale dimensie. Rekening houdend met de beleidspositie en invloed van de actoren vonden we een belidsuitkomst die overeenkomt met de status quo. Het hoofdstuk liet zien dat de combinatie van de netwerkstructuur en de verdeling van beleidsposities van de actor en hun respectievelijke invloed, een compromis van de actor op dat onderwerp ondersteunt. Alhoewel, de scepsis van NGOs ten opzichte van de intenties van andere actoren met een brede scope op duurzaamheid, voorkomt de bevordering van beter beleid voor transparantie in de keten. We stelden management-strategieën voor die gericht zijn op spel-management met bijzondere aandacht voor de introductie van beleidsbemiddelaars. Zoals de Nederlandse en EU varkensvlees netwerken, is het Nederlandse gekweekte vis netwerk een combinatie van overheids- en zelf-regulering. Ook hierin, zijn dezelfde voorstellen gedaan als in de Nederlandse varkenscase. Door het wantrouwen van consumenten ten opzichte van private

informatie, is de betrokkenheid van de overheid en van vertrouwde onafhankelijke experts, als ook van consumentenorganisaties, noodzakelijk om transparantie aantrekkelijk te maken voor het publiek.

Als laatste bestudeerden we de politieke haalbaarheid van transparantie in de aquacultuur keten, op het niveau van de EU. De status quo werd vastgesteld als een overeenkomst over onderwerpen gerelateerd aan menselijke en dierlijke gezondheid en veiligheid en beginnende stappen richting het promoten van informatie over andere duurzaamheids-onderwerpen langs de keten. Het beleidsnetwerk voor transparantie is samengesteld uit publieke en private actoren, net als in de vorige cases. Maar vooral, net als de meeste voorgaande cases, nemen actoren dezelfde hoogste plaats in op de verticale scope van transparantie. De beleidspositie van actoren op de horizontale scope voor transparantie zijn tegengesteld, net als in de vorige cases. In tegenstelling tot alle vorige netwerken, komt er een ander beeld naar voren met betrekking tot het vervolg.. Ambitieuze en capabele actoren, in het bijzonder op het EU niveau, zijn in staat steun te genereren voor transparantie in de aquacultuur keten om duurzaamheid te promoten. Dit wordt veroorzaakt door zowel communicatiepatronen als vertrouwensrelaties waarin NGOs betrokken zijn en wat de brede-duurzaamheids coalitie toestaat zijn beleidspositie te verdedigen en promoten. Een verandering in de communicatiepatronen van het netwerk zou zelf betere opties voor transparantie gericht op de breedste scope mogelijk maken. Net als in de voorgaande cases, ondersteunt het netwerk een combinatie van overheidsregels en zelfregulering. Het wantrouwen van de consumenten jegens informatie vanuit het bedrijfsleven betekent dat de brede scope voor transparantie gesteund door het EU aquacultuur netwerk kan worden ondermijnt als gevolg van gebrek aan legitimiteit van de resulterende private initiatieven in de ogen van het publiek.

About the Author

Agni Kalfagianni is researcher at CSTM. Kalfagianni pursued her undergraduate studies in environmental science at the University of the Aegean, Department of Environmental Science in Lesvos, Greece, from 1994 to 1998. In 1999/2000 she followed the Master's course in Environmental Economics at the University of York, United Kingdom. In September 2001, she started her doctoral research at CSTM. Her PhD thesis and relevant publications concern the development of transparency policies in protein food chains in the Netherlands and the European Union. Her main research interests include the political roles of private vis-à-vis public actors and the implications of these roles for sustainable development and consumption.

Modern food is produced, processed and distributed in extremely complex and industrialised food chains which span the globe transcending national boundaries and operating in many instances under anonymous conditions. Recent food crises reveal that when light is shed to the circumstances under which the modern food system operates, the underlying image is not very appealing: animal cruelty, environmental damages, and indifference to human health and safety are some of the striking characteristics of the modern food system. This dissertation argues that transparency in the food chain, in contrast to the incidental and inconsistent provision of information as soon as a food scandal makes the headlines, can set the foundation for the transformation of the food system into a more sustainable one. On the basis of that argument the dissertation then, investigates the political feasibility of establishing transparency in the food chain. The number of actors appearing in the political arena of food, such as economic, public and civil society, their conflicting ideologies and their power discrepancies makes transparency a particularly complex and controversial issue from a political perspective. On the basis of stakeholder interviews with the relevant actors this dissertation performs a policy network analysis with the aim of identifying the opportunities and constraints of developing policies aspiring to promote transparency in the food chain. Empirically the dissertation focuses on the pork and farmed-fish chains in the Netherlands and the European Union. On the basis of its analysis the dissertation draws conclusions about the political feasibility of transparency in the chains under study and provides recommendations for change in the form of network management.

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