Scoping / framing general comparative report on food chain performance (deliverable 2.3)

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Due date of deliverable: April 2014
Actual submission date: May 2014
Start date of project: 1 February 2013
Duration: 36 months

Public Deliverable

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GLAMUR is a EU FP7 project that aims at integrating advancement in scientific knowledge about the impact of food chains to practice, to increase food chains sustainability through public policies and private strategies. This general objective will be pursued through the following specific objectives:

- To develop and validate a performance criteria matrix for assessment and comparison of food chains operating at a range of geographical scales through analysis of how food chain impacts are communicated in different spheres of society.
- To build a database of quantifiable indicators of impact and a set of 20 case studies aimed at understanding how impacts are generated within specific food chains.
- To advance knowledge on methodological problems and trade-offs arising when measuring and comparing the impact of food chains within and between sectors.
- To assess how performance is perceived by stakeholders in different national contexts through participatory assessment and multi-criteria analysis of the different typologies of food chains.
- To assess the actual and potential role of public and private policies addressing food chains and to turn assessment into policy recommendations.
- To build a network that turns the advancement of scientific knowledge into decision making tools for domestic and public consumers, producers, citizens, scientists, policy makers, civil society organizations.

Report to be quoted as:

GLAMUR Work Package 2

Scoping / framing general comparative report on food chain performance (deliverable 2.3)

James Kirwan, Damian Maye, Dilshaad Bundhoo and Dan Keech, CCRI
Gianluca Brunori, FIRAB
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1 Introduction

The overall aim and rationale of Work Package 2 (WP2) is “to align the multiple meanings that are attributed to food chains, having regard for the contexts involved, and to create a common understanding of food chain performance that has been developed and substantiated by scientific evidence”. In pursuit of this aim, it has three objectives:

- To conduct a systematic analysis of how both ‘local and global food’ and the ‘performance of food chains’ are perceived, defined and communicated in the public, scientific, market and policy spheres across a range of dimensions (economic, social, environmental, health and ethical).
- To assess how each of these dimensions is framed in different contexts, and to identify the dilemmas and contradictions within each, as well as the interaction between them, that potentially affects attitudes and behaviour in relation to food chain performance.
- To develop a matrix that catalogues ‘local and global food’ performance across a range of criteria including real costs and benefits, as well as resilience and security.

The purpose of this report is to capture and evaluate the perceptions and representations of food chain performance at both a global and local level, which have been conceptualised as a set of food chain performance frames. Frames are “mental structures that help people to make sense of the world” (Brunori et al. 2013, p. 20; see also Lockie 2006; Mooney and Hunt 2009); they establish boundaries (Callon 1998); they select information (Wilkinson 2011); and they can help “explain how policy-makers structure reality” (Tomlinson 2013, p. 83). Crucially, frames (which represent specific discourses about food chain performance) develop and generate through communication practices. Within this project, the use of the term sphere has been used to delineate between different communication practices. A sphere is a space of communication characterised by actors, the media and discourses. Two spheres are typically identified in the literature (Brunori et al. 2013): the market sphere, where individuals make judgements regarding commodities; and the public sphere, where citizens debate about common affairs (Habermas et al. 1989). The public sphere is now increasingly open to media manipulation, but it is also a battleground and space where alternative frames can emerge. For the GLAMUR project, a scientific sphere and a policy sphere have also been identified, as important socio-economic contexts where food chain performance is communicated.

It is important to avoid conflating spheres with social actors (e.g. only associating producers with the market sphere). Spheres in this study are interpreted as arenas of interaction, where specific discourses are generated through communication between different actors and groups, and where discursive coalitions unfold. Each sphere thus represents an arena of interaction among actors (that could include, for example, producers, scientists, or consumer groups). The purpose of interaction of any involved actor is to make claims that are of general interest within the given sphere, in order to gain control over the course of action of other actors.

The key thing that differentiates between spheres is the objects around which communication is developed. In the public sphere, the object is ‘the common good’, in the market sphere ‘commodities’, in the policy sphere ‘policies’, and in the scientific sphere ‘legitimate truth claims’. In any given sphere, different narratives interact and discursive coalitions develop that may compete with each other. The purpose of WP2 has been to identify the issues that, within a specific sphere, are the...
objects of either consensus or controversy. This has involved capturing in each country how food chain
performance at both a global and local level is debated in the four different spheres in relation to
the five performance dimensions of GLAMUR (economic, social, health, environmental and ethical).
This has also necessitated recognising the overlapping nature of spheres, and the connections,
interactions and contradictions that exist both within and between frames. Individuals and groups
may translate frames to different spheres – for example, public sphere issues become rhetorical
resources in the market sphere, symbolised by the corporate construction of ethical standards to
appease public concerns about the ethics of their food supplies (Brunori et al., 2013). There may
also be general consensus about the importance of a particular performance frame (e.g. the need to
improve food chain resilience), but multiple meanings and possible opposition about how it can be
achieved (Mooney and Hunt, 2009).

Based on an evaluation of the perceptions and representations of food chain performance, a multi-
criteria matrix has been developed, consisting of 24 attributes across the four spheres and five
dimensions that are the focus of GLAMUR. The multi-criteria performance matrix is, therefore, a
-crucial output of WP2 and a mechanism with which to conceptualise and structure the cross-country
analysis of food chain attributes presented in this report. Attributes within this context are defined as
“a quality or feature regarded as a characteristic or inherent part of something”; they are
specifically NOT indicators.

This report is structured as follows. The following section sets out the methodological approach taken
within WP2. Section 3 then provides a brief summary of the national contexts in which this analysis
was undertaken. Drawing on the national reports, Section 4 then identifies three main categories
under which these national discourses can be grouped. Section 5 lists the 24 attributes identified,
situating them within a 20 cell Multi Criteria Performance Matrix (MCPM). Section 6 is the substantive
heart of the report, in providing a ‘thick description’ of each of the attributes chosen, justifying both
their inclusion and positioning within the MCPM. Section 7 then discusses the key issues to emerge
from this work package in terms of reaching a common understanding of the relative performance of
both global and local food supply chains across a range of both spheres and dimensions.
2 Methodology

WP2 has consisted of five key tasks:

**Task 2.1:** Developing the methodology and identifying the countries to be covered
**Task 2.2:** Analysis of how food chain performance is currently assessed
**Task 2.3:** Interviews
**Task 2.4:** Delphi Method
**Task 2.5:** National-level Reports (based on tasks 2.2 & 2.3)
**Task 2.6:** Comparative Report (based on tasks 2.4 & 2.5)

As a result of Task 2.1, it involved 12 countries (Table 1).

### Table 1: Countries covered in the WP2 analysis and partner responsibilities

<table>
<thead>
<tr>
<th>Country</th>
<th>Partner responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Netherlands</td>
<td>WU (1) and CLM (7)</td>
</tr>
<tr>
<td>Italy</td>
<td>FIRAB (2)</td>
</tr>
<tr>
<td>France</td>
<td>INRA (4)</td>
</tr>
<tr>
<td>Belgium</td>
<td>KULE (5)</td>
</tr>
<tr>
<td>Switzerland</td>
<td>FiBL (6)</td>
</tr>
<tr>
<td>Spain</td>
<td>UAB (9)</td>
</tr>
<tr>
<td>UK</td>
<td>CCRI (10, 11)</td>
</tr>
<tr>
<td>Latvia</td>
<td>BSC (12)</td>
</tr>
<tr>
<td>Denmark</td>
<td>AAU (13)</td>
</tr>
<tr>
<td>Serbia</td>
<td>BEL (14)</td>
</tr>
<tr>
<td>Senegal and Peru</td>
<td>IIED (15)</td>
</tr>
</tbody>
</table>

2.1 National Reports

Each of the 12 countries identified within Task 2.1 was required to produce a national report. This was based on the desk-based analysis conducted under task 2.2, together with the interviews conducted under Task 2.3. Included within this report was a multi-criteria performance matrix of food supply chain performance related to global and local food. Guidance was given on the range of data sources to be included within the desk-based analysis. These included scientific/academic sources; policy documents, NGO reports and other policy sources; market reports and food industry sources; newspaper articles and magazines; blogs/Facebook/Twitter; and TV programmes. Partners were asked to identify the sources they would consult, including a breakdown into the four spheres (scientific, public, policy and market). The WP2 leaders then checked for consistency across the proposed approaches. Partners were asked to develop their ideas from initial coding and content analysis through to the identification of attributes within their own national context. Further details on the methodology developed for the national reports are given in the document entitled: “WP2 Methodology and Guidance” (see Appendix 1).
2.2 Comparative report

The comparative report was developed from the 12 individual national reports. The national reports varied in length from about 50 pages up to more than 100 pages. The main body of these reports was taken up with ‘thick descriptions’ of the attributes chosen, by way of justification for their choice and positioning within the matrices of each of the national reports. Three members of the CCRI team were involved in the analysis of these reports, each of whom read all 12 reports, highlighting the key issues to emerge. A composite matrix that included all the attributes identified by each of the countries was constructed, delineated by country, sphere and dimension. This produced a large number of individual attributes, which was then slimmed down through a coding meeting between the three team members in order to produce an initial comparative matrix of 28 attributes. This coding meeting, which comprised a face-to-face meeting spread over two days, involved the three researchers initially discussing their ideas and emerging issues/codes/key attributes. The initial list of 28 attributes was agreed as a basis for more detailed analysis. Each of the 207 attributes identified within the individual national reports was assessed against this initial list of 28 attributes. An example of this process is given below, in Table 2.

In this case, the comparative attribute is ‘nutrition’, which encompasses a range of other attributes identified within national reports, as shown below. The positioning of the matrix according to sphere and dimension is also given. So in the case of ‘obesity’, for example, this appeared in both the Italy report (where it was positioned within the Economic/Policy, Social/Public, and Health/Public cells) and the UK report (where it was positioned within the Health/Policy cell). The number of occurrences within each of the spheres and dimensions was also noted (see below), in order to give a numerical indication of where the comparative attribute should be placed within the MPCM. The initial list of 28 attributes can therefore be described as meta-level codes, each capturing a debate and set of attributes about an aspect of food chain performance.

Further justification for both the choice and positioning of attributes within the emerging comparative matrix, was through examining the wider descriptions of the national-level attributes given within the individual reports. These were added to the table above, although they have been removed within this report in order to save space. During this process, the number of attributes identified reduced from 28 to 24. These 24 attributes are positioned in the matrix shown within section 5 of this report, as well as being explained / justified in detail through their 'thick description' within section 6 of this report. This includes providing a diagram of the interactions between attributes, as well as drawing out the distinctions between global and local chains.

At this stage, the initial draft of attributes and cell placement was sent to FIRAB for peer review.
Table 2: Coding spreadsheet for nutrition attribute

<table>
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<th>Attribute</th>
<th>Country</th>
<th>Dimension/sphere</th>
<th>Partner description</th>
</tr>
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<tr>
<td>Obesity</td>
<td>Italy</td>
<td>Econ./Policy; Social/Public; Health/Public</td>
<td></td>
</tr>
<tr>
<td>Obesity</td>
<td>UK</td>
<td>Health/Policy</td>
<td></td>
</tr>
<tr>
<td>Healthy diet</td>
<td>Italy</td>
<td>Social/Public; Health/Public; Health/Science; Health/Market</td>
<td></td>
</tr>
<tr>
<td>Healthy food</td>
<td>Italy</td>
<td>Health/Public; Health/Market; Health/Policy; Econ./Public</td>
<td></td>
</tr>
<tr>
<td>Organic</td>
<td>Italy</td>
<td>Health/Public</td>
<td></td>
</tr>
<tr>
<td>Freshness/seasonality</td>
<td>Denmark</td>
<td>Env./Market; Health/Market</td>
<td></td>
</tr>
<tr>
<td>Healthy diets</td>
<td>Belgium</td>
<td>Health/Public; HEA/SCI; HEA/POL</td>
<td></td>
</tr>
<tr>
<td>Nutritional quality</td>
<td>UK</td>
<td>Health/Public</td>
<td></td>
</tr>
<tr>
<td>Sustainable diet</td>
<td>UK</td>
<td>Health/Scientific</td>
<td></td>
</tr>
<tr>
<td>Freshness</td>
<td>NL</td>
<td>Health/Public</td>
<td></td>
</tr>
<tr>
<td>Health risk manageability</td>
<td>NL</td>
<td>Health/Policy (partly nutrition, partly food safety)</td>
<td></td>
</tr>
<tr>
<td>Food quality</td>
<td>Switzerland</td>
<td>Health/Public; Health/Science; Health/Policy</td>
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<tr>
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<td>Social/Market; Economic/Market</td>
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<td>France</td>
<td>Social/Public; Health/Public; Health/Science; Health/Market; Health/Policy</td>
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<td>Diet</td>
<td>Latvia</td>
<td>Health/Policy</td>
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</tr>
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<td>Organic food</td>
<td>Denmark</td>
<td>Health/Scientific</td>
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<tr>
<td>Health</td>
<td>Peru</td>
<td>HEA/PUB;HEA/SCI;HEA/POL</td>
<td></td>
</tr>
<tr>
<td>High value added food</td>
<td>Serbia</td>
<td>ETH/MAR</td>
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<tr>
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<td>Spain</td>
<td>HEA/PUB</td>
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<tr>
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<td>Spain</td>
<td>HEA/SCI</td>
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<tr>
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<td>Serbia</td>
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Sphere/dimension count

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</tbody>
</table>
Running concurrently with the development of the national reports, was a Delphi survey involving experts from across the 12 countries (Task 2.4). The methodological approach taken and the findings from this survey are written up in a separate report (see Appendix 2) and the key findings are reflected upon in the main body of the report in order to deepen and complement the analysis of attributes chosen for the MCPM.

At the end of the report three diagrams are presented which summarise the relationship between national context and identified attributes. This part of the analysis examines the relationship between national discourse and identified attributes. It relates individual attributes to three country groupings, which are identified in Section 3. This process involved three steps. The first step identified attribute linkages in the national reports. The second step related attribute linkages identified within the national reports against the list of 24 attributes. This led to the production of a diagram for each country showing how the 24 attributes were represented according to the report’s national context. The third step was then to relate the 12 individual diagrams to the three country groupings (see Section 3). Three diagrams showing how the attributes relate to each other under the themes identified in the country groupings were produced and are presented in Section 7. This final phase of analysis shows how some dimensions may have more weight than others in certain groupings taking account of the national context.

3 National context

Each country report provides a short commentary on the national food system by way of context. This includes a summary of the structure, ownership patterns and modes of food chain governance, main forms of food retailing, levels of export dependency, distribution of value added and emergent food sector differences/issues. An appreciation of national context is important, because it helps to understand better the attributes identified and some of the reasons for the differences in their interpretation and emphasis, including how global and local food chain performance is viewed and judged. In this section of the report we start by describing the key food system characteristics and issues for each of the 12 countries studied for GLAMUR (taken from the individual national reports), before placing the 12 countries into three groupings based on the nature of the main issues/discourses identified within the reports, including, where relevant, how this influences interpretations of global and local food chain performance.

Appendix 3 describes the key food chain characteristics, issues and / or debates that are identifiable in each of the national reports. This summary description is extended in Appendix 4, with summaries for each country included that reflect specific national context (e.g. geography, economic history or particular discourse) in relation to the wider comparative analysis. The Appendix 4 material thus provides additional national-level detail that will be drawn on here, as well as Section 6, where individual attributes are described in detail, and in Section 7, where discourse and attribute links are drawn.

At a general level, some common themes / issues emerge across the different national contexts. For example, most reports note increased concentration of market power towards the retail end of the food system. National reports also recognise that global and national food systems face multiple external and internal pressures, both now and in the future. For instance, most national reports identify increased debate about the balance between imports and exports and related questions about food system resilience, which include uncertainties about the availability of key resources (e.g.
land and energy). Food safety, hygiene standards, food quality, affordability, the cost of resources, food security and market competitiveness are common issue-based themes. The contribution that agriculture makes to GDP has decreased over time in many of the countries (e.g. the UK; Switzerland); nevertheless, many reports note the significant contribution that food does make to GDP, once the whole food chain is accounted for.

As one would expect, there are notable differences as well. The socio-economic and ecological context in both Peru and Senegal is clearly very different to European countries, such as the UK and The Netherlands. Nevertheless, some countries share a strong emphasis on food export (e.g. The Netherlands, France and Peru), whilst other countries are net importers, or at least have a strong dependence on imports for key commodities (e.g. Senegal, Switzerland). However, as noted above, most countries are increasingly asking questions about food chain self-sufficiency, including countries like The Netherlands which, although on paper is largely self-sufficient, is actually highly dependent on imported inputs (of plant proteins) to produce animal products.

4 Country groupings and national discourses

It is evident from an analysis of the country reports that the national context influences and situates how global and local food chain performance is viewed. This theme will be explained in detail as part of individual attribute descriptions. It is apparent from Appendix 3 and 4 and from reading the national report context descriptions, that countries have similarities on the basis of socio-economic characteristics and/or because of how national discourse situates and frames food system performance. It is possible to cluster the twelve countries into three thematic groups, which are set out below. The purpose of this clustering exercise is to help comparative cross-country analysis, although they should not be viewed as a typology or fixed categorisation. The categories are not exclusive, but instead signify a common issue, tendency and/or dominant framing. They are a first attempt to organise the material geographically and thematically and provide a useful entry point for more detailed analysis of individual attributes. All groups in some way make reference to food security (at a national and/or global level) and relate it to the issue of price volatility in basic commodities. Rather than separate this out as a distinct theme, we prefer to view food security as a more general ‘performance frame’ (cf. Mooney and Hunt, 2009).

The relationship between the country groupings presented here and individual attributes will be examined in Section 7, once the individual attributes have been described. Under the country grouping descriptions that follow, each has a dominant discourse (or official framing), typically influenced by neoliberalism/pro-market ideology, but there are alternative discourses/framings evident too, especially in the final two groupings. The groupings are therefore not exclusive, stable categorisations – rather, each signifies particular and distinctive tendencies.

4.1 Group 1: Socio-economic and structural development

The first grouping includes Senegal, Peru, Latvia and Serbia. The common theme that links all countries in this group is an emphasis on socio-economic and structural development. National socio-economic development is a dominant frame that situates how global and local food chain performance is communicated and judged, although this is not the only discourse and the issues and challenges faced in these countries are in some respects quite different (for details, see the national summaries in Appendix 4).
Structural adjustment reforms and earlier processes of liberalisation and food chain restructuring form an important legacy and context for the Senegalese and Peruvian reports, respectively. In Senegal, the key food chain challenge is to ensure people's food security and to reduce food imports. The country imports significant amounts of its most consumed food products (rice, onions, tomatoes and milk powder) and local supply cannot cover demand. The country faces significant structural problems and is among the least developed countries, with high levels of poverty. Food security is the dominant discourse, with 55% of the population under the poverty line and the country importing 60% of its food needs. The main issue is poverty and the quantity of food. Local and global food chains (for imports or exports) are judged in terms of their ability to provide food for people, as well as to generate incomes for local people and the national economy. Efforts to protect and support local production are challenged not only by the evolution of global markets, but also by current free trade agreements that are in negotiation with the EU. Senegal is also engaged in regional processes to harmonise policies to take advantage of the possibilities offered by the regional African trading blocks. Local and global chains and their actors therefore have a complex and changing local, regional and global scenario to position themselves in and to communicate. Managing availability and affordability of food is a complex issue for the Senegalese government. There is a common discourse about the importance of both local and global chains for local and national economic development. However, ultimately it depends on where the state gets its revenues and who pays taxes and can invest for the future. The government prioritises agri-business and commercial farming as private national and mainly foreign companies can help ensure investments that the government cannot.

In Peru, the ability to make a contribution to the economy and state tax revenues are the main criteria by which to judge food chain performance. The emphasis on economic contribution is thus similar to Senegal. Peru is described as a middle-income and rapidly developing country. Exports not only of minerals, but also agricultural products have been promoted and supported. Incomes have risen and there is a new middle class. The liberalization of the economy in the 1990s changed the role of the state. Since then, governments have sought to create an enabling environment for business competitiveness. Import tariffs on average reduced from 70% in 1988 to 3.2% in 2012. Agri-food exports in general increased by 10% in 2013. The economic contribution of agro-exports is praised, but also contested due to its poor environmental and social performance. Local chains are perceived as more economically and socially sustainable, but many argue that small-scale farming is not viable. Another key factor is the 'gastronomic revolution' in Peru and the growing proliferation of chefs and restaurants demanding and promoting traditional produce. Policy support for food chains, whether local or global, therefore depends on how much money they bring in to the country. Government support for global and/or local chains depends on their contribution to economic growth. However, there are concerns from civil society organisations and academics as to the economic, social and environmental sustainability of this growth model. In addition, despite economic growth, poverty levels and food insecurity are still high. Food security is back on the policy agenda.

The context in Latvia is clearly very different to Senegal and Peru – many of the current problems associated with agriculture relate to the heritage of the Soviet Union. However, the context is similar in the sense that major processes of structural development are evident and the main food chain performance framing and criteria are broadly similar: that is assessing performance in terms of whether it supports social and economic development. After the collapse of Soviet Union, collective farms were de-collectivized and privatized. Access to Western agricultural practices strengthened the view that agriculture should be intensified and that open competition was the best way to improve agricultural practices. At the same time, there has always been a small scale agriculture that
distributes its produce through short food chains. The recent economic crisis has stimulated discussion and a strengthening of short chains. However, the dominant perspective is that of the free market and the need to expand; a neo-liberal ideology. There is a recognition that Latvian food production needs to modernise. Experts claim that production is inefficient and that enterprises need to invest more in research and development in order to improve their competitiveness in export markets. Health issues, questions of ecology and localness are thus interpreted with one key question in mind – will it support faster economic development of the national food market.

In Serbia too, a strong economic development imperative drives how food chain performance is viewed and communicated, with improving market efficiency and applying EU standards the key goals. Some key issues to note include: quality, EU accession, export potential and quality concerns about local food chains. Agriculture is important in terms of helping to ensure rural employment and development, as well as food security and environmental protection. Government regulation of the food chain is crucial in order to improve quality standards and to help ensure EU integration. Serbia is intent on trying to ensure its products are of sufficient quality to be exported; this is the key imperative. The local food chain is regarded as inefficient, with a large number of intermediaries. Producers are poorly organised and there is weak consumer engagement. There is still a large grey/informal market. Local food chain improvement is seen as a precondition to global food chain development and the greater export of local products. Local food chains in Serbia are traditional mainstream chains that need to be modernised to enable the export of high quality and competitive produce. In Serbia, as in the other countries that form this cluster, there is a clear intent then to ‘open up’ and liberalise markets and food chains. As explained below, all 12 countries are underpinned by a neoliberal ideology and market competitiveness frame. However, in this cluster it is set against specific socio-economic and structural challenges.

4.2 Group 2: Territoriality and global competition

The second grouping of countries includes France, Italy and Switzerland (for national summaries of each see Appendix 4). The common theme for this grouping is an emphasis on national tradition, territory, heritage and culture (all of which are encompassed under the attribute of ‘territoriality’) that runs alongside and forms part of a strong globally competitive, market-based neoliberal model. France, for example, is placed in this territoriality group, yet 75% of its food chain is linked to an agro-industrial model. It is the country with the highest level of food exports in Europe (second only to the USA in the World). It clearly has strong links with the third neo-liberal group of countries (see below). However, the distinctive aspect for this group of countries is that territoriality in some way acts as a dominant or at least equal performance frame that situates global and local food chain assessment.

In Italy, for example, national and international agri-food chains are the main focus, but this is complemented by traditional foods and processing methods. Artisanal or artisanal-sounding food products are still commercially relevant and dominant in both Italian's and foreigners’ imaginary. Artisanal food products add to the ‘Made in Italy’ brand, with agro-food a key part of this. Italy is the third largest food and drinks manufacturer in the EU. It contributes 17% to the national GDP. Food is often presented in terms of a national tradition and something that Italians are right to be proud of. The rhetoric is often based on the link between food, territory and culture, with this connection being regarded as a source of identity and social values, but crucially also as a competitive edge for Italian produce in global markets. Two main discourses dominate and polarise
national debate: first, technological innovation for global competition; and second, local sustainability. The basic assumption for the former is that global market competition is a fact, and local and national economies have to compete in this arena through technological innovation and marketing. In this sense, the link with the territory (local varieties, traditional farming systems, local communities and lifestyles) is not neglected: on the contrary it is emphasised as one of the key strengths of the Italian food system, and enrolled in the promotion of local, regional and national brands. In the local sustainability discourse globalisation is not denied, but in this perspective food chains are more socially and ecologically embedded and there is less trust in the capability of technology to provide answers to health and environmental concerns, or to address the concerns of local communities and economies.

Territory and tradition also permeates the food discourse in Switzerland and France, as well as sitting alongside on-going liberalisation of the national food market. In Switzerland, agriculture only accounts for 0.7% of the national GDP, with self-sufficiency only 52.5% and imports high for certain food products (grains and fruits), most of it sourced from the EU (especially Germany, France and Italy). The dairy sector is very important in Switzerland, with the country self-sufficient in milk but with a shortage of domestically produced animal feed grains (soya is the main import from South America). The territorial discourse in Switzerland is about the need to protect local territories. This is concerned with biodiversity and land use planning and the development of regulations to protect landscape, biodiversity and traditional ways to manage land. This runs in parallel with a market-based values discourse, centred on value creation. This includes providing consumers with better quality, which nowadays is oriented towards social or environmental guarantees, such as certified organic production or PDOs. In France, a ‘patrimonial style food model’ is noted, which relies on quality products being differentiated by local know-how and local resources, embodied in the notion of ‘terroir’. This model is closely associated with gastronomy, tourism and French culture, as well as being in opposition to the agro-industrial model, defined by regional specialisation and the internationalisation of products. In France, the terms “global chains” or “local chains” are not commonly used, nor “performance”. All spheres rather speak of filière and circuit instead of chain. In a context of new societal requirements related to economic and sanitary crises, new categories have been emerging in recent years. These alternative systems and short chains (e.g. with 0 to 1 intermediaries between producers and consumers, whatever the distance) are viewed as being between these food models. Territory and tradition thus influences food chain debate in this group of countries, tied also to globalisation processes.

4.3 Group 3: Neoliberalism and food system sustainability

The third grouping of countries includes the UK, The Netherlands, Belgium, Denmark and Spain. The common theme for these five countries is a strong neoliberal discourse and pro free-trade mantra set against increasing food system sustainability challenges and global food security concerns (see also Appendix 4). These framings are not unique to this group of countries. France, as noted above, for example, is the leading agricultural country of the EU and its food system is closely linked with global markets and trade liberalisation. However, for this group of countries, the neoliberal ideology is a dominant frame that influences food chain performance communications, with a notably global outlook.
In the UK report, global food security has a strong presence in national food chain debates. The nature of the response highlights the dominance of the neo-liberal market ideology. For example, there is recognition of the need to improve resilience in domestic supply chains but national food security, it is argued, will be best achieved via an effectively functioning global market for food, in conjunction with the European Single Market. Food security is also largely framed at the global scale (i.e. world hunger), with a 'moral responsibility' to 'feed the world' (a discourse noted too in Italy). Scientific and technological advances promise to increase yields in response to global population expansion, reduce waste in processing, and allow adaptations to be made in the nutritional qualities of foods. This techno-scientific neo-liberal perspective is challenged by opponents who assert that a radical structural, cultural and political re-organisation is necessary to transform the food chain. Key to this is a re-negotiation of value so that externalities are captured within food prices and transparency is renewed.

Although expressed in different ways, this battlefield between neoliberal, market-based discourse and more eco-economy viewpoints is echoed strongly in the Dutch report (and many others too e.g. Italy, France, Switzerland, Belgium). In The Netherlands, the negative externalities associated with agricultural modernisation are leading to societal interest and debate concerning the sustainability of agriculture and so-called 'corporate social responsibility'. Two types of sustainability initiatives are evident: retail and agri-food industry driven initiatives; and farmer/consumer-led initiatives. The Belgian report is largely focused on the area of Flanders, which is the largest of the three regions of the Belgian federation. It explains how the Flemish agri-food sector is focused on supplying the rich, urban North-western part of Europe with both processed and unprocessed high quality products—particularly pork, vegetables, beer and chocolate. The emphasis is on product quality and taste, which is rooted in its Burgundese culture of ‘good food and good life’. There are aspects of territoriality at play here, but the report emphasises the dominance of a strong neo-liberal discourse. This is typified by a production-oriented framework that takes production and economic profit as its point of departure. The neoliberal discourse also has a consumer-orientated framework. In the media the producer framework is represented by farmer organisations and policymakers and the consumer framework is represented by retailers and policymakers. Both perspectives are based on a strong neoliberal ideology. The report also identifies a holistic perspective. The holistic framework is typified by both consumers and producers and other actors, such as NGOs. Actors adopting this perspective criticise the neoliberal discourse and highlight social and environmental concerns in their communications.

Concerns about the sustainability of a resource hungry system are evident in most reports and particularly those countries in this grouping. This theme is repeated in the Danish report, where considerable debate is noted about the sustainability of Danish food chains. This is in terms of environmental sustainability, involving issues such as food miles and impacts on climate, as well as the responsibility for the working conditions of people abroad.

The Spanish report is tricky to position in that economic development challenges are noted (as per grouping 1). Compared with other European countries, agriculture in Spain has evolved differently. The process of agrarian industrialisation in Spain started later (the nineteenth century) and was slower and the industrialisation process was also halted by the Civil War, so there is some structural and economic development lag evident. In Spain, the agro-food industry is the country’s main industry. The Spanish food system accounts for 8% of GDP, 10.3% of employment and 16% of the total exports of the country. Spain is also highly dependent on imports (e.g. feeds for animals and cereals). The report sets out four discourses: a ‘commodity discourse’ (characterized by the use of...
economic variables as measures of food chain performance); a ‘rights-based discourse’ (which focuses on two main stakeholders: the workers employed by the agro-food industry, and consumers); a ‘deep ecology discourse’, which focuses attention on the environmental impact of agricultural practices; and ‘a livelihood discourse’, which focuses on issues related to the exodus of the population from rural areas, the prospects for rural development and the quality of life of farmers (linked to short food chains). This highlights the interplay of issues when assessing food chain performance, but the main tendency is towards the commodity / neoliberal discourse, with a Spanish market that satisfies European and global food demand.
5 Attributes and composite matrix

The final list of 24 attributes selected is as follows:

- Affordability.
- Creation and distribution of added value.
- Contribution to economic development.
- Technological innovation.
- Governance.
- Efficiency.
- Profitability/competitiveness.
- Connection.
- Resilience.
- Food waste.
- Information and communication.
- Food security.
- Consumer behaviour.
- Territoriality.
- Labour relations.
- Resource use.
- Pollution.
- Biodiversity.
- Nutrition.
- Food safety.
- Traceability.
- Animal welfare.
- Responsibility.
- Fair trade.

The attributes have not been ranked. All were identified as important. In the attribute description text an indication of relative priority is highlighted for some where appropriate. Key attributes will also be linked to the country groupings in Section 7, which will provide a further indication of priority in relation to the dominant framing. This is preferable to a general ranking of attributes. The attributes above are instead listed dimension by dimension, as they appear in the multi-criteria matrix, notwithstanding that many of them are in more than one dimension.

The multi-criteria performance matrix (Table 3) is the main output for work-package 2, and is presented below. It plots the 24 attributes in relation to the five dimensions and four spheres. Some general remarks regarding the 24 attributes / multi-criteria performance matrix:

- Attributes for each of the five dimensions are identified in the matrix.
- In most national reports there is a strong orientation towards the economic dimension – this is not surprising bearing in mind the three country groupings discussed above.
• There is a good coverage in the social and environmental dimensions – in particular, national reports pick up issues associated with environmental performance.
• Coverage in the health and ethical dimensions is less pronounced, although we have some consistent attributes covered in most reports (food safety, fair trade, labour).
• Some attributes appear in more than one cell. As part of the analysis effort has been made to limit where attributes are positioned, basing the final decision on the nature of the debate / object of discussion (i.e. using the definition of spheres to do so), but for some attributes multiple cell positioning has been necessary.
• Interaction between spheres is evident, especially science informing public and policy debate (about, for example, food waste, animal welfare, technological innovation) and public debate informing market attributes (e.g. fair trade).
Table 3: Multi-criteria performance matrix and 24 attributes

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<th>Dimension / Sphere</th>
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<th>Social</th>
<th>Environmental</th>
<th>Health</th>
<th>Ethical</th>
</tr>
</thead>
</table>
| Public             | •Affordability  
                   •Creation & distribution of added value  
                   •Contribution to economic development  
                   •Information & communication  
                   •Food security  
                   •Resource use  
                   •Pollution  
                   •Nutrition  
                   •Food safety  
                   •Traceability  
                   •Animal welfare  
                   •Responsibility  
                   •Labour relations  
                   •Fair trade |
| Scientific         | •Contribution to economic development  
                   •Technological innovation  
                   •Governance  
                   •Consumer behaviour  
                   •Territoriality  
                   •Resource use  
                   •Biodiversity  
                   •Efficiency  
                   •Technological innovation  
                   •Food waste  
                   •Nutrition  
                   •Food safety  
                   •Fair Trade  
                   •Animal welfare |
| Market             | •Efficiency  
                   •Profitability / competitiveness  
                   •Connection  
                   •Technological innovation  
                   •Resilience  
                   •Information & communication  
                   •Territoriality  
                   •Connection  
                   •Efficiency  
                   •Traceability  
                   •Food safety  
                   •Fair trade  
                   •Territoriality |
| Policy             | •Creation & distribution of added value  
                   •Contribution to economic development  
                   •Efficiency  
                   •Resilience  
                   •Food waste  
                   •Consumer behaviour  
                   •Labour relations  
                   •Food waste  
                   •Pollution  
                   •Traceability  
                   •Nutrition  
                   •Food safety  
                   •Food security  
                   •Governance |
6 Attribute descriptions

This section of the report provides detailed descriptions for the 24 attributes listed in the multi-criteria performance matrix. Each attribute description starts with a section that describes what the attribute stands for/covers and then explains why the attribute appears where it does in the matrix before drawing out differences in relation to global/local food chains, discourse coalitions/differences, commodity differences and relationships with other attributes. Each entry can thus be read and used in an individual capacity (as a standalone comparative summary), as well as in relation to other attributes. The attribute descriptions are listed in the order that they appear in the matrix (i.e. by dimension).

6.1 Affordability

6.1.1 Description

Affordability is one of the most cited attributes. It is mentioned by 8 countries: Belgium, Italy, The Netherlands, Peru, Senegal, Latvia, the UK and Spain. It is essentially a consumer-oriented perspective, summarised in terms of “accessibility to food by middle and lower income consumers”. Some reports reflect a whole food chain perspective in the sense that “price competitiveness of the supply chain” (Italy) influences the price of food to the final consumer. It is of high priority wherever mentioned.

It is referred to in terms of “the cost of food to the consumer” in the Belgian report. The Italian report describes this attribute as “the price level that the product has for the final consumer” related to various conditions and factors that influence the value chain “‘from farm to fork’, and is often connected to the issue of income distribution along the chain and among citizens.” The Dutch report defines affordability as the “ability to provide food against low/acceptable prices” and the “ability to create willingness to pay”. This is interesting in that it shows the two main dimensions of the attribute: social and economic.

Peru, Senegal and Italy all include ‘availability’ in their definition of affordability. The Senegalese and Peruvian reports categorise availability and affordability as sub-sets of the food security attribute. Both discuss food availability and accessibility in terms of affordability from an economic perspective. For example, “60% of food demand in Senegal is covered by imports” and “55% of the population are under the poverty line”. This context is highly global-market dependent and the resulting asymmetries in power relations are present and influential. In both countries the cost of transport impedes local chain performance thus making them less cost-efficient than their global counterparts who can afford cost efficiencies due to global economies of scale. The Latvian report also discusses affordability in the economic dimension, expressed as product price. The UK report defines affordability as follows: “consumers’ ability to purchase enough food for a healthy diet.”

Affordability thus applies to individuals / households but also to communities and groups (usually those with middle and low income). It is an increasing feature of public debate and relates directly to food security. It is high on the agenda of policymakers because of the need to increase food security, keep labour costs low and avoid social unrest (Belgian report). From a market perspective, affordability is a strong commercial aspect because it answers one primary aspect of consumer expectation.

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Affordability has been discussed under the more general food security theme in many reports, notably Senegal, Belgium, Italy, Latvia and the UK.

6.1.2 Cell justification

The attribute is placed in the Economic/Public cell. A number of country reports position the attribute in this cell and more generally view it as a public sphere / economic dimension issue (see table). With the on-going economic crisis, some countries have witnessed social unrest – for instance the 2008 food riots in Senegal - and in most countries increased public debate about affordable prices for basic food products. There is also a social dimension to this attribute (see table) and enabling affordable food is also a policy sphere priority, as discussed in report commentaries. Affordability is therefore also placed in the Social/Policy cell.

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6.1.3 Global and local food chain issues

Local food products are often perceived as more expensive (Latvia, the UK, Belgium, Senegal) than those provided through global supply chains. The main discussion is about the ability of global food chains to cut costs by, for instance, outsourcing and hence offering affordable prices to consumers. Some reports argue that large scale production and distribution chains are more able to cope with economic risks/shocks, which allows global food chains to offer lower and more stable prices. The Belgian report comments that “Global chains (are) in competition to deliver products at cheapest prices…driven by preferences of consumers”. For Senegal, “quantity, year-round availability and prices are the axes around which chains, local and global, organise [themselves] and policies and development programmes are decided and implemented.” In Senegal global imported products are sold to urbanized middle and working class populations who are after ease of use and taste rather than just price. In Senegal local food chains often answer to the necessities of poorer classes.

The “challenge”, as the UK report puts it, is for local food practitioners to “reach scales and/or ranges of operation so that…local food is perceived as more affordable.” The Italian report brings in an important discussion around price volatility and affordability. The main difference between local food chains (defined as ‘short chains’) and global food chains is related to financial speculation, especially when it concerns commodities such as cereals. The Italian report suggests lower price volatility in local food chains may allow for more affordability. However, high dependency on small scale and less efficient local economies is noted. Global food chains are thus perceived as more efficient and hence better at cutting down costs in order to provide affordable prices to consumers. There still exists the issue of economic and environmental trade-offs - for instance, the production of grain in more suitable climates and regions rather than locally give rise to transport costs. Often in such cases the price / affordability argument wins over the environmental one since cost of energy is relatively low compared to the profitability of the process.
### 6.1.4 Discourse coalitions/differences

Three lines of debate emerge from the national reports. First, the Belgian and Dutch contexts recognise the dilemma of delivering healthy and sustainable diets but at an affordable price for consumers. This first discourse shows how strongly there is a consumer demand for affordable prices. Second, in countries dependent on imports, such as Senegal, two opposing discourses emerge: 1) NGOs and food activists argue about the need to increase small-scale farming in order to maintain food security and sovereignty; 2) import lobbyists want to maintain imports by arguing about the need to maintain price competitiveness, availability and to meet consumer demand. The third line of debate relates to policy choices which have direct influences over the price paid by consumers.

### 6.1.5 Commodity differences

Products such as cereals and livestock are subject to financial speculation and are thus more likely to display price volatility and influence affordability. For example, the price of maize has an important impact on the living costs of Peruvians and the competitiveness of their poultry industry; maize price rises increase inflation as higher costs are subsequently transferred to the price of chicken and eggs. In Peru, the chicken price has become an inflation indicator, which consumers and the government follow closely as chicken is the most consumed meat in the country. In countries such as Peru and Serbia, where the policy discourse is market-driven and export-orientated, there is a direct impact on affordability when certain food commodity prices rise.

### 6.1.6 Relationship with other attributes

The ‘affordability’ attribute relates strongly to ‘consumer behaviour’. Viewed from a market-oriented perspective, it also links to ‘food security’ and ‘profitability/competitiveness’. In addition, it links to ‘responsibility’, in terms of enabling access to affordable food for nation states.
6.2 Creation and distribution of added value

6.2.1 Description

While the actual term ‘creation and distribution of added value’ only occurs in the report of the Netherlands, it encompasses the underlying significance of a range of other terms used in different reports. These include: ‘producers income’ in Italy, ‘value creation’ and ‘value distribution’ in Switzerland, ‘fair distribution of costs and benefits’ in Belgium, ‘farmers' income’, ‘value creation’ and ‘value distribution of farmers’, ‘cost (inequality)’, ‘market share’, ‘value added’, ‘distribution of profits’ and ‘living of farmers’, all of which are reported in the Spanish report.

This attribute is concerned with looking at both how value is created, but also how it is distributed within the FSC. There are clear linkages here with the notion of fairness and equity, but the focus here is slightly different.

In the Swiss report, the capacity to create added value within FSC is recognised to be a big challenge, but also critical to their economic performance. This includes the importance of establishing a fair sales price which can encompass both production costs as well as signal to the consumer the underlying quality of the products involved (the Spanish report also highlights the importance of ‘cost’ as a way of raising consumer awareness about the equality and fairness of the product they are buying). Added value is also recognised as crucial to the dynamics of FSC in the Netherlands. In this case, globalised FSC are recognised to create relatively large amounts of added value (at least when evaluated in purely economic terms), but that at the same time primary producers find it increasingly difficult to get a significant share of the overall added value. In the Belgium report, the ‘fair distribution of costs and benefits’ is also one of the most highly rated attributes when seeking to evaluate the performance of FSC. Costs and benefits are recognised as being created at all stages of the FSC, but that these are not necessarily fairly distributed amongst those involved.

The Italian report is concerned with how producers’ incomes are related to local communities and local production systems, and the need to help ensure a suitable return for producers in order to help protect local economies. Clearly there are linkages here with the attribute of ‘contribution to economic development’. The Spanish report also stresses the importance of ensuring competitiveness within FSC, which in part necessitates that farmers have an income that allows them to have a reasonable standard of living and contribute to the areas in which they farm.

In the Dutch report, as well as in a number of others (e.g. Swiss, Spanish, Belgian), the dominant position of retailers in the overall governance of FSC is highlighted as being a key factor in determining the distribution of added value within FSC. In many cases, just a few companies dominate more than 60% of the sales within FSC. This is seen as working against both competition and growth, with a need to balance power relations within the FSC (this is clearly linked with the attribute ‘governance’). The Spanish report highlights that the distribution of value added a long food chain is highly unequal, with the prices being paid for food by the consumer being up to 10 times higher than those at the farm gate. This imbalance in the distribution of profits is seen as a major issue in FSC, particularly in relation to the distribution of costs which are seen in a number of reports as being disproportionately levied by the production end of the FSC.
6.2.2 Cell justification
It is apparent from the table below that this attribute could be considered within a number of different cells within the matrix. There is certainly a social dimension to it in terms of ensuring that farmers, for example, receive a reasonable standard of living. On the same basis, there is also clearly an ethical dimension to the creation and distribution of added value, in ensuring that the costs and benefits of a FSC are fairly distributed. However, the underlying dynamic of this attribute is economic in nature. It is also predominantly discussed within the public and policy spheres, hence the positioning of this attribute in two separate cells: Economic / Public and Economic / Policy. To some extent the ethical and social elements of this attribute are covered under the 'fair trade' attribute.

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6.2.3 Global and local food chain issues
In the Belgium report, the creation and distribution of added value is recognised to be a particular problem for farmers in global chains, especially those in the pork, horticultural and dairy sectors, where they have to compete against producers who have lower production costs due mainly to less stringent regulations. In contrast, it is perceived to be easier to ensure costs and benefits are distributed in a fairer way in local food supply chains, in that there is more likely to be a direct relationship between producers and consumers, often based on a sense of trust and solidarity.

6.2.4 Discourse coalitions/differences
Distinctions between global and local FSC are made within the Italian report, where in one framing producers’ incomes are seen to be guaranteed in local food chains through social values such as civic engagement and attention to localness. On the other hand, adequate income levels are seen to be achievable through free-market competition based on productivity and competitiveness, rather than any link with specific geographical boundaries. The Belgium report also has two very distinctive perspectives on this attribute. The first is a discourse put forward by farmer unions and academic experts, who argue that costs and benefits are not distributed fairly among actors in the chain. The alternative perspective, however, is that the fault lies with the farmers themselves in that they have become so specialised that they are no longer able to adapt their production processes to market demands.

This distinction between competition based around a commodity and the need to ensure a fairer distribution of costs is also made in the Spanish report. In relation to commodities, the agricultural sector can be analysed in relation to its contribution to GDP and its ability to be productive in an economic sense. On the other hand, there is a need to recognise inequalities within the FSC, which to a considerable extent are based on asymmetrical power relations to the detriment of a fair distribution of both costs and benefits.
6.2.5 Commodity differences
There are no particular commodity differences across the reports, although the globally-oriented sectors in both the Netherlands and Belgium are singled out. These include the pork, dairy and glasshouse sectors.

6.2.6 Relationship with other attributes
This attribute is one of the three inter-related economic attributes and therefore has strong links with ‘profitability/competitiveness’ and ‘contribution to economic development’. It also has links with ‘governance’, ‘responsibility’, ‘labour relations’ and ‘fair trade’. 
6.3 Contribution to economic development

6.3.1 Description
The term 'contribution to economic development' does not directly occur in any of the reports. However, it does cover a range of different terms that are used across the reports. The Swiss report talks about 'rural development', the Senegal report about 'contribution to national economy' and 'employment income/revenue', the Netherlands report discusses 'inter-linkages with the wider regional rural economy', the French has 'employment', Latvia has 'economic development', 'embeddedness' and 'export', Italy has 'national interest', Belgium has 'support of local economy', Spain has 'employment', 'GDP', 'contribution to GDP', 'rural development' and 'demographics', Serbia has 'multifunctionality' and 'rural development', while Peru has 'contribution to national and local economies'.

This is clearly a wide-ranging attribute, but is essentially about understanding the contribution that FSC can make to economic development at a national, regional and local level. The geographical focus of this attribute varies considerably between the different countries.

This attribute is of particular importance in the Senegal report, where employment and in particular youth employment are seen as crucial within both Senegal and Africa more broadly. Although farming is perceived as no longer being able to provide enough income for rural households on its own, it does provide one important strand in many people's incomes. This income is being threatened by a growth in trade in food products, prompted by pressures from both the WTO and EU. The result is a significant tension between the pressures to engage in the global trade in food and the ability to develop employment opportunities in Senegal. As such, local and global food chains are at the heart of national debate in Senegal in terms of their role in the economic growth and social development of the country. In tandem with the debate about FSCs contribution to the national economy, there are also concerns to develop local FSC in order to help ensure localised income and employment as well as protect against the vagaries of the global market. In trying to bring these two different strands together, the government has been looking at products that may contribute both to the local and national economy, such as sesame. However, local chains are often not well structured or managed and lack suitable investment. The Netherlands report also questions the logistical efficiency of small-scale regional produce initiatives, suggesting that in order to improve their economic significance they need to make better linkages with large-scale distribution systems.

The contribution of FSC to economic development is also strongly made within the Latvian report. Food processing in Latvia is the second largest industrial processing sector and therefore critically important to its economy. The predominant emphasis is on creating larger enterprises that can compete in global food systems, although at the same time certain people also have a strong ideological commitment to support short food supply chains. Nevertheless, the main drive is to increase the economic contribution that FSC can make to the Latvian economy. In this respect, FSCs are also seen as important contributors to Latvia’s exports and consequently to the economic strength of the country overall. The Italian report also recognises the important role that FSC can make to the national interest through exports and the wider economic benefit of the country. In this sense it is about improving the balance of payments, as well as replacing imported food. The Spanish report also talks about the contribution that the agricultural sector can make to the GDP and in particular its capacity to increase its value added. Significantly, the agricultural sector is the second largest in...
terms of regional GDP. As a result, increasing the contribution of FSC to GDP is an important policy priority.

Employment has already been mentioned in relation to the Senegal report, but is also highlighted within the Spanish report, with high employment seen as being a positive factor in terms of stimulating economic growth. In policy terms, food chains and their ability to create employment are seen as important in supporting rural development, which is seen as critical due to demographic trends that threaten the very existence of the local agricultural sector in certain areas of Spain. The ability of FSC to create employment opportunities in rural areas is also seen as critical within the Serbian report, in that agriculture is still the predominant activity and major economic contributor in many rural areas of Serbia. In this respect, local FSC are highlighted in relation to economic development at both a local and national level, as well as contributing to social cohesion. The ability of FSC to contribute to both national and local economies in terms of income, employment and social cohesion are also issues that are raised within the Peruvian report.

### 6.3.2 Cell justification

Within the individual reports, the contribution that FSC can make to economic development had been placed in a number of both spheres and dimensions. The table below suggests a fairly even split between the social and the economic dimension, and between the scientific and policy spheres. While there is certainly a good case for placing this attribute under the social dimension, the underlying message from the reports is that the primary focus is on economic development, albeit with important social consequences as a result of that economic development. In other words, the economic is enabling the social. As such, this attribute has been placed within the Economic / Public, the Economic / Policy and the Economic / Scientific dimensions.

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### 6.3.3 Global and local food chain issues

Both local and global FSC are highlighted as having a contribution to make to economic development. However, it is apparent that in purely economic terms global food supply chains are seen as having the capacity to make a more significant contribution. The role of local food supply chains is important in terms of safeguarding local capacity and potentially adding value, but at the same time there is a recognition that they tend to lack logistical efficiency and capital investment. A number of the reports stressed the importance of exports and access to the global market, which global FSC are seen as better able to access, notwithstanding the potential of certain high-quality FSC that have their origins at a local level.

### 6.3.4 Discourse coalitions/differences

While there are no particular discourse coalitions, it is clear that under this attribute there is an emphasis on 'quantity' in terms of economic development. In other words, the more money a FSC can generate, the better.
6.3.5 **Commodity differences**
No particular commodity differences were highlighted, although it is clear from the reports that in certain cases, such as the Belgian report, the pork supply chain is particularly important in relation to global FSC. In the Peruvian report, fruits and vegetables are commodities which have a high export orientation. In the Senegalese report, the debate is about protection from food imports (rice, onions, milk and poultry) and the promotion of local food production, transformation and consumption (fresh fruit and vegetables, local cereals).

6.3.6 **Relationship with other attributes**
This attribute is one of three inter-related economic attributes and thus links strongly with 'profitability/competitiveness' and 'creation and distribution of added value'. 'Efficiency' is another related attribute, in terms of further distinguishing between the contribution that global and local food chains make to economic development. The attribute also links with 'governance', 'responsibility' and 'fair trade'.
6.4 Technological Innovation

6.4.1 Description

Innovation has been discussed in six national reports: the UK, Denmark, Latvia, the Netherlands, Spain and Serbia. Technological innovation and the contribution it can make to food chain performance is also evident in the Italian report, expressed in terms of how it might impact other attributes (e.g. competitiveness, ecological efficiency). Attributes such as GMO (Latvia and Serbia), the high-tech redesign of health claims (The Netherlands) and sustainable intensification (the UK) each in their descriptions have a close reference to ‘technological innovation’.

In Serbia the debate around GM technology relates to the competitiveness of national markets and the report notes that the “Law on Genetically Modified Organisms bans the commercial growing of GMOs and the placement on the market of GMOs and GM products”. In the Latvian report, the debate on technological innovation also revolves mainly around the issue of GM technology, which is depicted by the public sector and NGOs as having negative effects on health and the environment.

The UK report has two attributes which fall under this description: 1) technological innovation, defined as the “applications of advancements in scientific knowledge”, and 2) “sustainable intensification”, which is described as innovating “to optimize agricultural output (produce more food) within the ecological limits of the planet.”

This attribute is said to be of high priority in some national reports. For instance, in the UK, it is closely related to food security and high on the policy agenda under the name ‘sustainable intensification’.

Technological innovation as an attribute represents the applications of advancements in scientific knowledge in farming, food manufacturing and transportation, which are or could significantly affect food chain performance. There are two main aspects in which innovation serves the food chain: 1) food quality (enhancing health standards and thus safety) (The Netherlands), and / or 2) food production processes (for example, reducing waste and increasing efficiency by reducing costs). Technological innovation can be very positive (e.g. increase eco-efficiency in the food chain) or it may be linked to high risks (e.g. GMO impacts, use of nanotechnologies). Such innovations thus need to be understood and evaluated in terms of potential benefits and/or harmful effects rather than the relative degree of uptake within a chain, including also their effects on other attributes, such as food security and efficiency (see below).

6.4.2 Cell justification

The debate around technological innovation exists in two main dimensions (economic and environment) and two spheres (market and scientific). Depending on the context, the position of this attribute may vary. In an economic context, for instance, following insights from the Serbian report, technological innovations such as GMOs form a critical issue of competitiveness of local produce on the international market. In this particular case, the inconsistencies between national and international policies do not make the market field a level playing field for different actors (cf. Delphi results).

Placed in the Economic/Market cell, technological innovation is believed to serve the purpose of economic efficiency and productivity but it also relates to controlling safety standards. It thus forms a strong argument in terms of marketing. However, it is also an issue of competitiveness, especially
where international and national policies are not consistent. Technological innovations are a commodity on the international market with asymmetrical accessibility (Serbian report). This attribute has also its place in the Environmental/Scientific cell since reports have pointed out the strong presence in the scientific literature about the usefulness (or not) of technology in addressing environmental issues, including adaptation and/or mitigation. Lastly, this attribute has been placed in the Economic/Scientific cell since the underlying aim is to reduce costs and increase economic efficiency and profitability hence competitiveness.

For this attribute the statistics do not reflect the final positioning of the attribute. We have used the qualitative comments in the report, summarized above, to guide final cell placement.

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#### 6.4.3 Global and local food chain issues

Technological innovation as an attribute can be viewed from two different perspectives in terms of global/local dynamics: firstly, answering food security and maintaining ecological resilience; and secondly, ensuring competitiveness of businesses/markets. As the UK report comments:

“Global debates tend to be connected with issues of increased demand for food in an uncertain climate future […] Some sources suggest that there is an absence of technological innovation in small-scale local chains, and that innovation is more likely to be social or entrepreneurial […] Large retailers who wish to embrace local food supplies will need to support local suppliers in adopting high-tech sourcing procedures designed to ensure traceability and quality controls…”.

Technological innovation at the global scale is especially linked to GMOs (as noted in the UK, Serbian and Latvian reports). Even if, as the UK report notes, this “attribute appears in the context of extending yields to tackle hunger and to meet growing food demand”, activists, as noted in Latvia and Serbia for instance, are proposing alternative solutions to food security. For example, “groups supporting anti-GMO policies in their other activities are working on shortening of food chains as well” (Latvia).

#### 6.4.4 Discourse coalitions/differences

It is evident from the reports (and the wider Delphi study) that there exist two main standpoints related to this attribute and the views are oppositional to one another. The first viewpoint is an industrial production and large-scale market perspective, which sees technological innovation as the way forward in ensuring food security (the UK) and ecological resilience while maintaining the competitiveness of businesses (Spain). The second viewpoint is more nuanced and questions the extent of applications of such innovations not only from an ethical and health perspective, as illustrated in the discussions around GM technologies in supply chains in Latvia, Serbia, the UK and The Netherlands (as well as the Delphi study), but also in relation to its efficacy in answering “inherent structural and cultural challenges in the mainstream food industry, such as unsustainable consumption,
underfunding of R&D [...] and the narrow range of food business models..." (extract from the UK report).

6.4.5 Commodity differences
The attribute applies to all food commodities.

6.4.6 Relationship with other attributes
This attribute links closely to the environmental and socio-economic attributes. ‘Technological innovation’ may build ecological ‘efficiency’ for effective ‘resource use’ and ‘food waste’ management, but it also influences ‘profitability/competitiveness’ through economic ‘efficiency’. The technocratic discourses evident in some of the national reports put forward technological innovation as a solution to ‘food security’. To some extent, as mentioned in the Dutch report, the attribute ‘nutrition’, in terms of its food quality aspects, also ties in here.
6.5 Governance

6.5.1 Description

Some aspect of ‘governance’ is mentioned in most national reports although only the French report uses this term as an attribute label. The attribute covers a broad range of issues. The governance issues covered in the national reports are as follows: France (governance (food democracy), autonomy and justice); The Netherlands (loci of control, self-governance capacity and Corporate Social Responsibility); Denmark (system regulation); the UK (power distribution); Latvia (control); Italy (food activism); Serbia (food chain structure, government regulation) and Spain (negotiation power, farmer perception, concentration of power and participation). The Peruvian report discusses the impact of export-driven policies on national food security.

There are clearly lots of issues to take account of here. It is difficult to provide a concise definition / description of what we mean by governance. Nevertheless, two aspects stand out as significant for GLAMUR. First, there is something about regulation and governance structure. Essentially this is about food policy and how food systems are regulated and decisions made. There is reference to different levels of governance (from the global and supra-regional to the local) but there is a particular emphasis on the state. These issues are picked up particularly in the Danish, Dutch, UK, Serbian and Latvian reports. The Danish report describes, for example, how system regulation deals with issues like fair trade labelling, production methods and traceability. It makes the point that regulation influences how food chains are required to perform, including, for instance, new regulation to limit food waste. In the UK and The Netherlands the backstory is about private or self-regulation of national food systems. The Dutch report refers to ‘self-governance capacity’ and the idea and expectation that ‘food chains sustain themselves as much as possible by self-governance’ noting too that it has become ‘increasingly common that private food chain actors try to come to agreements with societal movements…about how to improve their sustainability performances’. Multi-level governance is another aspect evident in these reports. The issues regarding food chain governance structure and the relationship with the state are also very important in Latvia and Serbia, but the relationship is a different one due their particular contexts and histories. In Latvia there appears to be a sensitive debate about the appropriate level of state control. In Serbia, where accession to the EU frames a lot of food chain performance discussions, state regulation is viewed as important to improve and establish standards in line with international market needs.

Second, there is something about power and democracy. Some of this links to the theme noted above about the state’s role in food governance, in that there is a debate about who has influence over food systems and policy. Is it the state, for example? This opens up wider questions about how the power balance can influence democracy and accountability when it comes to food chain performance. A number of the reports (France, Italy, the UK, The Netherlands, Spain) make strong reference to power distribution and democracy. The French report refers to food democracy as a growing issue, for example, with concern about citizen participation in decisions about food systems. The report also uses the word ‘autonomy’, which seems to be about ways to be autonomous or independent from public subsidies, especially the CAP. A common view across the reports in relation to this aspect of food chain governance is the idea that the balance of power is currently unequal, in favour of a few large/powerful actors. This is nothing new but set against that is a strong call for farmer/producers and consumers to claw back some of the control and to build more equitable food markets. The Dutch report thus refers to ‘loci of control in chain governance’, which refers to a
growing dissatisfaction among producers and consumers ‘about their highly limited influence of food chain governance’. Interestingly, the Dutch report also refers to ‘consumer freedom of choice’ as a central and mostly unquestioned feature of food chains, which implies that the consumer is the one that ‘decides and is capable to justify his or her behaviour’. The power of the consumer is also noted in the Spanish report with respect to final demand. This view contrasts somewhat with the ‘choice editing’ arguments now made in the UK – i.e. state/private sector should limit choice.

6.5.2 Cell justification
We have positioned this attribute in the Ethical/Policy and Economic/Scientific cells. The attribute is mainly used in the reports to describe functions (or lack of) in the policy sphere, so its inclusion in the policy sphere is justifiable; questions of governance also feature strongly in the scientific sphere - including critiques of food chain governance. The value and accountability of these processes emerge too in public dialogue, usually at times of crisis / system failure. Given the emphasis on issues related to democracy / social justice and supply chain power we have included governance as part of both the ethical and economic dimensions, although it clearly features in the social dimension as well (see table).

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6.5.3 Global and local food chain issues
What is clear from reading the national reports is that governance can significantly influence the performance of all food chain types, regardless of geographical reach. Some reports make this point. There are some comments that relate to global or local chains. In relation to power dynamics, the much reported argument that global chains tend to be managed by fewer/larger firms is noted (France) and that local chains rebalance producer-retailer power distribution (the UK); the idea the local chains promote or enable autonomy is also mentioned. Food activism work in Italy often takes expression via and is linked to local/short chains, with reference to ‘critical consumption’, ‘ecological citizenship’ and grassroots initiatives. These comments are well made but pretty well-known. A more pro-market view emerges in Serbia, where it is suggested differences between global and local become evident when governance arrangements are discussed – essentially the view is that there is a mismatch of production standards and local chains lack sufficient standards. The accession perspective in Serbia is that all chains need to reach equal standards with a view to export. This is an interesting perspective on local food chains and governance.

6.5.4 Discourse coalitions/differences
Some reports make interesting remarks about discourse alliances. The Dutch report refers to alliances between the food chain and social movements. The Italian report refers to alliances between short chains and social justice groups. It is evident in some countries that there is a need for new stakeholder alliances to form to respond to external pressures on the system. This new type of multi-level governance is evident in the UK, for example.
6.5.5 Commodity differences
Commodity specific comments are limited in most reports for the governance attribute. The Italian report notes that fruit and vegetables are often the central focus for activism and short chain debate. In countries in the first grouping (Peru, Senegal, Latvia, Serbia), commodity differences arise mainly in terms of what is exported / imported. In these countries, national policy is driven by improving competitiveness in international and to a lesser extent domestic markets. For instance, in Serbia there is a general emphasis on the governance of primary production, milk, fruit and maize for export.

6.5.6 Relationship with other attributes
This attribute links with a number of other attributes. Through regulation and structural issues, it links closely with ‘traceability’ and ‘food safety’. Approached through the lens of power and democracy, ‘governance’ is also a matter of ‘responsibility’, since it brings to light the need for ‘fair trade’ and equity in the ‘creation and distribution of added value’. In this vein, it links too with enabling ‘food security’ at different scales. ‘Governance’ also influences and is influenced by ‘consumer behaviour’.
6.6 Efficiency

6.6.1 Description
Efficiency is mentioned as an important attribute in the following national reports: Latvia (economic efficiency); Senegal (ecological efficiency/landscape/well-being and ecological efficiency); The Netherlands (ecological efficiency); Switzerland (eco-efficiency); the UK (efficiency); Spain (productivity and efficiency); and Belgium (productivity). Efficiency is defined generally in the UK report as ‘a relative, measureable, quantitative ratio between inputs and outputs’. Efficiency is an important attribute, with links to other attributes and interesting discourse coalitions emerging in some countries. As is clear from the attribute labels listed above and their accompanying descriptions there are two aspects to the efficiency attribute: economic efficiency and ecological efficiency.

In more detail, economic efficiency is used here as a label to bunch a set of economic arguments about food chains that are common across some national reports. The Latvian report, for example, uses the economic efficiency label and interprets it in relation to improved competitiveness and revenue gains. The Spanish report has efficiency as an attribute. The Belgian and Spanish reports both use productivity as an attribute. As the former puts it, “many actors in Flanders in the market, policy and scientific sphere perceive productivity as a very important issue when evaluating the performance of food systems”. In Belgium productivity applies especially to the farm level – i.e., farmers maximising productivity to be profitable. Productivity is thus one important aspect of economic efficiency. Productivity alone is not a sufficient measure of efficiency, given the need to account for input/output relations. There are also links with other economic attributes e.g., cost, price, profit, distribution of value added, profitability, competitiveness.

For most reports that deal with efficiency it is increasingly framed in ecological terms and viewed as an important aspect of environmental performance. Efficiency then is “not simply a measure of the ratio between economic cost and profit” (UK report). This is partly explained by rising costs/scarcity of key inputs like energy and fertilisers, but it is linked too to the need to improve emission and energy performances, improve waste systems and ecological footprint, etc. The Dutch report views ecological efficiency as “prominently present as well as [a] complex attribute in Dutch debate about food chain performance”. The Senegalese report links it to growing public and policy concern to adapt to climate change, as well as public debate about urban expansion. This is a good example then of how external pressures are forcing a revaluation of common food performance attributes. This attribute also interacts with other attributes e.g. GHG emissions, animal welfare, biodiversity, pollution.

6.6.2 Cell justification
The efficiency attribute appears in four separate cells in the composite matrix. This is necessary to reflect its relevance as an economic and environmental performance attribute (see description above). For economic efficiency it appears in Economic/Market and Economic/Policy. Although some reports viewed efficiency as a public sphere (common good issue) report comments suggest it is clearly a commodity-based discourse and thus needs to be in the market sphere, with relevance too for the policy sphere in terms of broader competitiveness as well as links to issues about subsidy dependence, etc.
For ecological efficiency, Environment/Market is important to reflect increased food industry discussion evident in many of the reports, captured especially through growing emphasis on LCA, for e.g. Ecological efficiency is also a feature of the Environment/Scientific cell, with countries reporting work at universities and research centres to improve and better measure environmental performance of food systems.

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6.6.3 Global and local food chain issues

Some comments about global and local food chains are made. With reference to economic efficiency, the Latvian report makes some interesting comments about local chains. The message from experts in the market sphere is that local food chains are inefficient – there is a view that to be efficient local producers need to enter international/global markets. The report also comments that what efficiency means differs in global and local chains: thus, “in global (chains) it is (the) ability to compete and be profitable. Yet in local (chains) it is often not about profits but about being able to survive without help from (the) outside, (about) being self-sufficient”. There is a social/welfare and economic aspect to local chains. The Belgian analysis of productivity echoes this – for global chains productivity is key to compete in the market but for local chains the emphasis is on maintaining business viability, although the report notes productivity is an increasingly important aspect that local food systems must account for. For ecological efficiency global/local comments centre mostly around providing a more circumspect assessment of local equals environmentally better. In the Dutch case, for example, there is much debate about the logistical efficiency of small scale regional local food initiatives and inter-linkage dependency on larger-scale distribution systems.

6.6.4 Discourse coalitions/differences

It is evident from reading some national reports that ideological perspective influences how efficiency is viewed and framed. This is evident in the Belgian report with regard economic efficiency (productivity) and the Dutch report with regard environmental efficiency. The Belgian report thus sets out a main frame, which is linked to a market-based view of productivity and macro-level view of the world that argues for the need to develop ‘highly productive systems to feed an ever-growing world population with increasing urbanization and increasing comfort requirements. Scientists / policy-makers and food chain actors that adopt this market view are contrasted with an alternative agricultural economic ontology, which as they put it: “takes into account the carrying capacity of the territory in which it exists and not an agriculture that focuses only on maximising efficiency, productivity and profitability”. In this alternative framework productivity is important but not as important as socio-ecological issues such as fairness and sustainability. Productivity (as an element of efficiency) and contributor to ‘feeding the world’ is viewed in terms of reducing food losses, reducing meat consumption, using agro-ecological systems and so on. This is a very helpful observation. The Dutch report makes some similar points regarding ecological efficiency, contrasting those who have a strong belief in technological progress who promote it in terms of input/output relations (Life Cycle Assessment) with those who frame it in terms of ecosystems carrying capacity. As they put it, “both approaches reflect completely different views on how to improve the ecological performances of food production systems”. 

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6.6.5 Commodity differences
The reports don’t make much comment about sector differences. The Belgian reports notes that no sector differences were found in relation to productivity – the report emphasises instead that these questions are often focused at a plant/farm-level and less focus on the system level unless framed as part of a broader discourse about global food security. Efficiency in Latvia is also viewed as a cross-sector issue.

6.6.6 Relationship with other attributes
The economic strand of this attribute links directly with the following attributes: ‘profitability/competitiveness’ and ‘technological innovation’. The ecological strand meanwhile relates to ‘resource use’, ‘biodiversity’, ‘pollution’ (management) and ‘animal welfare’.
6.7 Profitability/Competitiveness

6.7.1 Description
This attribute is fundamental to assessing economic performance of any food supply chain and its importance is evident in all the national reports, as well as the Delphi report. This attribute describes the ability of the supply chain to make profit and be competitive in the market. It is mentioned as profitability and/or competitiveness in the following national reports: France, Belgium, Latvia, Denmark, the UK, The Netherlands, Spain, and Serbia. This is an overarching attribute which can be viewed as addressing two aspects of competitiveness and profitability from an economic perspective: first, economic capital defined in relation to “price” (Denmark, Spain), “price stability” (Belgium), “access to finance” (Spain) “cost (production factors)” (Spain), “company size” (Spain), “access to market” (Spain) and “standardization” (Serbia); and second, human capital, defined in terms of “knowledge and skills” (Latvia), “skilled workers” and “labour availability” (Spain) and “labour quality” (Netherlands), the latter of which are necessary to enable competitiveness. A link to social capital can also be drawn, which we will explain below.

The economic capital strand of this attribute links to all economic factors which enhance and influence the profit-making and competitiveness of food chains. There are three main types of factors: 1) producer-focused; 2) consumer-focused and 3) policy-focused. Several factors are producer-focused – i.e. they look at the food chain and competitiveness issues from a producer perspective, including costs (production, distribution, transport), price stability, scale and access to finance investment. The consumer-focused economic factors which influence chain performance are mainly price of products for consumers. Economic policies also have strong influence on the competitiveness of businesses especially at the global level.

The human capital strand of this attribute links to all those factors related to the stock of competencies and knowledge, including cognitive abilities, which constitutes the ability to perform labour so as to produce economic value and thus enhance and influence the profit-making and competitiveness of food chains. The attributes “knowledge and skills” (Latvia), “skilled workers” (Spain) and “labour quality” (Netherlands) underline the necessary recognition of the work of actors - farmers especially - on the food chains, as well as the need to promote and maintain the well-being and welfare of workers for economic efficiency. Lack of labour is also a barrier to business development and maintenance. For example, in Spain, the “increasing exodus of workers” from rural to urban areas is imposing high pressure on rural development. Although the Peruvian report does not identify an attribute as such, increasing labour scarcity is an issue in agriculture in relation to competitiveness and profitability impacts.

The social capital strand of this attribute links to the stock of networking and relations which are available to the food chain actors to enhance and influence the profit-making and competitiveness of food chains. Analysis of the Spanish report in particular reveals the close link between access to markets and ‘negotiation power’, or as the report puts it: “actors’ ability to influence and enter the market, within the context of economic analysis – that is, in determining prices, marketing strategies, product offer”. This ability to enter and influence markets is a key social capital aspect of competitiveness and business profitability and it applies at all levels of the food chain, most notably the distribution level.
The diagram below depicts that classification of the attributes identified nation-wise into the three strands of the profitability/competitiveness attribute.

6.7.2 Cell justification
The overall statistics deduced from national reports show that the issues under this attribute have been mentioned 16 times in the market sphere and 29 times in an economic perspective. The description above supports these figures and justifies why this attribute belongs in the Economic/Market cell.

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6.7.3 Global and local food chain issues
Competitiveness is an indicator of the negotiation power of an entity. Global actors - import and export chains for instance - often engage in large scale and diversified trade and therefore have the ability to better cope with risks, such as price volatility, than local small-scale food chain actors.

6.7.4 Discourse coalitions/differences
When it comes to competitiveness and profitability there are two perspectives at play. The first is mostly interested in the economic viability (efficiency and productivity) of entities along the food chain. The second is interested in delivering multiple (economic, social and environmental) outputs and is to a lesser extent interested solely in profit-making and competitiveness.

As noted in the Serbian and Peruvian reports, tensions exist with regard to the discrepancy between the competitiveness of the national economy and the affordability of basic produce. Quinoa, for example, a once widely available traditional product has now become rare and expensive on the
domestic Peruvian market. Public and scientific sphere actors argue that increasing GDP as a result of increasing exports does not necessarily imply better income levels for local producers.

6.7.5 Commodity differences
This attribute concerns all food commodities. For countries in the first country grouping, debate related to this attribute is linked to a wider discussion about national food security (in Peru, debate about quinoa as an export product and maize as an import product, for example). See the national summaries in Appendix 4 for detail, especially Peru and Serbia.

6.7.6 Relationship with other attributes
For the ‘profitability/competitiveness’ attribute, the links differ slightly depending on the general discourse prevailing in the national context. For those countries in the first grouping, this attribute is closely related to ‘governance’ and the ‘contribution to economic development’ attributes. As noted in most national reports, it is also influenced by ‘labour relations’, ‘efficiency’, ‘technological innovation’ and ‘creation and distribution of added value’.
6.8 Connection

6.8.1 Description

In discussions about the attribute of 'connection', the notions of cooperation and relationships were also considered. However, it was decided that the notion of connection encompasses a range of related attributes that are highlighted within the national reports. The Latvian report talks about 'cooperation', the Swiss report about 'social capital', the French report discusses 'networks' from a variety of perspectives, the UK report has 'connectivity', the Netherlands 'rural cohesion', Denmark 'nearness', and Spain has 'social relations' and 'proximity'. Reference in the Italian report to 'food activism' also links to connection in terms of information and communication. Inherent within these different terms are economic, social and informational perspectives.

Connection within the Latvian, Serbian, Peruvian and Senegalese reports relates to how small-scale farmers and processors can improve their competitiveness by cooperating together and seeing each other as potential collaborators rather than competitors. These reports identify the importance of cooperation between different actors in food chains as a future solution to improve the competitiveness of both large and small players. Contract farming is mentioned as one example where this might be possible. Meanwhile, in the UK report, connection within local FSC is seen as providing the opportunity for enhancing the quality profile of particular products, through linking them to the places and ways in which they were produced. The Danish concept of 'nearness' is also concerned with making more direct connections between nature, farmers, production and the final consumers; notwithstanding that many of the larger scale retail chains are also now using the notion of nearness or connection as a branding tool for marketing purposes. In these cases, connection is being used as a way of demonstrating that the products involved are qualitatively different from products that come from anonymous and disconnected global FSC. In so doing, they gain some kind of market advantage. Similarly, the notion of 'proximity' within the Spanish report is also intent on demonstrating the economic benefits of allowing for connections to be made to the locality of production and to inform consumers about the benefits of local products and local markets.

The notion of 'networks' within the French report also makes reference to improving connections between firms through cooperation. However, it goes beyond this to include cooperation between consumers (e.g. through setting up buying groups), as well as between producers and consumers (e.g. through box schemes). More philosophically, interpersonal connections are understood as being a basic need for human beings, whether this is through social links, inter-firm relations or strategic relations in the policy sphere. The Danish and Swiss reports also highlight the social importance of connection in order to raise awareness of the place of food within the local community as well helping to develop social capital through increased understanding and shared learning.

The Dutch report stresses how global FSC have increasingly led to a sense of disconnection from the environmental, health, and social issues associated with food production, to the detriment of rural cohesion. The report proposes that through re-embedding agricultural activity in rural communities there is a chance to reconnect it with local people and in the process help to strengthen rural social capital. The Spanish report also highlights the importance of strengthening social relations within FSC through improving the connections between the actors involved, thereby empowering civil society as a stakeholder within the production and distribution of food.
6.8.2 Cell justification
Connection within FSC is being used in two main ways: firstly, in order to improve the competitiveness of smaller scale producers and consumers; secondly, to help improve society's understanding of the distinctiveness of certain products within the marketplace and thereby empower them. These two elements have an economic aspect, but they are also about empowering society more generally to make better purchasing decisions. As such, the attribute of 'connection' has been situated within the Social / Market cell and Economic / Market cell.

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6.8.3 Global and local food chain issues
Global chains are seen as reducing the connections between producers, suppliers and consumers, whereas local food chains are seen as being more collaborative, supportive and socially inclusive through encouraging connections and linkages to be made between the various actors of the FSC. Nevertheless, there is recognition within the French report that these social linkages are sometimes idealised and that many consumers, for example, do not want direct links with the producers of their food, and vice versa; similarly that global FSC actors may also seek to make connections through their Corporate Social Responsibility (CSR) strategies, for example. The Peruvian report also highlights the necessity of connection in order to improve the performance of FSCs. As the report puts it, “inclusion of small-scale farmers, still important in numbers, will certainly be an issue to look at when assessing local and global [food] chain performance”

6.8.4 Discourse coalitions/differences
No particular coalitions or differences were identified within national reports, other than those between global and local FSCs.

6.8.5 Commodity differences
None identified specifically.

6.8.6 Relationship with other attributes
This attribute links closely with 'information and communication', 'resilience' and 'governance'. It also links with and influences 'consumer behaviour'. From a producer/market-oriented perspective, it also links with 'fair trade' and the 'creation and distribution of added value'.
Global and local food assessment:
a MUltidimensional performance-based approach

Information and Communication

Connection

Resilience

Governance

Consumer Behaviour

Fair Trade

Creation and Distribution of Added Value
6.9 Resilience

6.9.1 Description

This attribute combines and involves some different but related arguments expressed in national reports that all in some way have something to say about resilience, although in most cases the link to resilience is more indirect. As part of this attribute we have drawn together material from the following national reports (relevant attribute are listed in brackets for each): Belgium (risk and stability); Switzerland (economic resilience); The Netherlands (independency from public funding); the UK (reliability); and Spain (subsidy dependency, import dependency, risk and economic viability). There is significant reference then to ‘economic resilience’ in the national reports, which is counter to most descriptions of resilience which often link it to the environmental dimension. In fact, there was some debate about whether this attribute should be labelled ‘resilience’ or ‘economic resilience’. Given the emphasis on resource use and efficiency in economic and ecological terms (see below), it was decided best to retain the more general ‘resilience’ label to recognise links also with the environmental dimension despite a general emphasis on economic issues.

The UK reports refers to reliability, which characterises food chain performance in terms of needing to provide a ‘stable, consistent and trustworthy…’ supply and range of quality safe foods. This is a useful starting point and can be reinterpreted as a general description of what we mean by a resilient food system – i.e. an agri-food system that provides a reliable and uninterrupted supply of trusted foodstuffs. Relevant national reports usually frame resilience as an economic consideration, including reference to responding to extreme weather events. There is discussion about the ability of national systems to absorb and respond to shocks, as well as price volatility and other risk factors. National reports are therefore not using the resilience label explicitly, but it is essentially about how resilient the system is to risks/shocks. In Belgium, for example, there is discussion about strategies to mitigate risk volatility. These discussions are relevant to all stages of the food chain, particularly the farm-level. In Switzerland economic resilience is described in terms of its ability to cope with national and international market shocks. To build resilience it suggests the need to use a diversity of outputs for farmers, with low dependency on external markets (also noted in Spain) and limited dependency on public sector support. The need to break subsidy dependency is also addressed in reports from Spain and The Netherlands.

6.9.2 Cell justification

For the comparative matrix we have positioned resilience as Economic/Policy. Coding of resilience-related themes confirms its dominance as an economic consideration (see table below). Analysis of national report texts suggests that in the main this is an economic policy issue, given important questions about subsidies and the impact of price regulations on food chain resilience.

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Resilience is also a major issue in the Economic/Market sphere because of the impact of price and market competitiveness. There is also debate in the media/public sphere about these issues but this is
typically in response to recent price spikes rather than food system resilience more generally. The notion of a reliable and resilient system is thus an Economic /Policy and Economic/Market concern.

6.9.3 Global and local food chain issues
The Belgian report makes some useful remarks in relation to global/local and price volatility (as a risk). Essentially price volatility is a problem for farmers embedded within global food chains, caught between ‘two power blocks’: input suppliers and processors/the retail sector. Local chains are ‘less vulnerable to volatile prices’ because the systems are more diversified and depend less on world markets and have more ability to raise prices with consumers accordingly. More generally, resilience is a valuable attribute for global/local food chain performance discussions because it necessitates the need to assess and understand the dependencies that a national food system has, particularly the balance between global and European sources and national sufficiency. As the Spanish report points out, “global food trade…should not be demonised, as some products cannot be grown [nationally] and they need to be imported”.

6.9.4 Discourse coalitions/differences
This does not feature strongly in national report texts, although the Spanish report shows indirectly how resilience questions may be framed differently depending on discourse perspective: the equity side of their commodity discourses talks, for example, about the need to rebalance power relations within food chains; their livelihood discourse suggests short food chains can improve the life quality of farmers (social resilience) and a system of agrarian insurances are suggested to improve economic viability (economic resilience).

6.9.5 Commodity differences
Most reports do not make commodity-based remarks in relation to this attribute, but some do. The Belgian report notes the instability that CAP subsidies introduce to some sectors (grain and dairy). Meat sold in global chains is noted as a sector that is very vulnerable to volatile prices for inputs and outputs. The Senegalese report notes that different regions cope by adapting and diversifying their produce. For instance, in the Senegal River Delta, where irrigated rice production is limited, alternative income is being sourced from the production of tomatoes and onions. The grain sector in Latvia is also a similar case in point.

6.9.6 Relationship with other attributes
The resilience attribute links with economic attributes such as ‘profitability/competitiveness’ and ‘contribution to economic development’. Through the notion of ‘risk’ it links also with the ‘resource use’ and ‘efficiency’ attributes. In the case of the latter, this is particularly relevant as the future limited availability of key inputs/resources may require a very different interpretation of what is meant by a resilient food system (see Ambler-Edwards et al, 2009).
6.10 Food Waste

6.10.1 Description
Food waste is an attribute that includes some related issues covered in the national reports as follows: disposed edible mass (Italy, Switzerland); unused or not-recycled chain by-products (the UK, Belgium); and any material waste such as packaging (the UK, Belgium). We have used the term ‘food waste’ but it has links too with the term ‘food wastage’, used by the FAO and others to include food waste and food loss. Overall, waste represents the mismanagement of resources. The food waste attribute can thus be seen as a measure of the efficiency and effectiveness of a supply chain to manage its resource externalities.

Six national reports (Italy, Denmark, the UK, Belgium, Switzerland and Spain) discuss some aspect of food chain waste and use the label or something similar. The Swiss report focuses their definition of waste as edible products which are disposed of while the UK, Italian and Belgian reports also include excess food packaging. The Swiss and Italian reports refer to the FAO definition, which “includes both food losses, which occur at the production, post-harvest and processing stages, and food waste, which arises at the retail and consumption stages.” The similarity with all definitions used in the reports is that waste is always defined as a resource used in excess and thus lost.

Food waste is an attribute of high priority and applies at different levels of the food chain. The discussions are most often held at local and national levels. All the reports that cover food waste identify three main levels: the individual/household, the national food industry level, and the global level.

6.10.2 Cell justification
Food waste has been placed in the Environmental/Scientific and Economic/Policy cells for two reasons. First, defined as a misused resource, food waste is mainly discussed from an economic perspective. For instance, excess packaging consists of a mass of material which could have been more cost-efficiently used as raw material for other purposes. The whole question of having efficient and effective resource management comes from the fact that natural resources are limited. This latter point justifies the placement of this attribute in the environmental dimension. Overall, close analysis of the reports show that the debate on food waste lies mainly in the policy and scientific sphere in the different countries studied, although there is increased public debate noted in some reports too.

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6.10.3 Global and local food chain issues
Food waste is discussed differently at the local and global food chain level. Waste is intrinsically a cost-based issue, and large scale businesses invest in upgrading their waste efficiencies. As the Belgian report usefully put it:
“Global chains are always seeking to maximize efficiency. Hence, waste can be minimized in global chains via efficient processes. Moreover, big retailers are better equipped to reduce food waste because logistically they are much stronger than smaller players on the market. However, the chains are longer so there is a bigger chance that waste is generated along the chain. Packaging waste, on the other hand, is created much more in global chains”.

As noted in the above quote, and in other reports too, food waste efficiencies may be more achievable in global chains although the length and number of nodes in these chains may also cause waste. This performance issue/difference is still to be fully scrutinized and clarified. A major difference between global and local levels is the issue of food safety norms, standardization, and regulations. Global chains are mostly affected by “strict norms” as the Belgian report notes, since the food is disposed of more quickly before it spoils. “Local systems are focusing rather on closing the loop to reduce food waste. The chains are shorter so there is a smaller chance that food is wasted along the chain.”

6.10.4 Discourse coalitions/differences
There are two types of (complementary) alliances emerging in relation to food waste: first, public (environmental and development NGOs) and scientific sphere actors, and second, market sphere actors (producers and others in the food chain). The latter group view food waste as an economic factor, hence, the focus on improving efficiency – especially through technological innovation - to reduce costs of wastage. The former group target consumer behaviour through denunciation of over-purchasing and over-consumption of food.

6.10.5 Commodity differences
Concerns all commodities and includes both raw and processed food types.

6.10.6 Relationship with other attributes
This attribute is viewed from two main perspectives: first, the economic perspective, which links with the attributes of ‘efficiency’ and ‘technological innovation’; and second, the environmental perspective, with links to ‘resource use’ and ‘biodiversity’ management. Waste is also a question of choice and thus links with ‘consumer behaviour’ and ‘governance’.
6.11 Information and Communication

6.11.1 Description

Originally, this attribute was simply 'information', but was subsequently changed to 'information and communication' in order to indicate a more dynamic process; information on its own being seen as being overly static. It also now includes what was originally an attribute in its own right -- trust -- in that many of the report descriptions suggest that it is better as part of a wider attribute of 'information and communication' rather than an attribute on its own. As a result of this, there are quite a number of individual national report attributes included here. The report of the Netherlands includes 'awareness and responsiveness', 'trust and commitment', '(food) integrity' and 'authenticity', the Belgium report also includes 'authenticity', while the UK report includes 'trustworthiness'. The Italian report includes 'information' and 'food activism', Latvia has 'information accessibility', Denmark has 'consumer information' and 'food literacy', France has 'knowledge and skills', and the Spanish report has 'information', 'information for consumers' and 'product quality'. In addition, the notion of transparency (discussed in the UK, Swiss and Belgian reports) has also been included here, in that in essence it is about ensuring an openness of communication throughout the FSC, which in some cases have become hugely complex and opaque. Consumers, in particular, require high standards of openness from the food chain in order to feel assured that the food they eat is both safe and trustworthy.

'Information' within the Italian report refers to the amount and quality of information that is communicated to consumers together with the product being sold, so that they are able to make a more informed purchasing decision. Similarly, the Spanish report talks about information in the context of short-circuit chains that can enable people to be more aware of how FSC work and are governed. In this sense, the information that is communicated can allow for greater participation, awareness and ultimately empowerment for those involved. The Spanish report also highlights the importance of communication in terms of 'product quality', wherein communication with consumers about the health-related qualities of what they eat is seen as important in raising their awareness of what underpins the quality of the food they eat in relation to their own health.

Another strand of information and communication relates to raising peoples' awareness and encouraging their activism around food. The Italian report describes 'food activism' as raising the level of awareness and collective participation of actors within the FSC, particularly consumers, producers and small-scale intermediaries. In relation to local FSC this may involve the self-organisation of production-consumption circuits such as box schemes or farmers' markets. In relation to larger, more industrialised FSC increased awareness may lead to greater critical consumption on the part of those involved. The Dutch report also addresses the issue of awareness raising, partly in relation to health but also in terms of mobilising consumer-citizen commitment within FSC. The Danish report refers to the notion of 'food literacy', which is described as having an active connotation. This is particularly in relation to the development of school gardens and the need to instil food literacy into children from a young age.

The French report, in its notion of 'knowledge and skills', similarly highlights the importance of training programmes on food in schools. It also discusses the importance of developing consumer knowledge of food in order to increase their empowerment within FSC. Knowledge and skills are also discussed in relation to those working within FSC, and that global chains have tended to standardise the knowledge of their workers as well as reduce the knowledge of the consumers of their products. Information and its communication are described as being critical to improving knowledge and skills.
across the FSC; for example, in terms of artisan skills such as butchering, as well as consumers’ understanding. Explicit links are made here to food safety, but also how increased knowledge and understanding can have an impact on the overall governance of FSC. Similarly, information and communication to consumers, for example, can help reduce the risk of obesity and diabetes.

However, it is crucial that the information communicated is recognised as being trustworthy by its recipients. In this respect, the Belgium report has a useful definition of authenticity, which they describe as being ‘about fair communication between all actors in the food chain’, from producer to consumer so that those in receipt of this information can trust what it says. Trustworthiness within this context relates to consumers’ confidence that the FSC is reliable, honest and dependable; something that the meat supply chain has to some extent lost in those countries affected by the recent horsemeat scandal. While the horsemeat scandal was not a food safety issue as such, it was most certainly about untrustworthy communication of information through misleading labelling. In the process, it has led to questions being asked about the integrity of FSC in terms of the ethics they employ.

The final aspect of information and communication relates to the market. The Latvian report talks in terms of ‘information accessibility’, which relates principally to producers. The idea that there needs to be a constant flow of information and that actors need to be able to access this in order to improve their engagement with the market and develop a risk strategy. Related to this, the Danish report suggests that ‘consumer information’ is important not just for the reasons highlighted above, but also in terms of its potential influence on the market. For example, that the communication of certain types of information to consumers is likely to influence how they engage with particular products or indeed whole FSC.

6.11.2 Cell justification

As alluded to above, this attribute is quite pervasive within FSC, meaning that it is likely to be of some significance in almost all cells within the matrix. Judging from the numbers in the table below, there are strong grounds for suggesting that it should be included under both the health and ethical dimensions. It certainly does have a significant impact within these dimensions, but in essence it is being discussed in terms of its social implications. In relation to the spheres, it is principally in the market and public spheres. As such the two cells for this attribute are: Social / Public and Social / Market.

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6.11.3 Global and local food chain issues

There are quite profound differences between local and global FSC in terms of information and communication. Local FSC are usually heralded as enabling communication processes through direct interaction between the producers and consumers involved, thereby helping to ensure transparency. Global FSC, on the other hand, have become increasingly complex and opaque leading the final consumer to feel disconnected from the production process and reliant on labelling as a communication tool. However, not least due to the recent horsemeat scandal, trust in global FSC...
Labelling has taken a severe hit. There is a need to convince the consumer of the authenticity and trustworthiness of labels.

6.11.4 Discourse coalitions/differences
In some respects, the attribute of 'information and communication' is likely to have an influence at some level on almost all the other attributes.

6.11.5 Commodity differences
The most obvious commodity affected is meat, and in particular beef, following the recent horsemeat scandal across Europe.

6.11.6 Relationship with other attributes
Viewed from a socio-economic perspective, this attribute links with 'resilience' as well as influencing 'consumer behaviour'; it also forms the basis of the 'connection' attribute. It can also be viewed from a health perspective, which again links with the 'information and communication' attribute, but also includes links to 'food safety' and 'traceability'.

![Diagram showing relationships between attributes](image_url)
6.12 Food Security

6.12.1 Description

Food security is an important attribute and measure of food chain performance. It is mentioned as an issue in most national reports and some include it and/or related aspects as part of their matrix, always identifying it as of high priority. It or related aspects of it are described in the national reports as follows: The Netherlands (food security and resilience; accessibility); Italy (food security); the UK (availability); Denmark (food security; seasonality and freshness); Senegal (food security; availability within the context of affordability); Spain (food security; availability); Serbia (food security; accessibility); Peru (food security in terms of availability/affordability) and France (access to food). As is apparent from this list, this is a multi-dimensional attribute. The attribute thus combines discussions about availability (which in general terms is about the quantities and qualities of food available) and accessibility (which in general terms is about whether households have physical, social and economic access to food) that are prevalent in national reports. Along with affordability (see separate attribute description), availability and affordability are typically included as key definitional aspects of food security (see e.g. Ericksen, 2008). The merger of national report material to form one more general food security attribute is therefore logical and justifiable and offers a good meta-level food chain performance attribute.

National reports describe and refer to food security at different scales and in different contexts. It is useful to draw out these aspects by way of general description. Three scalar framings are evident:

- First, food security and world hunger. This aspect is noted in the Dutch, UK and Italian reports in particular and rehearses the much quoted statistic about the need to ‘feed 9 billion by 2050’ and the associated pressure to produce enough quantities of food to feed a growing humanity. The meaning is essentially then about food availability, at a global scale, and with particular reference to developing world needs and a moral responsibility to respond to those needs.

- Second, food security and national self-sufficiency. Aspects of this are noted explicitly or implicitly in most national reports. It is especially evident in the Senegalese report, with self-sufficiency and the need to manage food chains so as to avoid another food crisis. This is politically very important in Senegal. However, this view of food security is also evident in other reports: critical comments about over dependence on imported grain is noted in Spain, for example, the Serbian report describes food chain instability and self-sufficiency is a policy issue noted in the UK and Danish reports too. Remarks are made too about how national self-sufficiency can enable security beyond national borders. The meaning is again essentially about availability, although, as noted especially in Senegal and Peru, cost and affordability issues are tightly interwoven with this. As the Senegal report states: “quantity, year-round availability and price are the axes around which chains, local and global, organise and policies and development programmes are decided and implemented”.

- Third, food security for individuals and households. This level of discussion is prominent in quite a few national reports. It draws together important access and affordability arguments linked to poorer social groupings in society. Some reports suggest this aspect of food security (and by implication food chain performance) has heightened since the economic crisis. In the UK report, for example, there is discussion about the link between income and poor diet and the rise of food banks (as an indicator of access issues for some social groups). The Serbian report also mentions concerns about access for vulnerable groups. The UK report also contains a more
reflective discussion about availability of choice. This latter aspect is picked up too in the Danish report and the idea that consumers now demand to have fresh foods available all year round.

6.12.2 Cell justification
We have positioned the food security attribute in three cells: Market/Economic, Policy/Ethical and Public/Social. When we initially coded these data food security was in policy/ethical and accessibility was public/social (with availability in policy/social). The tables for the food security, accessibility and availability attributes, as initially coded, are included below, for information. We can see from the food security scores and the qualitative national report comments that food security is clearly an important policy issue – it is arguably the cornerstone of food governance. We have decided to include it as policy/ethical in the comparative matrix given the moral discourse evident in reports about ‘feeding the world’ and enabling better food access to vulnerable groups in developed market economies.

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Food security is also a fundamental social issue (highlighted in the three tables above) and ‘public good’ output of food chain performance. A number of the national reports show how food security discourse in some capacity is now part of public dialogue about food and society, pushing it beyond policy and scientific analysis, with some forms of scientific evidence interacting with public sphere discussions. Although not listed in the comparative matrix we can see too that food security figures in the market sphere.

6.12.3 Global and local food chain issues
Some interesting points emerge in relation to global / local and food security. In relation to local food systems, some reports noted positive food security contributions. The Spanish report comments, for example, that local chains are viewed favourably in relation to food security performance.
because they “are seen as more self-sufficient and resilient to external shocks...” The French report notes the innovations in local systems that enable food justice. The Danish report notes that seasonality and freshness are strongly linked with more local food chains. The UK report makes a strong argument for revaluing local food chain performance beyond the quality economy in relation to debates about access and how some less typical local food are enabling this to happen.

However, the majority of comments highlight critical comments associated with local chains and food security. The French report remarks, for instance, about the ‘elitist vision of local chains’ and the view that they are typically expensive and atomised in terms of logistical arrangements (limiting accessibility as a consequence). The UK report notes too critical commentaries in some public spheres which recognise that availability of local food can be limited by price (and a perception that local is typically more expensive). The Serbian and Senegalese reports both offer important critical perspectives on local chains in this respect: the former questions local chains from a food security perspective because in Serbian contexts these chains tend to lack homogeneity and are irregular, with local chains tending to struggle with market closeness and transparency due to complex chain structures. The Senegalese report notes that local production tends to be low and product quality unreliable. In these two reports in particular there is an important argument to think more about connection between global and local chains rather than viewing them as two isolated systems out of context. The Spanish report warns too against ‘demonising global chains’. That said, reports (notably the UK and Denmark) do recognise the food choice availability presumptions that global chains have created and which might now need to be questioned.

6.12.4 Discourse coalitions/differences

Some reports identify evident ideological battles in relation to food security. This is most prominent in The Netherlands, set against the ‘feed the world’ discourse, where they identify a clear ideological and epistemological clash between a ‘bio-economy’ and ‘eco-economy’ response to global food security, the former closely associated with sustainable intensification and socio-technical, market-based responses and the latter linked to ‘fundamentally different ideas about the role of agriculture in rural development’, focusing much more on ‘new interrelations between producers and consumers...agriculture and rural economies...the natural and the social...and the urban and the rural’. The UK report documents a similar battleground between those favouring socio-technical solutions and more socially-orientated grassroots initiatives, the former tending to be framed in relation to global food security and the latter focusing more on national efforts to improve community and household food security. In this sense the landscape is quite polarised and divided but there is recognition that new forms of multi-level stakeholdership will be required which will involve collaboration with groups not normally associated together. These two reports contain the most explicit analysis of discourse differences, although other reports recognise differences too (notably Spain and Italy).

6.12.5 Commodity differences

Most national reports do not make commodity distinctions, although food security is noted as particular important for food staples and fruit and vegetables are often mentioned in relation to access issues.
6.12.6 Relationship with other attributes

‘Food security’ is a multi-dimensional attribute and thus links with attributes in three dimensions: the ethical, the social and the economic. Aspects concerned with ‘world hunger’ thus relate to the ‘responsibility’ and ‘governance’ attributes. From the economic dimension, it can be approached from two levels: first, the individual and household level, with links to ‘affordability’, ‘consumer behaviour’ and ‘nutrition’; and second, the national level, where ‘resilience’, ‘contribution to economic development’ and ‘governance’ are all important related attributes. ‘Connection’ is another important attribute, especially in terms of the necessary complementarity between local and global food chains, as discussed in most reports.
6.13 Consumer Behaviour

6.13.1 Description
The attribute entitled 'consumer behaviour' could also be called 'consumer behaviour and diet', with diet in this context being understood in behavioural terms rather than nutritional terms. This attribute encompasses consumer behaviour in relation to their dietary practices or habits. None of the reports uses the term 'consumer behaviour' specifically. The Latvian report talks about 'consumer habits', the Italian report about 'food activism', the UK report about 'choice options' and 'palatability', the Netherlands report about 'lifestyle feasibility', the Senegalese report about 'convenience and quality', the Belgian report discusses 'taste', while the Spanish report talks of 'consumption habits'. The habits and normalised practices of consumers are at the heart of this attribute. In this sense, it is more about the social dimension - especially with regard to the idea of convenience - rather than the health dimension although the two are clearly linked.

The main thread running through this attribute is the relationship between the perceived taste or organoleptic qualities of food and consumers' decisions to continue buying particular types of food. The UK report talks about 'palatability', which is discussed in terms of consumer responses to the organoleptic properties of the food they eat. In this respect food is palatable if the person eating it is happy with its taste. Social factors such as culture and religion will also affect its palatability. The Belgium report also makes specific links between taste and the organoleptic qualities of food, making the point that nutritional and organoleptic quality do not necessarily go together. In other words, that something may taste nice or be culturally acceptable, but not necessarily be 'healthy'. As such, consumers' 'consumption habits', as discussed in the Spanish report, can have a significant impact on their health. The Dutch report, in talking about 'lifestyle feasibility', is also making the point that there is a need to encourage practical lifestyle adaptations or behavioural change amongst consumers in order to avoid food related health problems such as obesity and cardio related diseases.

The UK report's attribute of 'choice options' refers to the ability or expectation of consumers to select or choose to buy whatever they wish, irrespective of the consequences in terms of resource use or on their own health. One strand of the argument is that consumer choice is paramount. Certain sections of the scientific community, however, are beginning to argue that it needs to be restricted in some way through choice editing, or that at least consumers need to be better informed about the choices they make. At present, the globalisation of FSC has made it difficult for consumers to understand the implications of their food choices. A key strand of policy is therefore to promote informed consumer choice that may then lead to healthier or more environmentally sensitive decisions being made and diets followed.

A final strand related to 'consumer behaviour' is the notion of 'food activism' described in the Italian report. This refers to the level of awareness and collective participation shown by consumers and small scale intermediaries, which may then lead to the greater self-organisation of production-consumption circuits at a local level. Correspondingly, at a globalised level it may then lead to higher levels of critical consumption and subsequently to more sustainable diets. Consumer behaviour from this perspective has both social and ethical implications for the FSC.
6.13.2 Cell justification

Judging from the placements in the matrix below, this attribute could be situated in either the health or social dimension, or both. However, having conflated a number of individual partner report attributes together, the notion of ‘consumer behaviour’ is primarily concerned with the social dimension, notwithstanding that in the process it also has health implications. The health aspect of this debate is included under the attribute ‘nutrition’. In relation to the sphere chosen, it is most obviously part of the policy sphere, but at the same time much of the imperative for a change in consumer behaviour comes from a scientific perspective. As such, this attribute has been placed within the cells of Social / Policy and Social / Scientific.

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6.13.3 Global and local food chain issues

There are clearly a number of tensions between global and local FSC with respect to consumer behaviour. Global FSC are seen as distancing consumers from the production of their food, as well as disassociating them with issues such as seasonality and resource use implications. Global FSC are also more likely to be associated with highly processed foods. Local FSC are generally viewed positively and that consumer behaviour/decisions need to better recognise the benefits of locally produced food.

The one report that has quite a different perspective is Senegal. While consumers are increasingly concerned about quality, safety and freshness, which are seen to be attributes associated with local food, imported food from globalised FSC is in many cases preferred for its convenience. For example, imported rice because it cooks faster; imported onions because they can be stored for longer; and imported powdered milk because in many cases low income consumers do not have access to refrigeration.

6.13.4 Discourse coalitions/differences

There are no notable discourse coalitions identified within the national reports, although there are certainly connections between the choices made by consumers and the impacts of their decisions on both their own health and the broader health of the planet.

6.13.5 Commodity differences

While there are no notable differences in terms of commodities within the sections of the national reports associated with this attribute, changes to consumer behaviour are most frequently mentioned in relation to reducing meat consumption in the national reports more generally.

6.13.6 Relationship with other attributes

This is a social attribute, but it has economic, health and ethical nuances to it, as discussed above. For example, ‘consumer behaviour’ links strongly to the social strand of the ‘affordability attribute, as discussed in the Peruvian, Senegalese, Latvian and Serbian reports. Macro-level processes and decisions impact and influence micro-level practices. In relation to consumer behaviour, ‘governance’
is therefore an attribute. From an ethical standpoint, 'responsibility' ties in closely with consumer choices and actions just as much as 'connection' and 'information and communication'. 'Fair trade' is another ethical link. This attribute also links with 'nutrition' from a health perspective.
6.14 Territoriality

6.14.1 Description

The attribute 'territoriality' encompasses a number of different attributes highlighted within the individual national reports. Consideration was also given to the term 'patrimony', which was used within the French report. The notion of heritage and of valued things being passed down from previous generations certainly underpins what this attribute is intended to capture; however, although the word patrimony exists within the English language it is not widely used and the notion of territoriality was considered to more accurately reflect what is being discussed. The Italian report highlighted 'territory' and 'traditional' farming', the Latvian report 'identity', 'origins' and 'embeddedness', the Dutch report 'rural cohesion and distinctiveness' and 'authenticity', the Danish report 'tradition', the Belgian report 'cultural identity', the Spanish report 'respect of territory (culture)' and 'territorial compatibility', and the French report 'patrimony' and 'meaning'.

Territoriality encompasses the capability of a supply chain to represent and promote the localness of a product and its link with a specific terroir or place of production. In this sense, there is a strong link between the production process involved and a specific place or territory; furthermore, this link is communicated to the final consumer, who may either live in the place of production or be provided with sufficient information to enable them to make the necessary connections with the place of production. Links are made to the local knowledge and traditions involved in the production and processing of the food product(s), which in turn can help to raise awareness of and to protect traditional farming methods and artisanal processes by providing a market for their goods, and consequently income and livelihoods. In other words, there is a range of benefits accruing from this communication process. Firstly, it enables the survival and renewal of traditional farming. Secondly, it is a means of adding value, or perhaps simply being able to access a market by having a product that is more distinctive. Thirdly, it can help enable rural cohesion by generating income as well as providing a reason for rural regions to remain culturally distinctive through the food they produce. Fourthly, as quoted in the Spanish report, it can help prevent the abandonment of rural areas through supporting rural development by "promoting the use and occupation of the territory and promoting the local culture, the environment and the local economy". In addition, "the need to support/sustain rural communities is seen as a moral duty, a way to maintain the identity of the society [involved] and of the territory".

In a number of the reports, the survival of traditions and specific cultures of production are seen as important in themselves, not least because they are connected to the survival of particular rural local communities and ways of living that would otherwise be at risk of disappearing. Nevertheless, the economic benefits of communicating the culture and traditions embedded in particular products to final consumers are also clearly important. This is encapsulated in two quotes from the Belgian report: "for small farmers and food processors, cultural identity is the main reason for their survival in the food market"; and "cultural identity for food suppliers is a way to position themselves in the market".

Particular localities or traditions of production are often seen to be indicators of 'quality' in some way. The French report describes this in terms of giving 'meaning' to particular foods. This is associated with notions of authenticity and a sense of belonging or pride in a particular product; also that "consumers are more and more in search of a 'purchase experience'". The Belgian report highlights that "cultural identity is foremost linked to authenticity and taste". However, it is clear from
the national reports that notions of authenticity and tradition differ between countries. The Dutch report, for example, raises the issue that the Dutch FSC has been dominated for decades by agric- industrial forces leading to the loss of more place-based or farm-led food distinctiveness. As such, there is a need to effectively re-invent food authenticity and tradition. The report asks: "how strong and valid are food authenticity claims after decades of agricultural modernisation; how to recreate food authenticity in the Netherlands; and what does authenticity mean in a multi-ethnic society?".

There is also some broader discussion as to what tradition is. In some cases, tradition is taken as something frozen in time that then becomes codified. In other cases, tradition is seen to be more dynamic, adapting to encompass emerging tastes, lifestyles and societal changes.

6.14.2 Cell justification
This attribute has the potential to be positioned in a number of different cells within the matrix. There is a strong ethical dimension to it, which is addressed principally within the market sphere although to some extent within the public sphere. There is also a clear social aspect to territoriality in that it involves the protection of jobs, culture, traditions and indeed whole communities. This is enabled within the market sphere. Much has also been written within the scientific literature about the importance of developing food chains that can help add value and bring the products associated with territoriality to the attention and convenience of consumers; notions of embeddedness, for example, as well as extensive writing around the development of local FSC which have the capacity to valorise traditional and artisanal food production. As such, this attribute has been positioned within the following cells: Social / Market, Ethical / Market and Social / Scientific.

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6.14.3 Global and local food chain issues
There are clear differences between global and local FSC, or perhaps more specifically between shorter and longer FSC. In short FSC, the produce is more usually described by the producer themselves and is highly personalised; for longer food chains, the product is more likely to be recognised by its brand and therefore more impersonal. The French report suggests that global FSC have only a weak connection with ‘patrimony’, although some of them seek to use the images associated with patrimony to distinguish themselves. This idea of global FSC in some way appropriating notions of ‘territoriality’ is raised within a number of the reports. Local FSC are discussed as being more likely to be associated with authentic food, embeddedness, and recognition of the importance and relevance of tradition and culture to particular areas and regions of production.

6.14.4 Discourse coalitions/differences
The two main discourses in relation to territoriality include the protection of cultural identity, traditions, territory and so on for their own sake, but also the ability of territorially-linked produce to be able to add value and access markets as a result of increased distinctiveness. In reality, it is clear that these two discourses are inextricably linked, in that the former would not be possible without the
latter. The other main discourse concerns the authenticity of the message that is being communicated to consumers about the underlying 'territoriality' of the produce they are buying into. This in part relates to be type of FSC through which the produce is being marketed, with local FSC seen as more likely to be providing an authentic message. On the other hand, in order to increase the scale and economic potential of such value-added, it is clear that in many cases traditional/artisanal etc produce needs to be marketed more broadly. A key question is how this is done, with a number of the reports suggesting that global FSC in some cases are engaged in appropriating the underlying values and value added of links to particular territory or 'terroir', without necessarily adhering to the ethos involved including ensuring that the producers are treated fairly in terms of the distribution of added value.

6.14.5 Commodity differences
This attribute is strongly associated with cheese and wine commodities, particularly in France and Switzerland where the notion of ‘terroir’ is culturally significant.

6.14.6 Relationship with other attributes
Several attributes are related to the ‘territoriality’ attribute. Their relative priority differs depending on the discourse put forward, as discussed in Section 6.14.4. For example, when viewed from an economic perspective, it relates to ‘creation and distribution of added value’, ‘contribution to economic development’ and ‘profitability/competitiveness’ in the sense that the authenticity and origin of commodities is significant when competing at the global level. The alternative discourse associated with territoriality promotes a socio-economic and ethical argument. This ties the territoriality attribute with ‘information and communication’ and ‘traceability’ in terms of transparency (see the traceability attribute description for further details). This discourse therefore introduces a consumer-driven aspect and links with ‘consumer behaviour’. ‘Connection’ is also closely related to ‘territoriality’ and notions of ‘localness’ in relation to security and resilience.
6.15 Labour relations

6.15.1 Description

The ‘labour relations’ attribute encompasses worker-related social issues existing in the food chain. Overall, there are three strands to this attribute: 1) socio-economic welfare and recognition of workers; 2) health-related labour risks; and 3) the availability of qualified labour to preserve market competitiveness. This latter aspect, labour availability, links closely with the human capital aspects of the competitiveness attribute and puts a strong emphasis on the economic dimension, especially in relation to global supply chains, as argued by the Latvian and Belgian reports. Five other countries also mentioned labour relations and their interpretation is summarised below.

The Italian report uses the term ‘labour rights’, which is defined as having an extended meaning comprising of “formal and informal rights of workers in relation to their working conditions” as well as the “quality of workers’ life condition” implying the “degree of control that workers have on the chain and to the quality of the human interactions they can establish”. This latter aspect brings about the ethical dimension of the argument.

The Swiss report has two attributes which have been placed under this attribute. The two they describe are: social externalities, which is defined as the “negative impacts on the livelihoods of people working indirectly for entities of the [food supply chain (FSC)], or major suppliers of the FSC, mostly in developing countries, or any people touched by the action of one of these entities”; and working conditions, which refers to the “ability of FSC actors to guarantee decent working conditions to all employees...”. The report distinguishes between impacts on workers involved directly or indirectly with food chains.

The Belgian report also views labour from the socio-economic angle through the attributes ‘fair distribution of costs and benefits’ and ‘labour satisfaction’. Recognition of farmers’ innovation is viewed as an important “stimulus” to maintain production.

The Latvian report discusses the labour force attribute in terms of availability of skilled labour and its effect on competitiveness of the market.

The Dutch report under labour quality also mentions the labour force issue but also underlines the need to consider health-related labour risks, especially through exposure to chemicals. This introduces the health dimension to the scope of this attribute and further strengthens its social dimension.

The UK report indicates three issues “domestic labour standards, working conditions linked to trade, and labour-force stability” as determinant to the performance of labour relations as an attribute. The Spanish report also includes a ‘quality of jobs’ attribute.

6.15.2 Cell justification

Labour relations attribute has been placed in the Social/Policy cell. It is mentioned six times in the policy sphere and 11 times in the social dimension. We have also included it in the Ethical/Public cell. Country report descriptions related to this attribute refer to public sphere debate in terms of social rights and the social conditions of workers. These are ethical issues. This includes discussions that
farmers “should receive respect” and the farm workers should receive necessary (Belgian report). In the policy sphere, the narratives are principally about the socio-economic welfare of workers. Although strands of this attribute relate to the health and economic dimensions, it has not been placed in these cells. The reason is that these dimensions are consequential. This is an essentially social and ethical attribute about in/effective labour relations.

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6.15.3 Global and local food chain issues
Labour relations are much discussed in relation to global food chains. This is already well known but reflected in some of the country reports. The Belgian report makes some distinctions between global and local dynamics. At the global level, it notes that technological development has labour relations consequences since it directly affects workers. At the local level there is more concern with farmers’ satisfaction and recognition. However, the latter is equally important for global actors as it may impact competitiveness of the national market. The Italian report underlines how differences in power relations in global and local food chains may influence labour relations. It is argued that since local chains are characterised by stronger proximity and hence, to a certain extent, more trust than global chains, they represent a less asymmetrical power relationship between actor-stakeholders.

6.15.4 Discourse coalitions/differences
Three discourses are noted (see also the global/local discussion above): 1) recognition of innovation, especially in global food chains (Belgium); 2) power relations (Italy); and 3) socio-economic welfare and the well-being of workers (The Netherlands).

6.15.5 Commodity differences
This attribute applies to all commodities looked at within the GLAMUR project. Some reports draw on certain commodities to identify labour issues. For instance, the Italian report uses the tomato production sector to discuss issues related to labour relations and power asymmetry.

6.15.6 Relationship with other attributes
‘Labour relations’ is a social attribute, but links also to the ethical and economic dimensions. The ethical dimension links labour relations with ‘fair trade’, ‘responsibility’ and ‘governance’. The economic dimension is concerned more with labour skills and availability, but has an emphasis too on labour relations. The attribute refers to the discussion around fairness in trade when it comes to the creation and distribution of added value, for example. It thus links to ‘profitability/competitiveness’ and the ‘creation and distribution of added value’ attributes, as well as ‘resilience’.
6.16 Resource use

6.16.1 Description

Resource use is an important overarching attribute since it concerns the use and management of the flows of available resources through global and local food chains. It has two main elements. The first element concerns resource consumption. In other words, the different resources/inputs (land, energy, other materials) used to make food. The second related element concerns the tools (techniques) used to measure the resource use performance of food chains. This includes, for instance, ecological footprinting (Spain, Italy), ecological efficiency (Senegal, Belgium), and food miles (the UK and Italy).

Three UK attributes fall under this broad-level attribute, namely: food miles, resource use and sustainable diet. While the first is a tool to measure food chain impact, the last two pertain to consumption. Land is an important resource use issue and aspect of this attribute. For instance, land use is an issue in France and Switzerland. Both countries, especially Switzerland, have relatively high density populations, and raise the issue of “urbanization v/s agricultural use”. The landscape attribute described in the Italian report also has relevance here. Energy use and consumption is a particularly important aspect of the resource use attribute. It is evident from national reports (e.g. Belgium, Spain) that the issue is mainly in relation to dependency on fossil fuels, especially for countries that rely on imports (i.e. environment and economic). The Spanish and Serbian reports both use the term ‘sustainability’, the basic sentiment of which fits well with the resource use attribute described here. The Peruvian report underlines the issue of land and water scarcity in the coastal regions of the country. Resource use in this context is thus related to ‘profitability/competitiveness’. For example, land and water scarcity undermines the ability of producers to keep costs down and remain competitive locally, but even more importantly in international markets.

6.16.2 Cell justification

This attribute has been placed in the Environmental/Public and Environmental/Scientific cells. Numerically, there is strong positioning in the environmental dimension and in both the public and scientific spheres (see table). This is supported by qualitative comments in the national reports. Discussions in the scientific sphere include quite a lot of coverage about methods to measure resource use efficiency, some of this in response to growing demand for techniques and data to better document environmental performance. This is especially at the global level, where the tendency in the past has often been to focus on efficiency at the expense of effectiveness.

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6.16.3 Global and local food chain issues

There are some important issues related to resource use and global and local food chains highlighted in national reports. The scope and extent of resource use at the global level is clearly not
the same as local chains. This thus raises important questions about effectiveness and efficiency. At one level global food chains are more energy dependent and hungry and some suggest local chains thus provide energy consumption benefits and reduce food miles. However, as noted in a number of reports, this logic is now coming under increasing scrutiny. In the UK report, for example, a significant body of LCA work is now questioning the environmental performance of local chains and the 'local=good' argument. Some reports also suggest that tools to measure local food chain resource use are different to those applied to global chains. Global food chains are described as more oriented towards technological solutions (e.g. better waste recycling) and arguably focus solely on singular issues (e.g. energy or waste efficiency). As the Dutch report explains, local food chains are more oriented towards "multifunctional rural resource use and small scale 'circular economy thinking'".

6.16.4 Discourse coalitions/differences
Two main discourses emerge from the analysis of the national reports. The first and arguably most important one is about dependency on resources. It depicts the intrinsic relationship between the performance of food chains and the management of available resource inputs. The second is a cost-based discourse. It poses the issue of trade-offs between answering social needs at the expense of environmental concerns (e.g. using land for housing creation for a growing population which requires turning to imports instead of producing food locally).

6.16.5 Commodity differences
The attribute concerns all food commodities. That said, a good deal of LCA work concerns the performance differences for fruit and vegetables and certain forms of meat / livestock production are significantly debated concerning high energy needs.

6.16.6 Relationship with other attributes
The dependency of food chains on resources makes the 'resource use' attribute directly related to the economic dimension, as well as 'profitability/competitiveness' and 'governance' as related attributes. The technocratic cost-based discourse puts 'technological innovation' forward as a possible solution through, for instance, the design of less energy hungry and more resilient crops. This attribute is also closely linked to 'resilience'. Arguing from an environmental perspective, dependency on resources also raises questions about 'efficiency' and 'food waste' management.
6.17 Pollution

6.17.1 Description
Pollution encompasses any input into the natural environment which causes adverse changes to ecosystems. This attribute covers the different forms of pollution which may be caused by food supply chains - for instance, water, soil and/or air pollution through green-house gas emissions and/or the use of chemicals for fertilization processes, which may cause disruption to ecosystems. Pollution as an attribute falls under the ecological resilience theme. The issue is raised mainly by the following countries: Belgium (‘water pollution’ and ‘traceability of pollutants’); France (‘environmental pollution’, ‘product processing’ and ‘transport in relation to environmental pollution’); Italy (‘pollution’), and Spain (‘pollution’, ‘erosion’, ‘soil pollution’, ‘water pollution’, and ‘disruption of ecosystems’).

The Italian report describes the attribute as being “the result of different activities that occur within a supply chain, namely the production itself of pollutants and by their use and discharge in the environment without adequate treatments, with the consequence that harmful compounds are spread in the environment”. The Belgian report discusses the traceability of pollutants as part of transparency requirements. The Spanish report defines the attribute as a measure and means of quantifying the environmental and health impacts of food chain performance.

Greenhouse gas (GHG) emissions is an attribute which is cited in five national reports: the Swiss report refers to them in terms of “climate change potential”, the UK and Danish reports refer to them in terms of “food miles”; the Spanish report refers to them under the label “carbon dioxide emissions”; and the Italian report noted GHG in a surprisingly high number of sources. In relation to this last comment, GHG was originally considered an attribute in its own right. However, following analysis of the national reports it has been integrated as part of the ‘pollution’ attribute.

Pollution is thus considered as a measure of environmental impact that food chains have on the environment. In the public sphere the priority given to this attribute is medium and it depends mainly on the scale of media coverage, usually taking hold around particular events / pollution scares.

6.17.2 Cell justification
For the comparative matrix, pollution has been positioned in the Environmental/Public and Environmental/Policy cells. Coding pollution related terms confirms its prominence as an environmental term in national debates (see table). Analyses of the national reports suggest that it is a policy and public issue, given the importance of standards/thresholds not to be exceeded and given its frequency in public debates.

It would also be possible to code pollution under Environmental/Scientific, in that most of the reports discuss pollution as a measure of the impact on the environment, which is certainly discussed in the scientific literature. However, in relation to the national reports, the scientific dimension / perspective is mentioned less compared to public and policy dialogue / debate. Although not included in the final matrix, pollution could be viewed as a health as well as environmental performance issue. This requires relevant decision-making and policy instruments, enforcing its position in the policy sphere.
The first table below shows the statistics for the ‘pollution’ attribute and the second table shows the statistics for GHG, which as noted above was originally presented as an attribute in its own right, but is now integrated as part of the pollution description.

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### 6.17.3 Global and local food chain issues

The discussion on pollution and global/local food chains relates to three main aspects: 1) policy; 2) the scale of production; and 3) production methods. The Belgian report notes that regulations concerning emissions (e.g. nitrates) do not consider the situation of farmers working with global companies, which often requires intensive systems of agriculture with negative pollution impacts. The French report states that “food miles are more important in global chains than [in] local ones”. Intensive breeding in global chains, as the Italian report explains, tends to have a higher concentration of pollutants and gives rise to dramatic pollution effects, while small-scale production tends to allow - even though not always deliberate - time for environmental resilience.

### 6.17.4 Discourse coalitions/differences

National reports highlight discourse differences when discussing pollution. The Spanish report links pollution issues to their “deep ecology” discourse, which focuses on the environmental impact of production processes. The Italian report identifies three perspectives: 1) a “green methods discourse”, which refers to methods that reduce pollution; a “vegetarian discourse” which represents a minority and argues about the links between over-consumption of meat and health risks; and a “technocratic discourse” which refers to technological advancements as “the key to solve ecological problems related to food production, packaging, distribution and consumption”. The Belgian reports notes two discourse perspectives: consumers are more interested in mitigating the socio-environmental costs of pollution; for producers pollution weighs down on their competitiveness because its costs to pollute.

All agree that production methods need to be reviewed and assessed multi-dimensionally. Differences lie in the ethical choices and cost-influenced priorities of food chain actors and stakeholders.

### 6.17.5 Commodity differences

The national reports reviewed mention the meat sector as particularly important. Pork production (Italian, Belgium) is often referred to because it is mostly related to nitrate emissions in water and
soils and the creation of dioxin in water bodies. The vegetable sector is also noted in Italy and Belgium but to a lesser extent.

6.17.6 Relationship with other attributes
This attribute has been placed in the environmental dimension, but it links with attributes in the health, ethical and economic dimensions. At the level of policy and decision-making, ‘pollution’ is a matter of ‘governance’ and ‘responsibility’ in terms of environmental externalities and their consequences. ‘Traceability’ through ‘technological innovation’ is a mechanism often cited to manage the risks and augment ecological resilience through ‘efficiency’. The alternative discourse to pro-market liberalism often defends ‘territoriality’ and ‘biodiversity’ by questioning environmentally ineffective ‘resource use’ and links can thus be drawn with these attributes too.
6.18 Biodiversity

6.18.1 Description
Biodiversity refers to the ability of food supply chains to preserve the stock of natural resources. This attribute also comes under the theme of ecological resilience and is dealt with from mostly environment dimensions by partners. While resource use concerns mostly the regulation of flows of resources, this attribute concerns the preservation of stocks. The term has been term used by Italy, the UK, Switzerland, the Netherlands and Belgium. The Italian report provides a useful general description as follows: “‘Biodiversity’ refers to the effects that a food supply chain has on the survival of different animal and vegetal species within a certain spatial environment surrounding the areas where the productive process takes place. The attribute is the result of the unification of two different attributes selected in the previous phase of the survey: “domestic biodiversity” and “wild biodiversity.” This is useful. For the comparative matrix we have also added the preservation of soil and the microorganisms and aggregates that are important for the productivity and regenerative capacity of soil. Soil preservation is therefore a key aspect of this biodiversity attribute, especially given the threat soil loss poses to global food security.

Two other attributes (‘landscape’ or landscape preservation’ and ‘organic methods of production’) from the Italian report and ‘disruption of ecosystems’ from the Spanish report convey meanings which also relate to the description of this attribute. The Dutch “nature and landscape values” attribute refers to the necessity to address issues about the efficiency and effectiveness of intensive land use for agriculture. This links here too.

The term “ecology” has been used by the Senegalese and Danish reports. These two contextually different countries refer to this same term in different ways. Senegal provides a more production-oriented definition. The Danish report provides a more “holistic approach.” In a Danish context “Økologi” is the word used, which covers both organics and ecology. Essentially the term ‘ecology’ within Denmark refers to an approach about how food production should be done - no pesticides, as well focusing on animal welfare, the environment and healthy foods. The Danish “environmental sustainability” attribute refers more to a general theme rather than a specific attribute.

6.18.2 Cell justification
The issue of preserving resources has been discussed by all partners. This attribute has been placed in the Environmental/Scientific cell for the overall comparative matrix since discussion is mainly taking place in the scientific sphere. According to national partner reports is prevalent too in the public dimension.

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www.glamur.eu
6.18.3 Global and local food chain issues
The main food chain difference lies in the scale of production when it comes to global and local dynamics. Global food chains often operate large scale systems and, as the report from Switzerland notes, “favour intensification of farming systems” while “local food supply chains are often associated with the support of ‘mixed’ and organic farming and therefore are considered more sustainable…”.

6.18.4 Discourse coalitions/differences
Biodiversity creates some conflicts. Essentially there is a divide between technological and traditional perspectives. For instance, a ‘loss of traditional breeds and trade-offs in highly bred varieties’ is identified by the Swiss report and organic/traditional versus conventional methods of production is discussed in the Italian report, as well as a contested understanding about the relationship between GMOs and biodiversity. A more complementary discourse is suggested by the UK analysis but “sources disagree about where the point of balance lies at which farming begins to erode biodiversity, with some advocating technological recourse to drive ‘sustainable’ intensification… while others suggest new patterns of consumption will be needed to avoid large-scale ecological degradation…”.

6.18.5 Commodity differences
The livestock sector is notable in some national contexts (UK, Switzerland).

6.18.6 Relationship with other attributes
‘Biodiversity’ as a characteristic of food chain performance links with different attributes depending on the discourse referred to. For example, the technocratic discourse relates the attribute to ‘efficiency’, ‘resilience’ and ‘technological innovation’, while the alternative/traditional-oriented discourse links more with ‘territoriality’ and ‘resource use’ from the perspective of maintaining traditional breeds and varieties, etc.
6.19 Nutrition

6.19.1 Description

The attribute 'nutrition' is closely linked with the notion of 'diet' as well as 'food safety', but is distinctive from both and considered to be a valuable attribute in its own right when describing the overall performance of a FSC. Due to its close links with other attributes, a number of national report attributes have been included under this attribute. In the Italian report this includes 'obesity', 'healthy diet', 'healthy food', and organic; the Danish report has 'freshness/seasonality' and 'food quality', the Belgian report 'healthy diets', the UK report 'obesity', 'nutritional quality' and 'sustainable diet', the Netherlands report has 'freshness' and 'health risk manageability', the Swiss report 'food quality', France 'food quality', Latvia 'diet', Peru 'quality, health, nutrition and obesity' and Serbia has 'public health' and 'high-value added food'. In most of the reports the emphasis is on trying to move towards diets that are more nutritionally-balanced in terms of helping to ensure better health and well-being.

This attribute is principally concerned with the nutritional qualities associated with food in terms of its composition and ability to contribute towards physical health and well-being. Foods of a lower nutritional quality are generally those products containing high levels of fat, sugar and salt, especially if they are consumed in excess or make up a disproportionate level of a person's diet. Conversely, foods such as fruits, vegetables and those with a high fibre content are recognised as having a high nutritional quality. The Italian report differentiates between the positive effects on human health of a single food item, associated with its intrinsic qualities, which they describe in terms of 'healthy food', and the term 'healthy diet' which they use to discuss the wider nutritional implications of what consumers eat, on their health. This perspective relates very directly to the notion of 'obesity', which is understood as being in part at least the result of an unbalanced diet of foods which contribute to excessive body fat. In a health sense, therefore, obesity is connected with the idea of an unsustainable diet in that the health costs associated with obesity are noted as being very high and growing. The increase of non-communicable diseases in general, including type II diabetes and a range of cardiovascular diseases, are recognised to be highly related to diets of a poor nutritional quality.

Nutrition is part of encouraging healthy lifestyles through the development of balanced food patterns and changes in consumers' consumption habits to make them more nutritionally balanced. In the Dutch report, it is discussed in tandem with food safety under the heading of 'health risk manageability'. In other words, the management of health within a FSC is partly to do with ensuring that it is free from contaminants and/or toxins (food safety), but at the same time to minimise the health related risks associated with food of a poor nutritional value (nutrition). The idea of nutritional value also relates to notions of 'food quality', when quality is being defined in terms of food being rich in fibre, minerals, vitamins and proteins, as opposed to saturated fat, sugar and salt. Food quality within this context is often related to produce that is fresh, local and in season, as well as being associated with local FSC, although this is often a perception rather than a scientifically proven reality. The Italian and Swiss reports also highlight the nutritional benefits of organic produce, in addition to its more obvious environmental and animal welfare advantages. The Swiss report also notes a trade-off between higher yielding modern varieties of crops and a diminution of their nutritional content, in that although they produce greater quantities this may be at the expense of a lower uptake of minerals and trace elements. The Peruvian report shows how changing consumer habits in terms of a shift from traditional diets to a more Westernised diet impacts negatively on...
public health. As the report puts it, "Recent studies have alarmed public health authorities and public opinion. 15 per cent of children, 20 per cent of teenagers and nearly half of all women in many regions are overweight or obese. In general, 60 per cent of Peruvians are overweight and 60 per cent of women between 15 and 19 years are short because of under-nutrition…".

6.19.2 Cell justification
The main dimension associated with nutrition is health; furthermore, the issues associated with this attribute are principally discussed within the public and policy spheres, although they are undoubtedly social as well in that they involve changes to consumer behaviour. It is clear that there are also significant economic implications associated with low levels of/bad nutrition and the resultant costs of obesity, for example. An increased recognition of the importance of good nutrition is also providing market opportunities for produce that can help fulfil this demand, such as through the provision of fresh or seasonal produce. However, in terms of assessing the performance of FSC, this attribute fits best within the Health / Public and Health / Policy cells, as well as the Health / Scientific cell, with the latter providing much of the evidence for its discussion within the other dimensions.

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6.19.3 Global and local food chain issues
Distinctions between global and local FSC are frequently made in relation to the attribute 'nutrition'. Longer transportation and storage times are seen as negatively affecting the nutritional content of food. There is often a supposition or perception posed that local FSC are superior in terms of nutrition to global FSC because they are somehow fresher, seasonal etc, although this is not usually couched in scientifically proven terms. The French report suggests that "global trends favour standardised quality, labelled products or trademarked products, while local chains favour specific products", with the inference being that the latter are of a better quality. Similarly the Latvian report suggests that "produce coming from short FSC in general are considered to be better than one coming from global FSC".

6.19.4 Discourse coalitions/differences
The Belgian report makes the distinction between local debates, where nutritional quality tends to be about balanced healthy diets and the fight against obesity and other welfare diseases, whereas at the global level the debate is seen to concentrate mainly on malnutrition in the south.

One of the key dilemmas associated with this attribute is between relatively cheaper low-quality (in nutritional terms) food versus more expensive and higher quality food. The notion of 'higher' is not always related to nutritional content, although the suggestion is that in most cases more expensive foods will be better in nutritional terms.
6.19.5 Commodity differences
One of the key discourses on healthy/nutritionally-balanced diets is the reduction of meat consumption. Conversely, increasing the input of fruits, vegetables and foods with a high fibre content are seen as contributing to more nutritional (and sustainable) diets.

6.19.6 Relationship with other attributes
‘Nutrition’ is a health-based food chain performance attribute. It links with other attributes in three main ways: first, from a policy perspective, it relates with ‘governance’ and ‘responsibility’; second, from a public perspective, it links with ‘consumer behaviour’, ‘information and communication’, and ‘affordability’; and third, it can be articulated with ‘traceability’. 
6.20 Food Safety

6.20.1 Description

Food safety features in a number of national reports: Italy, Switzerland, Belgium, The Netherlands, France, Denmark, the UK, Spain and Serbia. Other attributes (namely ‘risk’ and ‘control’ in Latvia, ‘health risks’ in Belgium, ‘health risk manageability’ in The Netherlands, ‘standardisation’ and ‘public health’ in Serbia, ‘certification’ in Spain and ‘pathology’ in France) also have food safety as a prominent feature of their respective descriptions. Food safety is also a central part of the Senegalese report, under the broader umbrella attribute labelled ‘convenience and quality’. For the purposes of this cross-comparative analysis relevant aspects of all of the above are considered as part of the general ‘food safety’ attribute description.

It is evident from reading the national reports that food safety is a high priority attribute in most cases. It is a widely debated aspect of national food system performance, with a prominent and well-documented history in some cases. It is evident from the national reports that food safety has a close connection with food scares, scandals and illegal activities. A number of national reports (Latvia, The Netherlands, UK, for example) mention ‘horse-gate’ – the 2013 horse meat contamination scandal. This latest scandal served to heighten public debate about the safety, authenticity and traceability of meat food products, especially from more ‘industrial’ supply chains. National reports also mention other past and recent scandals: the ‘cucumber scandal’ in Denmark, for example, ‘mad cow disease’ in France and the UK (which was significant from the late 1980s onwards), and recent media attention in Italy about Terra dei fuochi, which exposed the illegal dumping, burial and incineration of toxic material in rural areas that contaminated foodstuffs and water courses.

Food safety can be broadly defined as attempts to guarantee the safety of food products; in other words it is about the rules, regulations and standards that producers, processors and other food chain actors must follow to reduce health risks associated with food. The Belgian report defines food safety as: “all actions undertaken to avoid contamination and limit the use of chemical components below the maximum standards”. The Swiss report adopts a similar definition, noting the importance of chemical (linked to antibiotics and pesticide residues) and microbiological (linked to risks like E Coli and Salmonella) food safety aspects. These technical elements feature in most national descriptions but some extend further than this. The Dutch report identifies two distinct approaches to food safety: the first is about measures that minimise risks; the second is about minimising the potential consequences of food safety risks. The Italian report suggests that food safety includes food hygiene, standards and certification to guarantee food integrity, the prevention of food fraud [and food terrorism], food freshness and/or adequate conservation. This broader definition includes fraud and illegal activity aspects.

6.20.2 Cell justification

Food safety is positioned in all four of the health dimensions: Health/Public, Health/Scientific, Health/Market and Health/Policy in the comparative matrix. Its positioning as a health dimension/issue is pretty unanimous across the reports (see table below). Some reports (Italy for example) argue that it also belongs in the economic and environmental dimensions, due to concerns about how food safety influences economic competitiveness and pollution impacts respectively, and
some suggest it has ethical implications too; however, it is essentially a health-based issue. It is arguably the most important health-based attribute.

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When scored in relation to spheres, there is a split between health/public and health/policy, with coverage too in health/scientific and health/market. Food safety’s position in health/public is justified in the national reports through increasing consumer concerns and public debate about food safety, a consequence of the above mentioned high profile food safety scandals, which in recent decades have received significant coverage in most countries national media. Since the Bovine Spongiform Encephalopathy (BSE) crisis food safety is increasingly perceived as a risk management issue that concerns consumers and public health. In short, food safety can be viewed as a ‘public good’ and not something that just concerns agriculture and the food industry. It is a much debated public sphere issue. Food safety is also a policy issue – explained, for example, through the role of regulations to set standards and limits and the role of the state to enforce rules. The UK report comments, for example, that “policy discourse equates food safety with supply chain food security and regards food safety as the principal basis of consumer confidence in the food chain”. A number of reports also make a strong argument that food safety is a health/market issue, with notable commercial implications. As noted in some reports, the recent ‘horse-gate’ scandal raises difficult questions about the balance between state involvement (which in some countries is minimal) and market-based private control.

6.20.3 Global and local food chain issues

The national reports contain some interesting comments about food safety and the global/local dynamic. Three perspectives emerge. First, some comments suggest no distinctions between the two types of chain can be drawn. This comment is made in the Swiss and Serbian reports, although both go on to draw distinctions in relation to specific issues. Second, food safety concerns are noted as more prominent in global food chains. These distinctions are noted in the French and UK reports in particular, although also feature in the Danish, Latvian and Swiss reports. The French report remarks, for example, that since the ‘mad cow crisis’ local food chains are viewed as a way to get more guarantees about production and/or breeding techniques. Many of the comments here describe how local chains can overcome distrust and greater insecurity brought about by food scandals, as noted in the Danish report. In essence, global food chains are thought to constitute higher risks in terms of food chain contamination. The third perspective complicates this global/bad local/good categorisation, with comments in some national reports recognising that local food chains have safety issues. These comments are particularly pronounced in the Serbian context, with local chains typically less organised and lacking controllable standards and standardisation which may make them more risky. As the report puts it, ‘food safety and quality within local chains need to be improved’. The French report also makes the point that local chains are ‘not always healthier’.

6.20.4 Discourse coalitions/differences

The Dutch report takes a slightly different perspective to those summarised above and argues that opinions between stakeholders about food safety performance of food chains differs depending on

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their ideology/perspective. For agro-industrial and pro-globalisation analysts, food safety is therefore about risk reduction through regulatory frameworks. The increase and repetition of food scandals in this context is less associated with globalisation tendencies and reach and more a reflection of better and more sophisticated detection methods. Advocates of localisation and short food chains, on the other hand, associate risk reduction with more direct producer consumer relations.

6.20.5 Commodity differences
There are some product specific comments regarding food safety noted in some reports. Some link increased food safety threats with processed foods (cheese, for example, is noted in France) and others link it to meat/livestock products and less so fruit and vegetables; whilst useful such distinctions need to treated with care.

6.20.6 Relationship with other attributes
From the above description and analysis of the national reports, it is clear that ‘food safety’ links with a series of other attributes (see diagram). For example, from a precautionary perspective, it links with ‘governance’ and ‘responsibility’ in terms of better risk management and reduction. It also links closely with ‘information and communication’, as the way in which food safety is communicated to the public is essential (risk communication). In terms of tools to enable food safety, ‘traceability’ and ‘technological innovation’ are important attributes. From an environmental perspective, ‘pollution’ and ‘food waste’ are other important attributes.
6.21 Traceability

6.21.1 Description

Although the term 'traceability' is only used in a small number of reports (Swiss -- 'traceability of origin', Denmark, Spain and France -- 'traceability', the Netherlands 'traceability and transparency' and Italy subsumed as part 'information', having being originally labelled 'information and traceability'), it is clearly a very important part of EU FSC accountability. In fact, it is in effect compulsory for all FSC in the EU as set out by Regulation (EC) No 178/2002.

Traceability and transparency are two terms that are very often used interchangeably and indeed are discussed together in several of the national reports. However, there are differences, with the notion of transparency being included under the attribute of 'information and communication' within this report, in that it is principally associated with enabling consumers to understand the origins of the food they eat as a means of helping them to determine whether it has the qualities they are looking for. This may include issues to do with the environment, or the methods of production, but essentially it is about improving the information available to consumers. Traceability is clearly also about information in some respects, but it is not intended specifically for the end user in terms of enabling them to make a food choice. Instead its focus is more on ensuring the safety of the FSC and protecting people and the environment from harm. It is particularly important in the policy sphere as a means of helping to prevent the contamination or adulteration of food and being able to trace the cause of any pollution that may impact on the environment as a result of FSC activities. Traceability is, therefore, directly associated with regulation and certification within the FSC, and is concerned to avoid food scandals and environmental catastrophes. The French report usefully highlights that traceability can be understood in two ways: 'traceability-transparency', in which traceability within FSC effectively leads to greater transparency; and 'traceability-institutional', which is essentially an FSC management tool to help ensure the integrity and safety of the FSC and that enables the sources of any problems, whether health-related or environmental, to be traced.

A series of food scandals over the last 30 years or so across the EU, most recently in relation to horsemeat contamination, mean that traceability is also an important issue within the public sphere. The globalisation of FSC has led to increased complexity and disconnection, meaning that a strong system of traceability needs to be in place in order to reassure consumers that the food they are eating is safe and can be trusted. This is important in relation to health and environmental issues, but also to the economic and market spheres. For example, in countries which have a large export market it is critical to ensure that the produce involved is beyond reproach. This is highlighted within the Belgian report, which stresses that the intense regulation and control within the Belgian export FSC has improved its traceability and ensured that those buying the produce can be assured of its integrity and safety.

6.21.2 Cell justification

Traceability is of some interest across all five dimensions; however, it is primarily of interest in the health dimension. It is certainly an aim of policy to ensure traceability, but the two key spheres in which traceability plays the most critical role are the public and market spheres. In the public sphere, it is an issue every time there is some kind of a food scandal, most recently in relation to horsemeat contamination. In the market sphere, food companies need to win the confidence of consumers about the quality of their food; there is also a legal obligation to ensure traceability if they are to continue...
trading. As such, the attribute of 'traceability' has been placed within the Health/Public and Health/Market cells.

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6.21.3 Global and local food chain issues
While traceability is a legal obligation for all FSC, there are certainly differences between global and local FSC. There is a perception that regulations to ensure traceability within FSC have been designed with global FSC in mind, meaning that in many cases they are overly bureaucratic and expensive for more local/smaller FSC to satisfy. More localised FSC are also seen as being able to rely more on direct producer-consumer relationships to ensure traceability. Globalised FSC, on the other hand, are perceived to be much more complex and disconnected, necessitating extensive regulation in order to ensure traceability. There is also an issue in relation to the export of produce, which needs to demonstrate its high-quality and safety through demonstrating extensive traceability procedures.

6.21.4 Discourse coalitions/differences
The Belgian report identifies two discourses. The dominant discourse being described as consumer-driven and expressed in zero-tolerance terms, that is satisfied through a very expensive and comprehensive regulatory system that enables reporting on every step of the FSC. An alternative framing concerns trust. In this latter framing, producers and consumers have more direct contact, and traceability through regulation becomes unnecessary. The Belgian report also highlights the use of technology and IT as a way of helping improve traceability within FSC.

6.21.5 Commodity differences
Traceability is relevant for all commodities, although the way it is implemented will differ between sectors.

6.21.6 Relationship with other attributes
There are two perspectives that help to explain the traceability attribute, which in turn help determine the links with other attributes. The first perspective revolves around the traceability/transparency issue noted above, linking to 'information and communication' and 'nutrition' as related attributes. The second perspective relates to traceability in an institutional capacity and mostly concerns 'governance', but is also linked to integrating externalities such as 'pollution' and enabling better 'food safety' through 'technological innovation', as discussed in the Belgian report.
6.22 Animal Welfare

6.22.1 Description
This attribute is well cited in national reports. Five countries – Italy, Belgium, The Netherlands, the UK and Spain – include it and the Swiss report refers to it as ‘animal well-being’. It is much less of an issue in developing countries, where affordability is clearly the priority. Animal welfare, according to the Dutch report, refers to the ability of food chains to “respect animal welfare rights” and “to integrate animal welfare with other food chain performance fields”. The Italian report usefully describes it as:

“…the physical and psychological conditions of well-being of the animals involved in food chains. The expression is usually referred to animals likely to be introduced into highly intensive productive processes... intensive vs extensive breeding, the amount of space that each animal can have during the day, the feeding conditions (adequacy and quality of what they eat), medical care when needed and animal welfare before abatement…”

6.22.2 Cell justification
This attribute sits in the Ethical/Public cell because all reports discuss it as a matter of public debate and controversy (e.g. The Netherlands, Belgium). Analysis of the national reports suggests debates on animal welfare are very active in the public sphere (see table). Most reports thus view it as an ethical perspective rather than picking up on, for instance, the health impacts of certain industrial practices which may impact humans and animals. As the Italian report notes, “it is maybe the most typical “ethical” attribute, because the interest for animal welfare is to a large extent detached from human-centered considerations that can be referred to the social or economic dimension, and only partially related to ecological or human health concerns. At the same time, the public and the scientific spheres are the ones where the attribute is more present”. As this extract notes, it is also important to include it under the Ethical/Scientific cell.

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6.22.3 Global and local food chain issues
The Italian report usefully sums up the global and local food chain issues related to this attribute as follows: “The relation between animal welfare and the geographical scope of the food supply chain follows a pattern which is common to some other attributes. On one side we have the position for which local chains, with their traditional farming and breeding styles, are the contexts in which animal welfare can be achieved or maintained (extensive breeding being a key feature in this perspective), while on the other side sources emphasise the role that technological innovation can play to guarantee adequate care for the animals, and in this perspective the local-global antinomy loses its significance.”
6.22.4 Discourse coalitions/differences
Overall, this attribute links to three main discourses pertaining to: a) animal rights from an ethical dimension, b) competitiveness by proponents of intensive production and thus from an economic perspective, and c) deep ecology activists who argue for organic agriculture and biodiversity preservation. The Swiss report puts this attribute as “an important factor of difference between conventional chains and alternative ones”. There are contrasting producer perspectives addressing the lack of and need for improved animal welfare: one promotes technological innovation in intensive breeding units and the other promotes “traditional farming and breeding” methods. The consumer perspective comes primarily from pro-animal campaign groups who hold a pragmatic ethical discourse. They argue that looking to improve animal welfare comes with consequent social, environmental and health advantages (Italy and Belgium).

6.22.5 Commodity differences
This attribute concerns pork, dairy and other livestock sectors mainly.

6.22.6 Relationship with other attributes
Following the three main discourses noted above, it is clear that ‘animal welfare’ as an attribute relates to the following attributes: ‘responsibility’ from an ethical and to some extent health perspective; ‘profitability/competitiveness’ and ‘technological innovation’ from an economic perspective; and ‘biodiversity’ and ‘resource use’ from an environmental perspective.
6.23 Responsibility

6.23.1 Description
This attribute is only mentioned in three national reports (Denmark, the UK and Serbia, with some reference too in the Italian report as part of territoriality) but is a broad ethical issue that could be quite powerful as a way to assess food chain performance. The attribute has different dimensions. A key question noted in the Danish report is who is responsible in managing, for example, food chain environmental impacts and/or the welfare of workers in developing world contexts. This question applies to other contexts too, as noted in the UK report, which talks also about the responsibility for the food chain to become more sustainable in the context of social justice, global food and environmental security concerns.

The country reports identify three sets of actors, or broad types of responsibility. The first is consumers and consumer responsibility. This concerns ‘how their actions, such as what they purchase and demand, will have consequences in a larger scale’ (Danish report). The Serbian report describes these actions at individual and community levels. In this case it is noted that environmental awareness (responsibility) is very low: “citizens of Serbia do not have a developed positive awareness of the need to reduce pollution, establish rational use of energy and non-renewable resources”. The second is food chain actors and corporate social responsibility. In the Danish report this is interpreted as ‘how businesses need to act globally and (be) socially responsible, e.g. by taking climate, work conditions and social conditions into account’. The Serbian report also refers to the responsible actions of producers, manufacturers, importers and sellers, particularly in this case in terms of the composition and properties of the product, including its packaging and efforts to reduce waste. This is something different to the Danish report but is essentially arguing food actors need to be ‘socially responsible’ in a general sense. The third is policy and state responsibility. This links closely with the governance attribute. The UK report in particular argues that the state needs to assume greater responsibility for sustainable food chain performance in response to the deregulation of food markets.

6.23.2 Cell justification
The responsibility attribute is positioned in the Ethical/Public cell, given that it is essentially a values-based / common good issue that benefits society, consumers and the environment. The scores in the table below are helpful in the sense that they confirm its ethical orientation, with social and environmental links too.

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We have not positioned this attribute in the Ethical/Policy cell, although there could be a case for its inclusion there too, given that all three national reports recognise it as a policy issue, with strong links too with the governance attribute.
6.23.3 Global and local food chain issues
No comments emerge for this attribute in relation to global/local issues, although questions about social responsibility and fair trade have tended to have mostly global/corporate orientations.

6.23.4 Discourse coalitions/differences
No remarks are made in the national reports that cover this attribute. That said, there is likely to be a different framing of this attribute depending on the view of the market and the need for less or more state regulation in food governance.

6.23.5 Commodity differences
No commodity differences were noted in the national reports.

6.23.6 Relationship with other attributes
From the discussion above, ‘responsibility’ as an attribute of food chain performance links with ‘governance’ (at the policy level) and ‘consumer behaviour’ and ‘fair trade’ (at the public level). At the level of firms, the attribute looks at social and environmental externalities and thus links mainly with ‘food safety’, ‘pollution’ and ‘resource use’.
6.24 Fair Trade

6.24.1 Description
Initially, the notion of fair trade was included under the attribute 'creation and distribution of added value'. However, while there is clearly some overlap with this attribute, the notion of fair trade has a particular meaning and significance when seeking to assess the performance of FSC. The term is only actually used in the report of the Netherlands, but is also described in terms of 'fairness/equity' in the UK report and as part of the 'producers' income' attribute in the Italian report.

The notion of fairness and equity under this attribute is principally concerned with the trading relations between developed and developing countries. The Netherlands report describes this in terms of the 'ability to provide fair prices for primary producers in developing countries' as well as the 'ability to contribute positively to the food sovereignty of developing countries'. Fair trade in the Netherlands has attracted considerable attention over the last two decades or so, to the extent that large retailers have shown a growing interest in stocking Fair Trade items with some labels now having significant market shares (e.g. bananas, coffee and chocolate). Within the UK report, trading relations between developed and developing countries is also recognised, but so too is the importance of honest and just dealings between trading partners more generally. This perspective recognises power imbalances in the trading relations between retailers and farmers (in particular), as well as the need to secure social justice for farm labourers within the UK who may sometimes be poorly paid and exploited. In general, it is NGOs who have been responsible for driving the issue of fair trade forward.

Fairness is also implicit in a number of the other national reports. Fair and/or stable producers' incomes are discussed in the Italian report within the context of the 'creation and distribution of added value'. It is also implicit within the notion of 'value distribution' in the Swiss report, which talks of the distribution equity and the share of profits in the food chain. Similarly within the Belgium report which talks about having a 'fair distribution of costs and benefits', and the notion of the 'cost (inequality)' in the Spanish report which is being used to raise awareness about equity and fairness within the food supply chain. In each case, the emphasis is on the ethical dimension, notwithstanding the social implications of inequality and unfairness within FSC.

6.24.2 Cell justification
While only two of the reports explicitly mention this attribute, they both position it within the Ethical / Public cell. As mentioned above, it is also implicit in a number of other national reports, where it is also predominantly associated with the ethical dimension and discussed within the public sphere. However, it is perhaps also worth considering including it under the Ethical / Market cell, in that it is in this arena that the issue is most obviously communicated to the public. In addition, although not suggested in any of the reports as being discussed within the scientific sphere (perhaps because much of the literature predates the five-year perspective that was used within the methodology), it is worth including fair trade within the Ethical / Scientific cell.
6.24.3 Global and local food chain issues
The original focus of ‘fair trade’ was on imported produce from developing world countries. However, more recently it has also been focused on domestic food supply chains and the extent to which individual actors are achieving a fair return for their contribution. In general, this relates to smaller scale producers/farmers whose position is recognised to have weakened considerably in relation to large-scale retailers, in particular.

6.24.4 Discourse coalitions/differences
Fair trade is mostly discussed by proponents of discourses that are alternative to the mainstream neoliberal ideology. Within the market sphere, while small-scale producers promote fair trade for socio-economic viability, the large scale retailers use the label more as a marketing tool. From the public sphere, consumers and activists put forward the argument that fair trade enables a fairer distribution of costs and profits (ethical dimension).

6.24.5 Commodity differences
Fair trade in relation to the developing world countries is concerned with products such as bananas, coffee and chocolate, none of which are a specific focus within GLAMUR. Fair trade in relation to domestic suppliers is more often talked about in relation to scale rather than particular commodities, such that local producers are often given more focus than larger scale producers.

6.24.6 Relationship with other attributes
‘Fair trade’ links with attributes in the social, economic and ethical dimensions. From an economic perspective, it relates to the ‘creation and distribution of added value’ and ‘profitability/competitiveness’. The social dimension refers to and links with ‘labour relations’ and ‘consumer behaviour’, while the ethical dimension links with ‘responsibility’ and ‘governance’.
7 Delphi Survey

The purpose of the Delphi survey (Task 2.4) was to triangulate the data that were collected within the national reports. It was conducted by the CCRI and FIRAB between September and December 2013. Methodologically, a Delphi survey was selected in that it can help forecast what will need to be assessed in the future when judging the performance of global and local FSC. The survey was conducted over two rounds of questions. Recruitment of experts to the survey panel was fundamental to its success. It was crucial, therefore, to identify experts who had relevant knowledge and experience of FSC in their national contexts. 46 experts from 12 countries (Netherlands, Italy, UK, France, Belgium, Switzerland, Spain, Latvia, Denmark, Serbia, Senegal and Peru) completed the round 1 survey and 38 the round 2 survey.

The survey involved anonymous forecasts being made over two rounds of questions by the group of experts who received feedback, in the form of a summary report, between rounds one and two. In round 1, it emerged that the distinction between global and local FSC is being characterised mainly by the geographical distance and origin of the food constituents (ingredients), coupled with the number of intermediaries in the FSC. Underpinning comments about the importance of geographical distance is a social dimension, wherein “localness” is said to “promote social relationships” thereby enhancing consumer awareness of where the product is from and concomitantly producer awareness of consumer expectations.

The other key points to emerge from round 1 included: the likely importance of consumer engagement with the FSC in the future; the need for transparency within FSC; the significance of affordability and accessibility as indicators of sustainability; the impact of trade relationships, especially within global FSC; nutritional quality; equity, in terms of fairness; the dominance of ‘economic’ evaluations of FSCs to the detriment of other dimensions of sustainability (such as environmental or ethical), and the concomitant need for more integrated evaluation methodologies that take a more ‘systemic approach’ to the assessment of FSC performance; and finally, particularly within the policy and public spheres, there was a marked reference to asymmetrical power relations in FSCs.

Round 2 of the survey subsequently examined these issues in two ways. Firstly, the experts were asked to rate (a) the likelihood of occurrence and (b) the importance of 14 statements as potentially significant components that need to be considered in order to improve food chain performance in the future. The statements addressed four key themes (consumers, policy, food chain assessment and power). In relation to theme one (consumers), there was a strong consensus that it is very important for consumers to become more influential in the future, yet at the same time, price was also seen as continuing to be the over-riding factor for consumers. The responses suggested that, firstly, affordability remains a crucial attribute when assessing food chain performance; secondly, the

1 Further details of the approach taken are given in Appendix 2, which includes a full report of the Delphi survey undertaken.
economic dimension tends to dominate decisions and food choices; and thirdly, that there is a need to shift choice patterns from strictly economic priorities to other factors.

In relation to the second theme (policy), there was broad consensus concerning the strong influence of European and global policies on national food chain priorities. There was also strong agreement that global and local food chains should be seen as complementary, although many argued that persistent limiting factors - such as prevailing economic crises and asymmetrical power relations - meant the likelihood of this happening in practice is weak. When judging the assessment of FSC (theme 3), panellists strongly asserted that an holistic approach is crucial with resource use efficiency and taking a systemic approach to evaluation both scoring highly. In terms of power with FSC (theme 4), there was consensus that better access to information through ICT and via actors of the third sector was both important and likely to happen in the future as a way to help balance asymmetrical power relations in the food chain.

The second element of round 2 involved panellists ranking eight of the key attributes identified within round 1 (see Table 4), in terms of their importance to the performance of global and local FSC within their own national contexts over the next 5-10 years. The ranking ranges from 1-8, where 1 is the most important and 8 is the least important.

Table 4: Ranking of food chain performance attributes at global and local levels

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<td>Global</td>
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<td>Accessibility</td>
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<td>Trade Relationships</td>
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<td>Nutritional Quality</td>
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<td>Consumer Engagement</td>
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<td>Asymmetrical Power Relations</td>
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<td>Equity/Fairness</td>
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<td>Local</td>
<td>Consumer Engagement</td>
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It is evident from Table 4 that the attributes in most cases are ranked quite similarly between the local and global levels. The two attributes where scoring differs are in relation to trade relationships (lower priority for local and higher for global) and consumer engagement (higher priority for local and lower for global). At the global level, affordability and accessibility are ranked 1 and 2. For local food chains consumer engagement is ranked 1, with affordability ranked 2 and accessibility ranked 3. Both types of chain therefore place considerable importance on affordability and
accessibility. Delphi experts also drew a temporal distinction between global and local, with global food chain performance seen as being related to short-term trends, whereas local food chains are more focused on long-term relationships.

A number of the key distinctions are worth highlighting. Firstly, the trade relationships attribute is viewed differently at the two levels. Comments provided by Delphi experts suggest that this attribute is mainly understood as pertaining to international policies which regulate exchanges between global food chain actors. At the local level, it is perceived that such policies have relatively less influence than other attributes, because the relationship between the consumer and producer is the crucial trading relationship and defining supply chain attribute. At the local food chain level, therefore, consumer engagement is deemed to be the most dominant factor. Secondly, transparency, which is seen as a pre-given at a local food chain level due to spatial proximity, but something that still needs to be worked on at the global level. Thirdly, asymmetrical power relations and discrepancies in the bargaining power of food chain actors were seen as a major cause of tension within FSC. Some of the panellists argued that a lack of transparency and uninformed consumer engagement were contributory factors in leading to unbalanced trade relations. Finally, equity/fairness as a food chain performance attribute did not rank highly at either the global or local level. At a global level, it was deemed to be relatively less important given the socio-economic and political parameters underpinning the global food system; while at the local level, the social and spatial proximity nourished by long-term relationships is seen as naturally bringing about a certain degree of transparency, as well as equity and fairness, in the relationships which exist between local food chain actors.

In conclusion, the Delphi study enabled the identification and confirmation of several key points of consensus amongst panellists, in terms of assessing the performance of both local and global FSC.

- The need to address asymmetrical power relations within FSC is the most pervasive issue to emerge. Significant distinction is made here between global and local chains, not least in terms of the degree of consumer engagement.
- Consumers are perceived as becoming more influential actors in the future, although to a large extent this will be determined by the information that is available to them. There are marked differences between global and local FSC.
- The influence of consumers is linked to their ethical awareness and engagement and yet in practice price is likely to continue to be the over-riding factor for most consumers.
- International trade policy will also be a key future driver affecting the performance of globalised FSC, although this is not so relevant for local FSC.
- Large scale retailers are seen as likely to remain the most influential actors within the FSC, notwithstanding the emergence of a range of ‘alternative’ retail models at a local level.
- Although issues related to ecological degradation and resource depletion were recognised to be highly important, the dominance of economic imperatives is also acknowledged.
• Prevailing methods of FSC evaluation are overwhelmingly economic. There is a need to develop more systemic and holistic evaluation approaches that can integrate multiple dimensions of sustainability.

• It is apparent that global and local food chains represent different potentials and trajectories for system transformation. Nevertheless, while the Delphi has identified distinctions between global and local chains, it has also highlighted the importance of interaction and complementarity between the different scales.

8 Discussion and conclusions

The aim of work-package 2 was to provide an assessment of how food chain performance is communicated in national contexts, with reference to global and local supply chains. The national-level reports and this comparative report have identified perceptions and representations of food chain performance, including analysis of how debates about food chain performance are communicated and framed. The aims and objectives of work-package 2 are set out in the introduction of this report. Essentially the work has involved two things: first, a national-level and comparative analysis of global and local food chains, including the identification of dilemmas and contradictions within spheres and dimensions (objectives 1 and 2); and second, the production of a composite matrix of food chain performance (objective 3).

The multi-criteria performance matrix (Table 3), which has structured this comparative report, thus forms the key output for work-package 2. Its construction has involved a series of stages, moving from analysis of individual national-level reports (each with its own matrix, and sometimes a number of matrices) to a comparative analysis of all 12 countries studied (with one combined comparative matrix). The notion of a ‘sphere’ has been critical in this analysis process, providing a means with which to delineate between communication practices, in this case represented as four spheres (market, public, scientific and policy), each conceptualised as a significant communication space and arena of interaction.

To enable comparability across the national reports, each partner responsible for a country-level analysis was asked to examine food chain performance discourses in each sphere in order to identify attributes (i.e. qualities or characteristics that signify some aspect of food chain performance) that were subsequently populated in a national-level matrix. By utilising this common framework partner countries have generated material that is comparable between countries. The set of attribute descriptions and accompanying matrix in each country summarised key debates about global and local food chains in each national system, with each attribute supported by a detailed backstory that was written to a standard set of headings. These national-level surveys of food systems, most of which were desk-based and supported with national-level stakeholder interviews, have comprised the main data source for this comparative report. A Delphi survey with international food chain experts (Section 7 and Appendix 2) has provided another valuable and complementary perspective on global and local food chain performance.

The comparative matrix and final set of 24 attributes documented in this report therefore align multiple meanings that have been attributed to food chains, helping to develop common understandings of food chain performance across the 12 countries studied (aim of work-package 2).
Reducing a large volume of discursive data to one comparative matrix and 24 attributes may appear overly reductionist, but the matrix should not be viewed in isolation. Each attribute description provides a rich body of analysis that distils and draws out the principal discourses and lines of common understanding, but at the same time highlights points where interpretation of individual attributes is contested or spatially differentiated.

In this concluding section of the comparative report we draw out some key points that are particularly relevant to the future phases of the GLAMUR project. We will also relate the work back to the work-package objectives. Five main areas are covered by way of discussion: firstly, comments about the relationship between the country groupings and the individual attributes are provided (objective 2); secondly, important differences between global and local food chains that emerge from the 24 attribute descriptions are drawn out (objective 1); thirdly, key discourse coalitions / dilemmas that emerge from the analysis are summarised (objective 2); and finally, the 24 attributes and the comparative matrix are related to real costs and benefits, resilience and food security as performance criteria (objective 3). Key points of interest that emerged from the Delphi survey will also be noted, as well as any important commodity differences.

8.1 Country groupings and the relationship with attributes

From reading and analysis of the 12 individual national food chain reports, it became apparent that an appreciation of context and national political economy was necessary in order to explain and understand how the performance of food chains was perceived and attributes communicated and valued. In many cases it was clear, for example, that attributes and perceptions of global and local food chains differed considerably dependent upon the context involved. As such, in order to better understand how issues are framed in different contexts, three country groupings where developed. In general terms, each group has similarities on the basis of socio-economic characteristics and/or how food performance is perceived and amplified. This country grouping exercise was presented in the comparative report before the individual attribute descriptions, in order to provide context for the matrix and analysis of individual attributes. It is extended further, below, by examining the relationship between each country grouping and key attributes. The analysis shows that there is a relationship between the socio-economic context(s) involved and how attributes are described.

A diagram has been prepared for each of the three country groupings to explain this relationship and to document the key attributes associated with each grouping. Discourses from each grouping were synthesized into four types of attributes. The first type we term ‘over-arching attributes’. These represent the dominant characteristic or issue that shapes the debate about food chain performance. In each of the three diagrams, they are represented in orange and are linked to other attributes with broken-line arrows. The second type of attribute are ‘core attributes’, which are used to describe the dominant supply chain characteristics and related discourses for each group, which are represented in red rectangles. The third type are ‘secondary attributes’, which in most cases are related to the core attributes and help to further specify the dominant discourses related to each grouping. They are represented in the diagrams in blue ellipses. The fourth type of attribute we have labelled ‘solution attributes’. These attributes, represented as green diamond-shapes in the diagrams, signify the perceived ‘solution’ put forward by the dominant discourses that frame each grouping. In other words, solution attributes are considered as the principal area to investigate and develop in order to achieve food security and resilience of food chains. Finally, relations between
attributes in the diagrams are represented by double-ended arrows to denote the dynamic nature of the relationships/articulations between attributes.

For the first country grouping, socio-economic and structural development (Serbia, Latvia, Peru and Senegal), there is an emphasis on economic attributes (see Figure 1). Socio-economic development is the dominant discourse that frames food chain performance. Consequently, ‘profitability / competitiveness’, ‘contribution to economic development’ and the ‘creation and distribution of added value’ are prioritized in this cluster as key attributes.

**Figure 1: Socio-economic and structural development**

Key:
- Over-arching attributes of food chain performance (orange text, with broken line arrows)
- Primary attributes of food chain performance (red text in rectangles)
- Secondary attributes of food chain performance (blue text in ellipses)
- Solution-based attributes in relation to food security and resilience (green text in diamond)

Attributes like ‘efficiency’ and ‘labour relations’ are also a priority, but are discussed and framed in economic growth terms and linked to profitability and competitiveness. In Serbia, for instance, there is an over-riding emphasis on market efficiency and developing EU standards. ‘Food security’ is another important attribute and a key food chain challenge, especially in Senegal, and this attribute drives discussions about food chain ‘governance’ and ‘contributions to economic development’. The
need for enhanced domestic ‘resilience’ achieved through improved ‘connection’ between actors across food chains is also important, including discussions about reducing food import dependence. ‘Consumer behaviour’ as an attribute is discussed in these countries mainly in terms of convenience, but it also links to the ‘affordability’ attribute. The analysis around ‘resource use’ in these contexts is significant and raises questions about governance and the suitability of asymmetrical power relations which are established when land and/or water access is controlled by a few global players whose primary motivation lies in short-term profit rather than long-term social and environmental viability.

The second country grouping, territoriality and global competition (France, Italy, Switzerland), has territoriality as the dominant performance frame but this discourse is also linked to a market-based neoliberal model (see Figure 2).

**Figure 2: Territoriality and global competition**

![Territoriality and global competition diagram](image)

Key:
- Over-arching attributes of food chain performance (orange text, with broken line arrows)
- Primary attributes of food chain performance (red text in rectangles)
- Secondary attributes of food chain performance (blue text in ellipses)
- Solution-based attributes in relation to food security and resilience (green text in diamond)

There are two main sets of attributes linked to this country grouping. The first sub-set is centred around the ‘territoriality’ attribute and four other related attributes: ‘responsibility’, ‘consumer behaviour’, ‘nutrition’ and ‘biodiversity’ management. In all three countries in this grouping, ‘territoriality’ (the capability of a supply chain to represent and promote product and place links) situates global and local food chain assessment. Performance of food chains in this context is generally discussed from a producer perspective, as well as from an ethical point of view. However,
there are some subtleties in terms of priority. For instance, in Switzerland, ‘territoriality’ is closely linked to the attributes ‘biodiversity’ and ‘resource use’ because of the general need to protect local territories, while in Italy the discussion is orientated more towards ‘consumer behaviour’ and ‘responsibility’ (which also links to ‘affordability’ and ‘fair trade’) because of a greater emphasis on how foods act as a source of identity and social value. In France, ‘territoriality’ links closely to the ‘nutrition’ attribute as food quality - in terms of nutritional quality – which is perceived as being of high priority in French society. For proponents of this territoriality discourse, a key solution to food security and domestic resilience of food chains, which includes food safety aspects, lies in strengthening social relations within food chains (i.e. the ‘connection’ attribute).

The second sub-set of attributes under this territoriality grouping relates more to the relationship between territoriality and global competition / market competitiveness. In the diagram below this is expressed as an economic-oriented triangular core, with ‘creation and distribution of added value’, ‘profitability / competitiveness’ and ‘contribution to economic development’ the three key attributes (also present in the Group 1 diagram). In this territoriality country grouping, ‘food safety’ and ‘food security’ are important over-arching attributes that characterise food chain performance. For proponents of a territoriality discourse, it is a matter of ‘responsibility’. However, for those actors more heedful of global competition (see diagram) ‘technological innovation’ is the solution and domestic ‘resilience’ and (economic) ‘efficiency’ are essential attributes for food chain performance.

The third group of countries, neoliberalism and food system sustainability (the UK, The Netherlands, Belgium (Flanders), Denmark and Spain), has neoliberalism as the dominant frame, but this is set against increasing food system sustainability and global food security concerns (see Figure 3). Some distinct attributes emerge for this group too (see the diagram). What is particularly evident from the analysis is that proponents of the strict neoliberal approach to free trade put forward ‘profitability / competitiveness’ as not only the main condition but also the primary aim of food chain management and performance. Similar to the global competitiveness argument noted in Group 2, technocratic and utilitarian arguments are employed here as a dominant performance frame that articulates the need to achieve (global) ‘food security’ through ‘technological innovation’.

The health, environmental, social and ethical dimensions are absent from this pro-market economic discourse. However, this main frame is countered by proponents of food system sustainability who build their arguments around more socio-economic, environmental and ethical concerns. The core attributes here are ‘resource use’, ‘responsibility’ and ‘fair trade’. ‘Food safety’ (which includes concerns about ‘traceability’) is also increasingly relevant within this country grouping, viewed especially from health and ethical dimensions. There is some polarization of discourse evident then within this grouping, with one framing focused on free trade, ‘technological innovation’ and economic and ecological ‘efficiency’ as the solution to an increasingly global food crisis, while others promote more social and collaborative linkages (connection, fair trade, responsibility, consumer behaviour).

Figure 3: Neoliberalism and food system sustainability
Global and local differences

Under each of the 24 attributes described, analysis is made regarding global and local food chain issues. The comparative analysis raises a number of important points regarding ‘global’ and ‘local’ food and their typical representation as a binary framework. Above all, the analysis highlights the need for a more relational view of global and local food chain dynamics. As the country groupings summarized above show, individual attributes and the way global and local chains are valued is different depending on both the context and priority. As well as this general argument for a more relational view of global and local food chains, a number of specific points related to individual attributes emerge. The following key points are highlighted in relation to the five dimensions:

Economic

- The affordability attribute raises interesting questions about local and global food chains. There is a general view in many national reports that local food is more expensive. Commentaries note too that global chains can cope better with ‘system shocks’ and thus enable affordable food provision. However, as noted in the Italian report, global chains are often exposed to price volatility and the performance of the ‘real’ and ‘virtual’ economy (financial speculation). In particular, the cereals and livestock sectors are especially...
susceptible to financial speculation, with the chicken price in Peru used as an inflation indicator, for example.

- The *creation and distribution of added value and contribution to economic development* attributes raise another set of economic performance arguments. There is agreement in the national reports that local food chains are generally fairer in their distribution of added value to producers, with value added creation a notable problem for producers in global food chains. Local chains are able to better ensure that ‘costs’ and ‘benefits’ are distributed in a fairer way, safeguarding local capacity and value added potential. Nevertheless, some reports argue that when assessed in purely economic terms global food chains make a more significant contribution, with an emphasis on exports and access to global markets.

- Economic efficiency differences between global and local chains are also noted in the *efficiency, governance and food waste* attributes. Critical comments are raised about local food chain inefficiencies in some Group 1 countries (Latvia and Serbia), both in terms of inefficient supply chain arrangements and a lack of efficient standards, which in a Serbian context is necessary to enable access to EU markets. Comments in the food waste attribute suggest that global chains minimize waste due to efficient processes and economies of scale, although global food chains potentially also generate more waste and packaging and are also exposed to ‘norms’ that govern when food must be thrown out.

**Social**

- The *connection* attribute appears in the economic and social dimensions. The basic premise of ‘connection’ (i.e., encouraging social links between actors in a food chain) is a powerful point of difference between global and local chains. Most reports note that global chains very often reduce connections in contrast to local chains which are perceived to be more collaborative. However, analysis also warns against an overly idealised representation of local food chains and social linkages.

- Some clear differences between global and local chains are noted under the *information and communication* attribute. Similar to the *connection* attribute, local supply chains are viewed as better enabling communication through direct producer-consumer interaction. The horsemeat scandal in 2013 revealed the increasingly complex way global food chains operate, with a lack of transparency and increasing questions about the integrity of labeling. This attribute therefore offers an important point of difference for local food chains.

- The *consumer behaviour* attribute is interesting because it highlights differences and tensions between global and local chains. The Senegalese case study in particular provides an interesting perspective. In Senegal, consumers are concerned about quality and freshness, but in most cases prefer imported food from globalised chains because of convenience. In most reports, global chains are viewed as distancing consumers from the point of production.

**Environmental**

- Under the environmental dimension some significant differences between global and local food chains are evident under two attributes: *resource use and ecological efficiency*. In relation to resource use, the scope and extent of resources used at the global level is noted. Global food chains are more energy hungry and the general perception is that local food chains provide energy consumption benefits and reduce food miles. However, it is evident that this ‘global=bad’ ‘local=good’ resource binary is now questioned thanks to a growing number of commodity-based Life Cycle Assessment studies. The analysis on ecological efficiency is also critical of the local = ecologically better analogy, including analysis of the logistical efficiency of local food initiatives.
Health

- The two key health-related attributes in terms of global and local differences are nutrition and food safety. The nutrition attribute in many respects offers a critical point of differentiation for local food chains, with most national studies reporting that local/shorter food chains are generally superior in terms of enabling access to fresher and more seasonal foods. Larger transportation and storage burdens associated with global chains, especially for fresh food commodities, is seen as affecting nutritional quality. Food safety differences between global and local chains are also important. In many reports, food safety concerns are noted as prominent in global food chains, linked to past food scares, with local chains better able to overcome distrust and insecurity that result from food scandals. In some cases, however, e.g., Serbia, local food chains are noted as lacking controllable standards making them more, rather than less, risky. These attribute differences need further empirical analysis.

Ethical

- The food security attribute is both a social and ethical issue. It raises some important ethical questions about local food. Some national reports highlight the role that local food chains play in enabling food justice, as well as the role of less typical local foods (i.e. not all are high-end, specialist products for wealthy consumers, with some local food networks designed to enable access to fresh local produce, particularly fruit and vegetables, often in more deprived urban and rural communities). In relation to this attribute, critical comments about local food are also evident, particularly their elitist representation and limited availability due to price. As noted in the Spanish report, there is recognition of the need not to demonise global food chains, and to also not view global and local chains as isolated systems.

- The territoriality attribute again highlights clear differences between global and local food chains. This attribute is strongly linked to wine and cheese production. In some respects, the differences re-assert well known perceptions about long and short food chains, with local / short food chains thought to be more associated with authentic food, embeddedness and of relevance to the culture of particular places, with global / long chains being more impersonal and brand dependent. However, the appropriation of ‘territoriality’ by long chains was also noted and warrants further analysis.

Delphi survey

- The Delphi survey was particularly useful in its analysis of global and local food chain characteristics. As noted in the overview and summary of Delphi findings, a key point to emerge was the need to address asymmetrical power relations within food chains. In terms of global and local food chains, expert panellists noted significant distinctions, particularly in terms of the degree of consumer engagement. In local food chains the relationship between the consumer and producer is the crucial trading relationship. This reaffirms the importance of ‘connection’ as a defining food chain attribute.
environmental performance and also in the way that food security is framed. At a general level, the differences evident in the country groupings and particular attributes is linked to the role of the market; there is a dominant pro-market frame and then more alternative ontologies. This is expressed most clearly in discussions about efficiency, with a market-based view of productivity clearly at odds with an alternative economic view which emphasizes the carrying capacity of the territory and a market-based view of ecological efficiency which is avowedly committed to technological progress and input/output relations in contrast to those which emphasize the carrying capacity of ecosystems. These battlegrounds are also evident in other attributes: the creation and distribution of added value attribute notes differences between scientists and farmer unions, who are critical of the way global chains distribute value added, and pro-market analysts who criticize farmers for production inefficiencies.

It is evident from the attribute descriptions that there are some quite significant battlegrounds in place regarding how food chains are assessed in the future, which in quite a few publications are now expressed as a battle between ‘bio-economy’ and ‘eco-economy’ advocates. This is quite a blunt division but there is certainly evidence in the comparative report to support this kind of division, seen especially through the food security attribute discussion. The Dutch analysis of the ‘feed the world’ discourse, for example, shows clear differences between the two groups.

From the attribute descriptions, it is evident too that new alliances are forming between actors in different spheres. In particular, the governance attribute describes how new alliances are forming between the food chain (market sphere) and social movements (public sphere), particularly in response to concerns about traceability. This includes alliances between short food chain advocates and social justice groups. Under the food waste attribute alliances between public sphere activists and scientists are also evident, in this case to promote more responsible consumer behaviour.

8.4 Real costs and benefits, resilience and food security

We end this discussion by returning to the final work-package objective (3), which involves linking the attributes that have emerged and been positioned on the comparative matrix to an understanding of global and local food chains in terms of real costs and benefits, resilience and food security. Essentially the attributes can be clustered to help explain how these three themes are perceived and represented (see Table 5 below). The attributes under each theme are ordered alphabetically. They are not pre-determined or ranked. Importance is determined, instead, by context.

It is possible to use the attribute descriptions clustered in the above table to help characterise real costs and benefits, resilience and food security. In relation to the real costs and benefits, for example, this includes accounting for how added value is distributed, but also includes themes from across all five dimensions, including food waste and pollution indicators and impacts, nutritional and food safety concerns, labour relations and fair trade. Some of these issues can also be linked to particular commodities – pollution and resource use and animal welfare issues are noted in fruit and vegetables and meat (especially pork). Overall, all attributes which carry any type of externality are included here.
For the resilience theme we have the resilience attribute itself, which links to economic aspects (such as price volatility and the diversity of sales markets), but includes also debates about efficiency, resource use, technological innovation, biodiversity management and systems of resilient food chain governance. In respect of the latter, for example, there is debate about the subsidy buffer that the CAP provides to the grain and dairy sectors. In general, attributes which carry a strand which describes, in some way, the ability to overcome performance barriers and maintain the capability of the food chain to maintain performance are included under the heading of ‘resilience’.

The food security theme also includes a range of attributes from the multi-criteria matrix, including food security, but also debates about information and communication, consumer behaviour and nutrition. The attribute descriptions again provide rich material to extend how these themes are understood. Under consumer behaviour, for example, a key debate in relation to food security is how to encourage a reduction in meat consumption, but also the management of ‘choice options’ more generally. The nutrition attribute extends this, particularly the debate about what is meant by ‘sustainable diets’.

The resource use attribute appears in all three themes, because as an attribute it concerns the use and management of flows of available resources through global and local food chains. Its emphasis on resource consumption makes it indispensable in accounting for real costs and benefits. This is because real costs and benefits can only be achieved if they account for real commodities and real resource pressures (i.e. commodities with an intrinsic value as opposed to mere financial speculation). The second strand of resource use - performance measurement - makes it an integral part of the discussion about resilience and food security, as noted throughout the report.

8.5 Conclusions

This comparative report (and the materials associated with work-package 2, including the 12 individual national reports) provides the foundation and starting point for the whole GLAMUR project. It has summarised the range of debates, issues, perceptions and representations about global and local food chain performance. As noted by Delphi panel experts, prevailing methods of...
food chain evaluation are overwhelmingly economic-oriented. The distribution of attributes in the multi-criteria performance matrix to some extent reflects this, and the analysis recognises the influence of a neoliberal pro-market dominant frame, but effort has been made, too, to reflect attributes across all five dimensions. The final list of 24 attributes and the multi-criteria performance matrix thus form the key output from work-package 2. The country groupings and the synthesis above provide another level of comparative analysis. The next step is to turn these attributes into quantitative and qualitative indicators as part of commodity-based case study analyses (work-packages 3 and 4). This will further help to develop more systemic and holistic evaluation approaches that integrate multiple dimensions of sustainability.
9 Acknowledgements

The CCRI would like to thank Professor Krzysztof Gorlach for his constructive comments on an earlier version of this comparative report at the GLAMUR ‘Expert’ meeting held at the FAO in Rome on February 27th 2014. We are also grateful to other members of the audience who provided constructive feedback at that meeting, as well as to our GLAMUR colleagues who commented on a draft version of the report.
10 References


11 Appendices

11.1 Appendix 1: WP2 Methodology and Guidance

WP2 Methodology and Guidance.
Prepared by James Kirwan, Damian Maye, Dan Keech (all CCRI) and Gianluca Brunori (FIRAB).
Final version, October 2013.
All partners are involved in WP2, with the exception of: City (3) and CRPA (8).

Work package title:
Scoping / framing: Analysing the communication of food chains and their performance

Objectives:
• Conduct a systematic analysis of how both ‘local and global food’ and the ‘performance of food chains’ are perceived, defined and communicated in the public, scientific, market and policy spheres across a range of dimensions (economic, social, environmental, health and ethical).
• Assess how each of these dimensions is framed in different contexts, and to identify the dilemmas and contradictions within each, as well as the interaction between them, that potentially affects attitudes and behaviour in relation to food chain performance.
• Develop a matrix that catalogues ‘local and global food’ performance across a range of criteria including real costs and benefits, as well as resilience and security.

Interpretation, Conceptualisation and Rationale:
Due to the complex and multi-faceted nature of WP2, it is important to establish a clear and common understanding of what it is about and what is needed in terms of final outputs. We have set out our interpretation of WP2 below, including a summary of key terms and concepts.

As noted in the workpackage title, WP2 is about scoping and framing. It will evaluate the debates surrounding the performance of food chains at both a global and local level in the public sphere, in the market sphere, in the scientific sphere and in the policy sphere. It will capture perceptions and representations of food chain performance in these different spheres. We need to recognise the existence of legitimate but potentially contrasting perspectives among social actors about food chain performance – our task is to capture, sort and categorise the different perspectives and to use them to complete a matrix for each country, listing food chain performance attributes at both global and local levels.

We can conceptualise the different perceptions and representations as a set of food chain performance frames. Frames are “mental structures that help people to make sense of the world” (Brunori et al., 2013: 20; see also Lockie, 2006; Mooney and Hunt, 2009); they establish boundaries (Callon, 1998); they select information (Wilkinson, 2011); and they can help “explain how policy-
makers structure reality” (Tomlinson, 2013: 83). Crucially, frames (which represent specific discourses about food chain performance) develop and generate through communication practices. Within this project we use the term sphere to delineate between different communication practices. A sphere is a space of communication characterised by actors, the media and discourses. Two spheres are typically identified in the literature (Brunori et al., 2013): the market sphere, where individuals make judgements regarding commodities; and the public sphere, where citizens debate about common affairs (Habermas et al, 1989). The public sphere is now increasingly open to media manipulation, but it is also a battleground and space where alternative frames can emerge. For the GLAMUR project we have also identified the scientific sphere and the policy sphere, as important socio-economic contexts where food chain performance is communicated.

It is important to avoid conflating spheres with social actors (e.g. only associating producers with the market sphere). Spheres in this study are interpreted as arenas of interaction, where specific discourses are generated through communication between different actors and groups, and where discursive coalitions unfold. Each sphere thus represents an arena of interaction among actors (that could include, for example, producers, scientists, consumer groups). The purpose of interaction of any involved actor is to make claims that are of general interest within the given sphere in order to gain control over the course of action of other actors.

The key thing that differentiates between spheres is the objects around which communication is developed. In the public sphere the common object is ‘the common good’, in the market sphere the object is ‘commodities’, in the policy sphere the object is ‘policies’, and in the scientific sphere the object is ‘legitimate truth claims’. In any given sphere, different narratives interact and discursive coalitions develop that compete with each other. The purpose of WP2 is to identify the issues that, within a specific sphere, are objects of either consensus or controversy.

In simple terms, the task then is to capture in each country how food chain performance at both a global and local level is debated in the four different spheres in relation to our five performance dimensions (economic, social, health, environmental and ethical). The task, however, is not quite as straightforward as that. We need to be aware of the overlapping nature of spheres, and the need to identify connections, interactions and contradictions both between and within frames. As noted above, the different spheres will overlap (scientific research may overflow into the public sphere, for example). Individuals and groups will translate frames to different spheres – for example, public sphere issues become rhetorical resources in the market sphere, symbolised by the corporate construction of ethical standards to appease public concerns about the ethics of their food supplies (Brunori et al., 2013). There may also be general consensus about the importance of a particular performance frame (e.g. the need to improve food chain resilience), but multiple meanings and possible opposition about how it can be achieved (Mooney and Hunt, 2009). The UK ‘official’ response to food security, for example, is to support market liberalisation, globalisation, sustainable intensification and risk management, but this ignores other (more socially-orientated) responses.

Actors therefore behave according to personal narratives that in turn are influenced by collective narratives developed in the different spheres; furthermore, we may classify collective narratives into ‘dominant’ and ‘alternative’ narratives. Dominant and alternative narratives struggle around general ‘problems’ (for example, feeding the world, protecting the environment) and provide different interpretations of facts and normative accounts (i.e. what should be done). The purpose of WP2 is to identify the attributes common across narratives and yet framed in various ways by different categories of actors or even by different actors in the same category.
We may ask: what is the dominant narrative for consumers in Italy or in Spain with regard to prices (attribute)? What are the alternative narratives? Who are the story tellers? How do they operate to create discursive coalitions?

The following example illustrates how we can operationalize this approach:

- Actors involved: farmers, food corporations, consumers, policy makers, opinion makers, scientists
- The problem: providing a fair reward to actors in the food chain
- Attribute: price
- Dominant narrative: low prices are good because they increase consumer welfare
- Alternative narrative: low prices are bad because they don’t reward farmers’ efforts sufficiently and undermine the sustainability of farming.

The rationale for WP2 can thus be summarised as follows:

To align the multiple meanings that are attributed to food chains, having regard for the contexts involved, and to create a common understanding of food chain performance that has been developed and substantiated by scientific evidence.

The rest of this paper outlines the tasks and steps we need to complete to do this. We will provide worked examples in each case to illustrate what is needed. The end point of WP2 will be the identification of a matrix of attributes (n.b. not indicators) that summarises the essential characteristics of food chain performance, in relation to global and local food, as represented and perceived in the different spheres, across the five dimensions.
**WP2 Timetable:**

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 15&lt;sup&gt;th&lt;/sup&gt; 2013</td>
<td>Guidance documents for desk-based analysis and interviews, <em>plus</em> Guidance on structure for national-level reports, including the multi-criteria performance matrix</td>
<td>Circulated for discussion</td>
</tr>
<tr>
<td>March 28&lt;sup&gt;th&lt;/sup&gt; 2013</td>
<td>Guidance documents for desk-based analysis and interviews, <em>plus</em> Guidance on structure for national-level reports, including the multi-criteria performance matrix</td>
<td>Finalised and circulated</td>
</tr>
<tr>
<td>April 30&lt;sup&gt;th&lt;/sup&gt; 2013</td>
<td>Each partner to send a provisional list of sources that will be consulted (journals, blogs, websites, etc), to the WP2 leaders.</td>
<td>This is to help ensure methodological homogeneity Email to Dan Keech (<a href="mailto:dkeech@glos.ac.uk">dkeech@glos.ac.uk</a>); please also upload onto the GLAMUR website (WP2 folder)</td>
</tr>
<tr>
<td>June 14&lt;sup&gt;th&lt;/sup&gt; 2013</td>
<td>Complete Delphi stakeholder template.</td>
<td>Email to Dan Keech (<a href="mailto:dkeech@glos.ac.uk">dkeech@glos.ac.uk</a>) please also upload onto the GLAMUR website (WP2 folder)</td>
</tr>
<tr>
<td>September 2013</td>
<td>Second project meeting - Riga</td>
<td>Intermediate results presented by partners</td>
</tr>
<tr>
<td>Delphi</td>
<td>By July 19&lt;sup&gt;th&lt;/sup&gt; 2013 Final selection of Delphi stakeholders</td>
<td></td>
</tr>
<tr>
<td>July 2013</td>
<td>Pilot first round questions</td>
<td></td>
</tr>
<tr>
<td>Sept/Oct 2013</td>
<td>First round of Delphi</td>
<td>1&lt;sup&gt;st&lt;/sup&gt; Sept questions sent out for return by the 15&lt;sup&gt;th&lt;/sup&gt; Oct</td>
</tr>
<tr>
<td>Oct/Nov 2013</td>
<td>Second round of Delphi</td>
<td>25&lt;sup&gt;th&lt;/sup&gt; Oct questions sent out for return by the 15&lt;sup&gt;th&lt;/sup&gt; Nov</td>
</tr>
<tr>
<td>Nov/Dec 2013</td>
<td>Third round of Delphi</td>
<td>29&lt;sup&gt;th&lt;/sup&gt; Nov questions sent out for return by the 20&lt;sup&gt;th&lt;/sup&gt; Dec</td>
</tr>
<tr>
<td><strong>WP2 Deliverables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Month 11 (end December 2013)</td>
<td>Full, first draft of national-level reports to be sent to CCRI</td>
<td>To enable the development of indicators for WP3</td>
</tr>
<tr>
<td>Month 12 (January 2014)</td>
<td>Peer review of national-level reports</td>
<td>The CCRI will suggest who reviews which, based on the likely case study pairs</td>
</tr>
<tr>
<td>Month 13 (end February 2014)</td>
<td>D 2.1 National-level reports</td>
<td>Final version due – as a project deliverable</td>
</tr>
<tr>
<td>Month 14 (end March 2014) Now moved to end February 2014</td>
<td>D 2.2 Draft comparative report</td>
<td>For discussion at first expert meeting. Produced in Powerpoint form</td>
</tr>
<tr>
<td>Month 15 (April 2014)</td>
<td>D 2.3 Scoping/framing general comparative report on food chain performance</td>
<td></td>
</tr>
</tbody>
</table>
**Countries to be covered in WP2:**

<table>
<thead>
<tr>
<th>Country</th>
<th>Partner responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Netherlands</td>
<td>WU (1) and CLM (7)</td>
</tr>
<tr>
<td>Italy</td>
<td>FIRAB (2)</td>
</tr>
<tr>
<td>France</td>
<td>INRA (4)</td>
</tr>
<tr>
<td>Belgium</td>
<td>KULE (5)</td>
</tr>
<tr>
<td>Switzerland</td>
<td>FiBL (6)</td>
</tr>
<tr>
<td>Spain</td>
<td>UAB (9)</td>
</tr>
<tr>
<td>UK</td>
<td>CCRI (10, 11)</td>
</tr>
<tr>
<td>Latvia</td>
<td>BSC (12)</td>
</tr>
<tr>
<td>Denmark</td>
<td>AAU (13)</td>
</tr>
<tr>
<td>Serbia</td>
<td>BEL (14)</td>
</tr>
<tr>
<td>Kenya and Peru</td>
<td>IIED (15)</td>
</tr>
</tbody>
</table>

**Work package tasks to be undertaken by the partners involved:**

**Task 2.2:** Analysis of how food chain performance is currently assessed

**Task 2.3:** Interviews
To complement the analyses conducted under Task 2.2, each of the partners involved will conduct between 10-15 interviews with a range of stakeholders across the food supply chain.

**Task 2.4:** Delphi Method
This will be undertaken by the CCRI (10, 11) together with FIRAB (2). It will include participants from all those countries examined under tasks 2.2 and 2.3.

**Task 2.5:** National-level Reports (based on tasks 2.2 & 2.3)
Based on the analysis conducted under task 2.2 and the interviews (task 2.3), each partner will write a national-level report. Included within this report will be a multi-criteria performance matrix of food supply chain performance related to global and local food. This matrix will summarise the 20-30 key attributes that have been generated by the analysis conducted under Tasks 2.2 and 2.3.

**Task 2.6:** Comparative Report (based on tasks 2.4 & 2.5)
Based on the national-level reports (task 2.5) and the results of the Delphi method (task 2.4) CCRI, in collaboration with FIRAB, will write a comparative report which will include a multi-criteria performance matrix.

**Detailed guidance on each of these tasks is now given, below.**
Task 2.2: Desk-based analysis of how food chain performance is currently assessed, in each of the countries covered within WP2

Using existing data sources, the purpose of task 2.2 is to identify:

- Existing tools and methods commonly employed to assess food chain performance.
- The range of discourses and controversies involved in the supply of food.
- Significant performance value differences between local and global supply chains for the five key commodity sectors (wheat, dairy, pork, fruit and vegetables, wine) that will form the basis of an analysis in WP 5.

Analysis of these data, when combined with the interview data (task 2.3), will form the basis of the national reports.

Data sources need to be sought that cover each of the four spheres (public, scientific, market and policy), as well as each of the five dimensions (economic, social, environmental, health and ethical). In addition, the analysis will need to identify any value differences and perceptions between global and local supply chains, particularly in relation to the five key commodity sectors. As such there are a number of factors to consider when both accessing and analysing the data sources.

What kinds of data should be analysed?

Examples of data sources include:

- Newspaper articles, TV programmes, magazines (journalistic, trade, health, gastronomy), blogs, Twitter and other social media
- Public information guides, advertisements
- Market research, consumer trends, trade networks
- Journals, books, web-sites
- Government, NGO and think-tank documents

Some sources listed above obviously relate to a certain sphere (e.g. journal articles are part of the scientific sphere). Other sources may overlap between spheres (e.g. a website may span a number of spheres). The key point is that research teams should review a good cross-section of sources as part of their desk-based analysis, in order to cover the full range of spheres, dimensions, commodity sectors and local and global food supply chains.

Identification of sources

The potential number of sources is almost limitless. It is necessary, therefore, to give some guidelines as to how this task can be made more manageable within the context of Glamur. It is intended to be a contemporary analysis; what is currently being debated, rather than looking at the long-term evolution of a discourse. As such, there is no need to go back further than five years for sources in the majority of cases, unless a source/study is particularly influential on current debates.
These guidelines are by no means exhaustive, but they are intended to help partners identify key textual, media and other sources. They will also help ensure a degree of consistency across the countries examined.

It will be critical when searching for and analysing sources to bear in mind the five dimensions, four spheres and five sectors. This will help to avoid a generic review of material. We want to identify perceptions and representations of food chain performance at both a global and local level across our specific areas of interest.

**Scientific / academic sources:**

Teams may already be aware of key research papers that document food chain performance related to global and local food in their national context. If so, an obvious place to start would be to list / review key scientific articles that you already know. In addition, we suggest using academic search engines such as Web of Science, and Google Scholar.

As a guide, we would expect national reports to review between 10-30 scientific articles/sources (recognising that some countries are likely to have more potential sources than others) that represent / examine one or more dimensions of global and/or local food chain performance, in relation to their national context.

Here is just one example of a paper we have identified as relevant, which examines local food chain performance in the UK:


This scientific paper challenges the local food = positive environmental benefit representation via an LCA that compares a farm shop and a mass (national) distribution chain. It therefore critiques local food, the food miles concept and highlights LCA as a tool for analysis of food chain performance. This example illustrates the type of material that might be drawn from scientific papers.

**Policy documents, NGO reports, other policy sources:**

You may already be aware of key policy/think tank-type reports that document food chain performance in your national context. Other potential sources can be identified via Internet searches and analysis of relevant institutional web sites. Research colleagues and interviewees may also identify other relevant sources.

As a guide, we would expect a review of between 10-20 reports/NGO documents. Here are three examples that we have identified for the UK report:

Market reports and food industry sources:

The guidelines for market-orientated sources are similar to those provided for policy and NGO sources. A good place to identify written sources may be industry and food sector websites. The website of a market institution is itself a source – the same applies for policy / NGO-orientated websites. Websites can be initially analysed (using Tagcrowd, for example. Further details on Tagcrowd are given below), but should also have links to relevant reports or other material that can be reviewed.

For market / food industry sources in particular it will important to recall the dimensions, sectors and performance differences that we want to capture. Generic description is not what we are interested in; we want to capture how global and local food chain performance is represented, the attributes associated with them, and any tools/methods (e.g. LCA, carbon footprinting, corporate social responsibility) that are popular/widely debated in these sources and elsewhere.

In this respect, here are just a couple of examples of where we aim to start the UK analysis:

- Institute of Grocery Distribution – they have a very detailed website, which will be a start for the analysis.
- British Retail Consortium. Again, we will start with their website.

We would expect each partner to examine around 15 to 20 relevant reports and other sources (as well as website analysis, if appropriate). We suggest starting with a simple Tagcrowd of a relevant website and/or report and to then examine/review in more detail the most relevant reports.

Newspaper articles magazines:

The number of newspaper articles that cover some aspect of food supply will likely number in the thousands, so we need to be selective. We suggest the best way to identify articles is by using a recognised newspaper database or proprietary search tool (e.g. in the UK this could be Nexis Lexis (which requires a licence), or Alceste in France). It may be necessary to run some initial searches and to then limit the search field / terms used. Bear in mind again the things that we are most interested in: i.e. food chain performance in relation to global and local food across our five dimensions and five sectors over the last 5 years. Use keywords like ‘local food’, ‘local food chain’, ‘global food’ and ‘global food chain’ to start with, but you may need to restrict the research depending on the number of articles identified (e.g. local food and labour, global food and environment). We would expect each country report to review around 100 newspaper articles/magazines.

Blogs/Facebook/Twitter:

Forms of social media are an increasingly influential part of public discourse. We need to consider and account for them in our national reports, but in a selective manner. We envisage national reports consulting between 5-10 blogs. National teams may already be aware of influential food blogs. Food blogs can also be ranked in terms of hits to indicate their popularity/influence; they can also be ranked in terms of their direct relevance to GLAMUR. Facebook sites are more difficult to access, but are worth considering if deemed relevant/influential and access is not a problem. The same rule applies for Twitter accounts/feeds. Teams will need to make their own judgements in terms of limiting
the number of blogs or other social media to be analysed. This type of source may be more or less influential in some countries rather than others.

**TV Programmes:**
Television programmes may have a significant influence on the national food discourse. If teams are aware of key programmes (or celebrities – e.g. chefs) that have an influence on the public food discourse in relation to supply chain performance, then we would suggest that they use their own judgement to identify these appropriate sources. It may be that some of these programmes and/or celebrities are discussed in the context of newspaper articles and other sources, including blogs and other forms of social media, and this may be a way of including this type of source / discourse.

**Summary:**
Identifying appropriate media sources is an important first stage of the desk-based analysis. We should have a range of sources across the four spheres for each country. By way of example, and to help summarise the above, an indicative list of sources for the UK and Italy is provided in two tables, below. The total range of key sources is as follows: 10 to 30 academic papers, 10 to 20 policy related documents, up to 100 newspaper articles, text from 5 to 10 blogs. Identifying this final set of sources will require some initial sifting and sorting. We suggest each partner develops a preliminary list of sources and sends it to the WP2 leaders by **April 30th**. We will check for consistency of approach between countries.
### Indicative list of sources for Italy:

<table>
<thead>
<tr>
<th>Sphere</th>
<th>Source / search engine</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scientific</strong></td>
<td>Google Scholar</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Salmone.org</td>
<td>Website of an independent researcher on issues related to GMOs</td>
</tr>
<tr>
<td><strong>Public</strong></td>
<td>La Repubblica</td>
<td>Most read newspaper in Italy, Free access database</td>
</tr>
<tr>
<td></td>
<td>La Stampa</td>
<td>Third most read newspaper in Italy, Free access database</td>
</tr>
<tr>
<td></td>
<td><a href="http://www.ilfattoalimentare.it">www.ilfattoalimentare.it</a></td>
<td>Most influential blog on food</td>
</tr>
<tr>
<td><strong>Policy</strong></td>
<td>Google news</td>
<td>Search engine on news</td>
</tr>
<tr>
<td><strong>Market</strong></td>
<td><a href="http://www.slowfood.it">www.slowfood.it</a></td>
<td>Website of the most important ngo on food</td>
</tr>
<tr>
<td></td>
<td>Barilla food and nutrition foundation</td>
<td>Barilla website on issues related to food</td>
</tr>
<tr>
<td></td>
<td>Coop</td>
<td>Website of the most relevant supermarket chain in Italy</td>
</tr>
<tr>
<td></td>
<td>Campagnamica</td>
<td>Website of a network of farmers' markets</td>
</tr>
</tbody>
</table>

### Indicative list of sources for the UK:

<table>
<thead>
<tr>
<th>Sphere</th>
<th>Source / search engine</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scientific</strong></td>
<td>British Food Journal</td>
<td>Papers on range of food chain issues</td>
</tr>
<tr>
<td></td>
<td>Food and Climate Research Network</td>
<td>International network but a lot of UK material covered.</td>
</tr>
<tr>
<td><strong>Public</strong></td>
<td>The Guardian</td>
<td>Regular food features reports by nationally recognised journalists – Joanna Blythman, Felicity Lawrence, Matthew Fort.</td>
</tr>
<tr>
<td></td>
<td>The Daily Telegraph</td>
<td>Ditto – Charles Dowding, Charles Clover, Charles Moore</td>
</tr>
<tr>
<td></td>
<td>foodies100.co.uk</td>
<td>Lists top 100 food blogs by visitor numbers. Top three ranks include wine, chocolate. Some services are commercial.</td>
</tr>
<tr>
<td><strong>Policy</strong></td>
<td>Defra (website and reports)</td>
<td>Key government department that deals with food chain issues.</td>
</tr>
<tr>
<td><strong>Market</strong></td>
<td>The Grocer</td>
<td>Leading grocery trade magazine.</td>
</tr>
<tr>
<td></td>
<td>Institute of Grocery Distribution</td>
<td>Conducts food industry research / analysis.</td>
</tr>
</tbody>
</table>
Identification of attributes

In this section, we outline a strategy to identify key performance attributes, which will form the centrepiece of the WP2 report. Given the potential breadth of materials to be reviewed it is important to set out a sequence of analytical steps for national teams to follow to ensure consistency of approach when it comes to identifying and reporting performance attributes.

What we eventually want to identify from the different sources is a list of attributes related to food chain performance in each country. Each attribute will signify a general characteristic that is important in terms of how global and local food chains are perceived and represented in each country. It will not be possible to identify attributes straight away; we must allow the attributes to emerge from the desk-based analysis.

Step 1: Coding and Tagclouds
The first important step therefore is to undertake some initial coding and content analysis of the different sources. To do this, research teams will need to read through the different sources (at a general level rather than in detail at this stage) to identify initial codes/key themes related to food chain performance. Textual analysis can be done manually, although teams can of course use qualitative software packages (such as NVivo) if they wish.

This initial coding exercise will identify a list of codes and themes related to global and local food chain performance. Partners may find Tagcrowd helpful in identifying initial codes (see the worked example from the New Economics Foundation, below). It can be used to conduct a basic content analysis of scientific papers, policy and market documents, and blogs. Tagcrowd is free and available from: www.tagcrowd.com

Some examples of outputs when using Tagcrowd (known as a tagcloud) are:

**British Food Journal tagcloud**

**Food Ethics Council tagcloud**
As a worked example, the following tagcloud is taken from the executive summary of New Economics Foundation (2009). Re-framing the great food debate: the case for sustainable food, in order to help identify the emergence of relevant codes.

Context where there are the most instances of relevant codes emerging.

This includes searching within the text and identifying sentences where the keyword is located.

<table>
<thead>
<tr>
<th>Sustainable food</th>
<th>Page 1</th>
<th>We define sustainable food as food associated with high levels of well-being, social justice, stewardship and system resilience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social justice</td>
<td>Page 11</td>
<td>Refers to the belief that all individuals and groups should be afforded fair treatment and an impartial share of the benefits of society. As such, social justice must be rooted in the equitable distribution of power and resources – economic, political, social and environmental – within and between social groups. Social injustice and power (economic, political and social) are thus inextricably bound together.</td>
</tr>
<tr>
<td>Stewardship</td>
<td>Page 11</td>
<td>‘The long-term maintenance of valued environmental resources in an evolving human context’.</td>
</tr>
<tr>
<td>Stewardship</td>
<td>Page 13</td>
<td>Put simply, we have to accept that in terms of both sustainability and well-being, less material consumption is more. There will be a critical role for innovative policy to drive company and individual behaviour in this direction. In relation to food, this ‘less is more’ approach could play out in a number of ways, including reducing levels of dairy and meat consumption, as well as fish consumption, and setting aside the notion that all fresh fruit and vegetables must be made available throughout the year.</td>
</tr>
</tbody>
</table>
Step 2: From Codes to Attributes
Having collected and identified an initial list of codes/keywords linked to food chain performance across the different sources, the next step is to identify an initial list of key attributes. An attribute is basically a second level code. It signifies and connects a number of codes that together characterise an important feature of food chain performance. In the health and social spheres, for example, obesity might emerge as a key food chain performance attribute, with a series of other codes/keywords related to it (e.g., fats/sugars, cheap food, processed food). Surrounding each attribute will be a set of codes and themes that will help to reveal something about food chain performance at global and local levels in that country. Another example of an attribute might be affordability, which could have codes related to food prices, the social costs of cheap food, etc.

In Step 2 then, we start to look across the initial list of codes/themes identified in Step 1 and try to identify connections and higher level codes that explain how food chain performance is characterised in each national context. In practical terms it might be more manageable to develop the list of attributes iteratively. For example, each team conducts an initial review/coding of 20 or so academic papers and from that generates a list of codes. From that list you then try to look for connections and higher level attributes. This might generate an initial list. A review of newspaper articles may then be undertaken, codes identified and refined, attributes identified and refined and so on. We can summarise as follows:

I) Identify sources
II) Code sources
III) Group codes/themes
IV) Generate (initial) attributes list

Drawing on the progress reports prepared for, and presented in, Riga it is apparent that partners may wish to prepare a number of different matrices of attributes within their national reports; however, there will need to be a final single matrix that will be used in developing the comparative matrix (deliverable 2.3), which in turn will be used to develop indicators as part of WP3. We envisage this final matrix including 20 attributes (see Task 2.5 for further details), each of which is described in detail (see step 4 below).

Step 3: Ranking Attributes
The above is a general guide to shift from coding to attribute analysis. After step two each team will have an initial list of attributes (and associated codes and supporting thematic text) relating to food chain performance identified across a range of media sources. In step three we suggest that this initial list of attributes is then tested, ranked and debated in the 10 to 15 stakeholder interviews. We would like interviewees to comment on the list, to add to the list and if doing so to explain why new attributes are important to capture. In the interviews we would also like interviewees to identify / comment on whether any attributes are specific to our food commodity sectors (fruit and vegetables, dairy, grains, pork and wine). We have provided detailed guidelines on the interviews and the interview schedule in Task 2.3, below.

Step 4: Plotting and Description of Attributes
By the end of the interviews, combined with the desk-based analysis, it should be possible to identify and plot the attributes on the matrix. They are a final synthesis of the media and interview analysis. They must be carefully selected and in the report their relevance and characteristics must be
systematically described. It is possible that some attributes will appear across more than one, and possibly all four spheres; other attributes may be specific to just one sphere/dimension.

The final selection of attributes will necessitate encompassing a wide range of debates and issues within a single term or short phrase. Inevitably this will mask much of the detail, meaning that it is critical to provide a ‘thick description’ of each of the attributes chosen for the final matrix. As well as providing descriptive text please also try to explain why the attributes were chosen. For example, if an attribute (e.g. affordability) is a high priority, then also provide some explanation of why it is a high priority. This ‘thick description’ thus needs to tell the full backstory of each of the attributes, so that anyone reading the report can understand exactly what is covered in each case.

As such, detail needs to be provided for each attribute on the following:

1. A detailed description of both how and why each of the attributes had been chosen within your national context, and what they represent.
2. Justification / explanation for why the attribute has been positioned in a particular cell(s) with the final matrix.
3. The level(s) of the system to which it applies (individual, groups, local communities, national, global ecosystems).
4. The priority given to the attribute, both in the range of media accessed as part of the desk-based analysis, and by the experts interviewed.
5. The differences between the four spheres.
6. The differences between the five dimensions.
7. The differences between global and local supply chains.
8. The nature and extent of discourse coalitions and alternative framings of the issues.
9. The dilemmas and contradictions that have emerged from the analysis.
10. The evidence of interactions with other attributes, and the significance of this.
11. The differences between the food sectors / commodities examined.

We have provided further guidelines on how attributes should be reported and described under Task 2.5, below. Crucially, once the attributes have been identified and ranked, the analysis must then be able to tell the back story and reveal the discourses that surround each attribute, along the lines described above. These themes thus provide a guide in terms of the sort of information that teams should draw down from the media interview analysis, to inform the choice and description of attributes in the national reports.

Research teams will be asked to present three of their most important attributes in their national context at the team meeting in Riga in September, 2013. This will provide the opportunity to check for consistency of approach across the research centres, as well as to share learning and initial findings. We also suggest that we use the GLAMUR website (intranet) as a place to share learning and best practice, as the desk-based review progresses.

The next sections of the document provide further guidelines on the interviews, Delphi recruitment, report writing and completion of multi-criteria performance matrix.
Task 2.3: Interviews

Introduction
The interviews are intended to supplement the desk-based review and help inform the national reports. They will be particularly useful as an additional way to both identify and rank key attributes associated with food chain performance at both a global and local level, as well as identify important issues, debates and methods used to analyse food chains. It is suggested, therefore, that interviews follow the desk-based research under task 2.2, or at least come after a significant proportion of desk-based analysis has been done.

Between 10-15 interviews are to be carried out. The interviewees should be experts in their fields, able to provide insights into local/global, as well as security and resilience issues in food supply chains within their country. An immediate task for interviewers is to draft a long-list of interviewees, sampled with reference to the five commodity chains that form the focus of Glamur (pork, dairy, fruit and vegetables, wine and grains).

The interviews are expected to last up to a maximum of one hour.

Interview questions
Each partner should insert an introductory paragraph at the start of the interview schedule to explain the aims of the Glamur project and the purpose / structure of the interview.

Section 1 – Contextual information
(i) Can you please briefly describe your interest/work in food chains?
(ii) What is your area of expertise, in relation to the food chain?
(iii) How would you say you engage with food chain issues? [e.g., as an academic, policymaker, market analyst, producer representative]
(iv) What about your institution / department? Can you provide a little bit of background in terms of their engagement with food chain issues?

Section 2 – Key supply chain issues
(i) What do you consider to be the key food chain issues / challenges at the moment and why?
(ii) How do you perceive the performance of the food supply chain more generally in relation to its: resilience; costs and benefits; and security.
(iii) Do key supply chain issues differ between sectors / commodities (e.g. fruit and vegetables, grains, dairy, pork, wine) or are they generic issues?

Section 3 – Global and local food chains
(i) Can you please describe what you perceive as the differences between local and global food chains?
(ii) What advantages/challenges do you associate with each scale?
   1. Provide interviewees at this point with a list of the attributes that have been developed as part of the desk-based analysis under task 2.2. Ask them to comment on the list, including
identifying any that they feel are missing. This may include attributes that are specific to the commodity chains they are particular experts on.

2. Ask the interviewees to rank the attributes in order of importance, from their perspective. Discuss with them why they ranked them in that order. We suggest each team uses the prioritization method suggested by the ICTA-UAB group, as presented below.

**Task 2.4: Delphi Method - Stakeholders**

**Section 4 – Measuring food chain performance**

(i) Are you familiar with any methods/tools to measure food chain performance?
(ii) How do you measure supply chain performance in your organisation? (e.g. ISO 14001, certified sourcing, staff training etc).
(iii) Do we need to account for sector/commodity differences when measuring food chain performance?

**Section 5 – The future**

(i) What do you expect will happen in terms of the food chain’s performance in the future?
(ii) What will be the relationship between local and global food chains?

**Section 6 – Final comments**

Is there anything else you wish to add, that you feel we haven’t previously covered in the interview?
The Delphi exercise starts formally in Month 8, according to the GLAMUR Gantt chart. However, as agreed at the start-up meeting, we need to start work on it before then. The Delphi exercise will be undertaken by the CCRI (10, 11), together with FIRAB (2). We will take the lead in terms of questionnaire design, analysis of results between rounds, etc.

A key role for other partners will be to help with expert recruitment and possible translation of questionnaires and results, although we will aim to run the Delphi exercise in English if possible. The WP2 leaders (CCRI and FIRAB) will provide additional documents (including a first draft questionnaire for comment and an introductory letter to send to invited experts) for comment, by end May 2013. At this stage the main priority is the recruitment of stakeholders/experts for the Delphi panel.

Recruitment of experts will be fundamental to the success of the exercise. Each of the partners involved in WP2 will need to provide 5-10 names, together with contact details, of stakeholders suitable to take part in the Delphi exercise. We suggest Delphi participants are different to those experts that we interview in Task 2.3. Delphi experts will have a national-level perspective and a general overview of food chain performance, rather than simply on the five commodity sectors.

Final selection of Delphi stakeholders will be made by 19th July 2013, but we would like to develop an initial list of up to 50 stakeholders/experts by 14th June 2013.

We would ask each partner to please complete the attached stakeholder template and to e-mail it back to Dan Keech (dkeech@glos.ac.uk) by 14th June 2013. We have provided some notes to guide recruitment of Delphi stakeholders in your national context, below. We can provide further guidance in individual cases, if necessary.

**Purpose of the Delphi:**

- The Delphi exercise will enable us to capture expert perceptions of food chain performance, in relation to global and local foods.
- We will be asking experts to predict change (in a qualitative sense), getting them to look five and ten years ahead and to predict what they perceive will be the most important food chain performance attributes in the future.

**Recruitment Criteria:**

- Obtain members from a variety of backgrounds and positions. We want a good distribution of experts across the four spheres (public, market, scientific and policy).
- We want experts who have an interest in global and/or local food chains.
- We want experts whose knowledge/experience will be useful to the study.
- We want experts who have a strategic view of food chain performance.

**Practical issues to consider:**
• The first round of the Delphi is normally the most time consuming to complete (as it tends to be more open ended).
• Recruitment (and retention over the three rounds) tends to work best if you/we recruit experts that we know, although we should not to be constrained by this.
• We are unable to offer financial incentives to complete the Delphi, but we will be more than happy to share a summary of the Delphi results (between rounds and at the end of the survey).

For those interested in Delphi, see a recent special issue in Technological Forecasting and Social Change, 2011, 78, including the introductory paper by Rowe and Wright.

Task 2.5: National-level Report - Template

A full first draft of the national report needs to be completed and sent to the CCRI by the end of December 2013, with the final deliverable (2.1) due by the end February 2014.

Total length, excluding appendices, **UP TO 41,000 words**
To be completed in Arial 11pt. 1.5 spacing

The purpose of the national reports is to present an overview of the meanings assigned to the performance of global and local food supply chains in the countries concerned (based on task 2.2: analysis of how food chain performance is currently assessed; and task 2.3: interviews). In addition, each of the reports will include a multi-criteria performance matrix of food supply chain performance.

These reports will be of interest within the individual countries concerned, as well as forming the basis for the comparative report that will be written by CCRI and FIRAB (deliverable 2.3).

S. 1 - Introduction to the national report, which should include the methodology used (up to 500 words)

S. 2 - National Context – brief description and analysis (up to 2000 words)

Provide a short commentary on the key issues, developments and dynamics of the overall food supply chain. This can be supported by a table that sets out the key dates, events and triggers for change. This might include, for example:

- Brief history of the food industry, structure and ownership patterns
- Sketch of the predominant forms of food retailing, including the proportion of food sales through supermarkets relative to direct sales
- Levels of export dependency; distribution of value added across the chain
- Governance structure: food safety, food quality assurance, food standards etc.
- Comment on any notable food sector differences/issues, especially in relation to the five commodities of interest to GLAMUR.
S. 3 - Analysis of how food chain performance is currently assessed

[Word length for this section: up to 1000 words for the analytical overview, plus up to 2000 words x 20 attributes. This makes a maximum of 41,000 words, but we would stress that it is UP TO in each case. You do not need to use more words than are necessary to provide a thick description of each of the attributes, as described in more detail below.]

Draw out how the performance of food chains at both a global and local level are perceived, defined and communicated from a range of perspectives. This will be based on a combination of the desk-based analysis, together with the 10-15 interviews. It is critical to reference your sources of information, as appropriate. The purpose of this is to identify how different perspectives and contexts affect attitudes and behaviour in relation to food chain performance.

This section should begin with a brief analytical overview of the discourses of food chain performance in your national context. This should provide the context for the identification of a range of attributes across the four spheres (public, scientific, market, policy) and the five dimensions (economic, social, environmental, health, and ethical) that can encompass the issues identified in the discourses. In other words, the attributes should emerge out of the discourses that you identify.

Having provided a brief overview of the discourses, the attributes that emerge should be displayed in the form of a multi-criteria performance matrix (see below). The number of potential 'attributes' that could be used to populate this MPCM is enormous. We suggest that a maximum of 3 attributes is chosen in any one case (e.g. UK Public, social; or UK Policy, ethical; or UK Market, health). These should be identified from the desk-based analysis and interviews, as being the most important in each case.

The MPCM has 20 cells, each of which could contain as many as three attributes. This suggests a theoretical maximum of 60 attributes (20 cells x three attributes). However, in practice some of the attributes will be used in more than one cell. It is also likely that not all cells will contain three attributes. As discussed in Riga, while partners may wish to develop more than one matrix within their individual national reports, it is necessary to also end up with a single matrix that will subsequently be used to develop the comparative matrix (as part of deliverable 2.3). Each matrix should include attributes for all of five dimensions but not necessarily all four spheres, as some attributes may not necessarily be discussed / debated across all spheres. Due to the importance of providing a ‘thick description’ of each attribute chosen (as noted under Task 2.2), only 20 attributes should be included within this final matrix.
## Multi-criteria matrix of food supply chain performance

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Economic</th>
<th>Social</th>
<th>Environmental</th>
<th>Health</th>
<th>Ethical</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>UK Public</strong></td>
<td>• Affordability. • Employment.</td>
<td>• Affordability.</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td><strong>UK Scientific</strong></td>
<td>•</td>
<td>•</td>
<td>• Negative externalities.</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td><strong>UK Market</strong></td>
<td>•</td>
<td>•</td>
<td>• Ecological efficiency. •</td>
<td>• Seasonality. • Freshness. •</td>
<td>• Traceability. • Social responsibility.</td>
</tr>
<tr>
<td><strong>UK Policy</strong></td>
<td>• Contribution to national economy. • Contribution to local economy.</td>
<td>•</td>
<td>• Ecological efficiency. •</td>
<td>•</td>
<td>•</td>
</tr>
</tbody>
</table>

The matrix should be populated with food chain performance attributes, not indicators. In this respect, an attribute can be defined as:

A quality or feature regarded as a characteristic or inherent part of something.

Notes on the choice of attributes:

- The attributes should be comparable.
- The attributes should be a quality that can be assessed.
- The attributes should be in the form of a noun rather than an adjective (i.e. affordability rather than affordable).
- The attributes may be either positive or negative.
- The attributes shown above are simply examples. It is anticipated that each country will come up with their own attributes, although it is likely that there will be some commonalities between countries.
As signalled under Step 4, Task 2.2, above, it is critical to provide a ‘thick description’ of each of the attributes chosen for the final matrix. This ‘thick description’ needs to tell the full backstory of each of the attributes, so that anyone reading the report can understand exactly what is covered in each case and why. In doing this, it is critical to include the **key references / sources** that have informed the development of the backstories involved.

This needs to be done for each of the 20 attributes chosen. If necessary, use **up to 2000 words per attribute**. Details need to be provided that cover the following:

1. A detailed description of how each of the attributes had been chosen and why within your national context, and what they represent.
2. Justification / explanation for why the attribute has been positioned in a particular cell(s) with the final matrix.
3. The level(s) of the system to which it applies (individual, groups, local communities, national, global ecosystems).
4. The priority given to the attribute, both in the range of media accessed as part of the desk-based analysis, and by the experts interviewed.
5. The differences between the four spheres.
6. The differences between the five dimensions.
7. The differences between global and local supply chains.
8. The nature and extent of discourse coalitions and alternative framings of the issues.
9. The dilemmas and contradictions that have emerged from the analysis.
10. The evidence of interactions with other attributes, and the significance of this.
11. The differences between the food sectors / commodities examined.

Within the progress reports for Riga it was fine to do this within a tabular format. For the final national-level reports, as suggested above there is a need for greater detail in telling this backstory. As such, please address these issues as sub-headings and in the form of text.

It would be helpful from a comparative point of view to also include summary tables for each of the attributes, as per the example below. It should be stressed that these tables are **in addition to** the thick descriptions described above.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Obesity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of relevance</td>
<td>• Individuals and communities</td>
</tr>
<tr>
<td>Priority</td>
<td>• Of critical importance. One of the most widely discussed aspects of the modern food supply chain</td>
</tr>
<tr>
<td>Differences between the four spheres</td>
<td>• Of particular importance and concern in the policy sphere.</td>
</tr>
<tr>
<td></td>
<td>• The market sphere is responding to policy concerns.</td>
</tr>
<tr>
<td>Differences between the five dimensions</td>
<td>• Particularly important in the health and social dimensions</td>
</tr>
<tr>
<td>Differences between local and global supply chains</td>
<td>• More often associated with global chains than local chains.</td>
</tr>
<tr>
<td></td>
<td>• Local chains perceived to be ‘healthy’.</td>
</tr>
<tr>
<td>Discourse coalitions /</td>
<td>• Health professionals joining with local supply chain organisers to</td>
</tr>
</tbody>
</table>
alternative framings | promote fresh, seasonal produce
---|---
Dilemmas and contradictions | • Policy dilemma of limiting freedom of choice or accepting wrong consumer behaviour
Evidence of interactions with other attributes and the significance of this | • Obesity is linked to the power of global food chain advertising, resulting in negative externalities in relation to health
Differences between the food sectors / commodities examined | • Less evidence in fruit and vegetable chains.
| • More evident in bakery chains.

S. 4 - Conclusions (up to 2000 words)

Consider, as a result of the desk-based study, accompanying interviews and the identification of key attributes, how food chain performance is currently assessed as well as how it could/should be assessed in the future. This will need to include a reflection on any significant performance value differences between local and global food supply chains, particularly in relation to the five key commodity sectors that will be examined in the case studies. In doing this, it is crucial to also consider the real costs and benefits identified, as well the issues of resilience and security within the food supply chain.

Appendices

A list of those interviewed, together with their affiliations.

Any additional information that is considered relevant to those reading the report in the countries themselves. N.b. This information will not be considered within the comparative report.
GLAMUR WP2

Delphi Survey: Final Report

Prepared by:
CCRI Team (James Kirwan, Damian Maye, Dilshaad Bundhoo and Dan Keech)

FIRAB (Gianluca Brunori)

February 2014
Introduction and methodology

The overall objective of GLAMUR is to increase the sustainability of food supply chains (FSC) through a combination of public policies and private strategies. It aims to do this through comparing the performance of local and global FSC across a range of different dimensions: health, environment, economic, social and ethical, in order to assess their resilience and security. A key focus of Work Package 2 (WP2) of GLAMUR is the identification of ‘attributes’ (i.e. what can be understood as the essential characteristics of performance in a particular FSC, in relation to a particular dimension), and the generation of a multi-criteria matrix of attributes. This includes developing an understanding of the dynamics of individual attributes, but also the potential tensions between attributes, dependent upon the contexts involved. In this respect, a Delphi survey was selected as being a useful methodology that can help forecast what will need to be assessed in the future when judging the performance of both local and global FSC, in different national food systems. The findings from this report will help inform the development of the multi-criteria performance matrix that is at the core of the comparative report for WP2 (deliverable 2.3).

Recruitment of experts to the survey panel was fundamental to the success of this Delphi survey. Delphi is a group decision mechanism requiring qualified experts who have a detailed understanding of the issues being discussed. It was crucial, therefore, to identify experts who had relevant knowledge and experience of FSC in their national contexts. It was also important to ensure that the experts were able to cover the four spheres of interest within GLAMUR, namely: the scientific, public, market and policy spheres. Following the GLAMUR project meeting in Riga, in September 2013, it was agreed that each partner would contact between 5-10 people, with the aim of engaging between 50-80 participants for the survey. In the end, 46 experts from 12 countries (Netherlands, Italy, UK, France, Belgium, Switzerland, Spain, Latvia, Denmark, Serbia, Senegal and Peru) completed the round 1 survey and 38 the round 2 survey. Ideally, the number of completions would have been a little higher, but to have a total of 38 responses over the two rounds was considered satisfactory.

The survey involved anonymous forecasts being made over two rounds of questions by the group of experts who received feedback, in the form of a summary report, between rounds one and two. This allowed for learning amongst the experts involved, facilitating the development of consensus on the key issues identified. Round one contained a number of open ended questions, in order to illuminate the wide range of perspectives involved. Subsequently, round two involved more closed questions, developed on the basis of the round one results, in order to move towards agreement on the key issues affecting the performance of FSC.

The following section provides an overview of the summary report that was produced following round 1. Broadly, the report is structured according to the sections used in the round 1 survey. Where respondents are quoted, they are referenced according to their country and perspective (e.g. BEL01POL represents a Belgian respondent who is engaged in the policy sphere). Section 3 then reports on the findings that came out from round 2 of the survey, structured according to the sections used in that survey. Section 4 finishes the report with some concluding remarks.
Delphi Survey – Round 1

Factors used to distinguish global and local food supply chains

The range of criteria identified by the Delphi panellists to distinguish between global and local FSC is summarised in Table 1, below. Although distance was the most commonly cited characteristic, a number of panellists commented that the geographical distance covered by a chain is not the same as the number of links (i.e. the length of the food chain in terms of the number of intermediaries). It was also noted that the notion of geographical distance encompassed both physical proximity and origin. Underpinning comments about the importance of geographical distance is a social dimension, wherein “localness” is said to “promote social relationships” thereby enhancing consumer awareness of where the product is from and concomitantly producer awareness of consumer expectations.

Table 1: Criteria used to distinguish between global and local FSCs

<table>
<thead>
<tr>
<th>Distinctive characteristics identified</th>
<th>SCI</th>
<th>POL</th>
<th>PUB</th>
<th>MAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geographical distance (Origin)</td>
<td>17</td>
<td>5</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Number of links in the chain</td>
<td>14</td>
<td>2</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Power Relations</td>
<td>9</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Quality of supply</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Labelling</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trends and food habits of consumers</td>
<td>3</td>
<td>2</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Packaging</td>
<td>2</td>
<td></td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Traceability</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Seasonality</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumers targeted</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* SCI: Scientific, POL: Policy; PUB: Public; MAR: Market

Particularly within the policy and public spheres there is marked reference to asymmetrical power relations in FSCs, which is seen to adversely affect the performance of local chains: “The local food supply chain has suffered from the growth of the global food supply chain. The local infrastructure necessary for local food chains has been decimated” (UK03PUB).

Key actors in the food chain

Experts rated the importance of different actors in the food chain in terms of their influence on the food system. Table 2, below, gives the mean, mode and inter-quartile (IQR) scores (ranked from 1-7, where 1 is least important and 7 the most important) that participants allotted to each of the actors listed according to their perceived importance in their respective countries, both currently and in 2018.
Table 2: Key actors in the FSC

<table>
<thead>
<tr>
<th>Actors</th>
<th>2013</th>
<th></th>
<th></th>
<th>2018</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MEAN</td>
<td>MODE</td>
<td>IQR</td>
<td>MEAN</td>
<td>MODE</td>
<td>IQR</td>
</tr>
<tr>
<td>Consumers</td>
<td>4.72</td>
<td>3</td>
<td>3.25</td>
<td>5.34</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Retailers</td>
<td>5.7</td>
<td>6</td>
<td>2</td>
<td>5.52</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Food processors</td>
<td>4.73</td>
<td>5</td>
<td>2</td>
<td>4.7</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Primary producers</td>
<td>3.93</td>
<td>5</td>
<td>4</td>
<td>4.25</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>World-level policy (e.g. WTO)</td>
<td>3.61</td>
<td>4</td>
<td>3</td>
<td>3.86</td>
<td>2</td>
<td>3.25</td>
</tr>
<tr>
<td>EU-level policy</td>
<td>4.5</td>
<td>5</td>
<td>3</td>
<td>4.77</td>
<td>5</td>
<td>2.25</td>
</tr>
<tr>
<td>National-level policy</td>
<td>4.34</td>
<td>4</td>
<td>2.25</td>
<td>4.16</td>
<td>2</td>
<td>3.25</td>
</tr>
</tbody>
</table>

The key points to note from Table 2 include:

- **Consumers**: there is a broad consensus (shown by the decrease in IQR from 2013 to 2018) that consumers will become more important over time.
- **Retailers** are considered as influential actors throughout.
- **Food processors and primary producers** have almost the same importance overall, although in the case of primary producers there is more disagreement amongst respondents, as demonstrated by the relatively high IQR.
- In terms of **policy** there is less consensus, which may be explained by the notable differences in the geographical, social and economic contexts of the experts' countries. For instance, the relatively more economically developed countries have different policy requirements to the developing countries. While the latter focus more on the need for tailored national policies (Peru, Senegal), the former are mostly concerned with EU-level policies, since they influence their local economies more directly.

The relative importance of different food chain actors

Experts were invited to explain the scores allocated to food chain actors in their national context. This section summarises the main points that emerged. Respondents underlined that ‘importance’ and ‘influence’ may not necessarily be the same thing where there are asymmetrical power relations. For instance, NTH01PUB states that: “Farmers are of course extremely important for our food system, but in reality their influence is limited”.

**Consumers** are perceived to become more influential actors in the FSC in the future, due to their “economical and ethical choices” (FR02PUB). Consumer influence on the performance of FSCs is a function of: their “willingness to pay” and capacity to make informed choices (ITA02PUB. LAT02POL), albeit that “the growing concern of consumers to take the responsibility for food production” is still “marginal” (BEL01POL). Interestingly, both FR01SCI and SPA03POL underline **Information and Communications Technology (ICT)** as a key asset in balancing power relations between international retailers and consumers. The former states that “Internet access will be key to enable them to compare products, their ingredients, origin and recipes”, while the latter points out that “consumers, through (ICT) have a direct route to voice their preferences, a fact that gives them more power”. Nevertheless, 71% of respondents see **retailers** as remaining the most influential actors.
In terms of national policies, the main issue in Peru concerns the development of local infrastructure (mainly transport); in Senegal the main argument revolves around import-export; while in Switzerland it is the competitiveness of Swiss products on the European/international markets. For DEN02POL, in order for local FSCs to develop, national policies need to be more favourable: "Danish food policy is focused on the global market, hence food policy regarding support for local and national food systems is lacking".

Food processors and EU-level policy are regarded as remaining as important in five years' time as they are currently. The importance of primary food producers and food processors is seen to be conditional on the power relations driving the market, involving: 1) information asymmetries; 2) the purchasing power of consumers; and 3) the dominance of international retailers. The level of the FSC will also influence which actors have more power. For instance, at the local level consumers and producers have relatively more say about the diversity of food products available; while at the global level the dominant players are international retailers.

The key factors currently affecting FSC performance

Table 3, below, summarises the main factors identified by participants as currently important for the performance of their national FSCs, across a range of dimensions, as well as from both a market and more consumer-orientated perspective. The main difference between the market and consumer-orientated perspective is that while the latter has the welfare of the consumer as a priority, the former articulates its logic in terms of supply and demand.

The key factors can be categorised into four main perspectives, which are repeated across the 12 countries and 4 spheres: 1) economic (price, costs of production, policy (national, wage and employment), and infrastructure); 2) social (consumer awareness, food safety and health, culture and food habits, skills and knowledge of producers); 3) acknowledgement of the asymmetry that exists in the FSC worldwide ("oligopoly of large retailer"); 4) environmental concerns (input availability and the need for innovation); and 5) ethical questions (transparency). In practice, an actor’s ability to act is often constrained by the decisions of others who possess the ability to control the limiting factors. In this respect, an asymmetry in power relations is of significant importance when it comes to performance.

Significantly, the analysis also shows that across the countries the main perspective from which performance is judged is the economic dimension, with the social dimension second, health and environmental issues third, with ethical issues only rarely considered.
Table 3: Key factors currently affecting FSCs

<table>
<thead>
<tr>
<th>Main factors important to performance of FSC</th>
<th>Economic</th>
<th>Social</th>
<th>Environmental</th>
<th>Health</th>
<th>Ethical</th>
<th>Perspective of the argument</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Market-oriented</td>
</tr>
<tr>
<td>Inputs on chains</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Asymmetrical power relations</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Quality (Nutrition)</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
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</tr>
<tr>
<td>Transport</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Demography</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transparency (Consumer awareness)</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Food Safety</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Process Infrastructure</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trade (Internal and Import-Export)</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accessibility (distance, cost, price)</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unions (Associations of producers, consumers...)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>
Key drivers affecting FSC performance over the next 5-10 years

Overall, there is a degree of consensus that the current factors affecting performance are likely to remain the same in the next 5 years, mainly due to: 1) the prevailing economic crisis; 2) the resulting social behaviours of consumers; and 3) the fact that policies are largely market-oriented and not targeted towards solving the root causes of asymmetrical power relations.

Table 4: Key drivers affecting FSCs, their corresponding dimensions and underlying perspective

<table>
<thead>
<tr>
<th>Key drivers</th>
<th>Economic</th>
<th>Social</th>
<th>Env'tal</th>
<th>Health</th>
<th>Ethic</th>
<th>Market-wise</th>
<th>Consume-wise</th>
<th>Policy-wise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Third Sector actors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Campaigners, Activists...)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asymmetric power relations</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Health (Awareness)</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Economic Crisis</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Price of Energy</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Technological Innovation (ICT)</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>International-EU trade Policy</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

Some of the key drivers listed in Table 4 are now explored in more detail. Firstly, the third sector (e.g. NGOs, Associations) are described by most as becoming increasingly influential as ecological and economic crises continue to unfold. NGOs have the ability “to influence consumers” (BEL03POL) by raising awareness. Their scope of action is multi-dimensional. For instance, “Enduring campaigns on animal welfare compel the livestock sector to improve their performance [even though] this may not be compatible with the low cost strategy” (NTH04SCI). Secondly, health is of growing concern worldwide. In France, there is a growing “awareness about and accessibility of ‘good quality food’” since “the main nutrition problems are concentrated in the lowest economical categories of consumers” (FR02PUB). Thus, as a positive driver of performance it is conditional on consumer awareness, coupled with an ability and willingness to pay.
Thirdly, economic crises have often been depicted as a driver of performance in both a positive and a negative way, in that they both constrain choices and condition behaviours. Fourthly, the price of energy is seen as a key limiting factor in FSC, especially in relation to non-renewable resource depletion. Ongoing ecological and economic crises and the need for efficiency have put technological innovation high on the policy agenda of many countries. This has raised several key social and ethical issues, involving GMOs and nuclear energy, for example. Finally, the globalised nature of FSC makes international trade policy a key future driver affecting the performance of national FSC. National policies often derive from global policy, without paying sufficient attention to the needs and strengths of national and regional specificities.

Evaluation of global and local FSCs

In general, participants agreed that the prevailing methods used to evaluate FSCs are emerging principally from an economic perspective, thus giving a partial picture. From an ethical, social and economic perspective, strong arguments were made for the need to integrate information sources for a more “systemic approach” that is ”linking (long term) environmental costs and benefits with economic and societal aspects” (BEL01POL) in order to better understand the performance of a FSC.

Delphi Survey – Round 2

Introduction

The first round of the Delphi survey provided some useful insights into how food chain performance is viewed in different national contexts. It also highlighted a number of key attributes that were subsequently explored in round 2 of the survey. These included: consumer engagement; transparency; affordability and accessibility; trade relationships; nutritional quality; equity (in terms of fairness); asymmetric power relations; and the need for more integrated evaluation methodologies.

Food chain performance statements

Experts were asked to rate (a) the likelihood of occurrence and (b) the importance of 14 statements (on two 7-point scales, where 1 = the least important / likely and 7 = the most important / likely) as potentially significant components that need to be considered in order to improve food chain performance in the future. The statements addressed four key themes (consumers, policy, food chain assessment and power), each of which was identified as a key food chain performance area by the panel in the first round of the Delphi survey. The mean, mode and inter-quartile range (IQR) for each of the 14 statements is presented in Table 5, in terms of both their likelihood and importance over the next 5-10 years.
Table 5: Food chain performance statements

<table>
<thead>
<tr>
<th>Theme</th>
<th>Statements</th>
<th>Likelihood</th>
<th></th>
<th>Importance</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Consumers</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Consumers will become more influential in the food supply chain in the future.</td>
<td>5.16</td>
<td>6</td>
<td>1.75</td>
<td>6.13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.66</td>
<td>5</td>
<td>3</td>
<td>4.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Consumer choice will need to be constrained in future in order to help ensure food supply chain sustainability</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.92</td>
<td>2</td>
<td>2</td>
<td>5.05</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Ethics will increasingly inform consumer decisions.</td>
<td>4.11</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td><strong>Policy</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. EU and global food supply chain policies will continue to dominate national-level policies.</td>
<td>5.36</td>
<td>6</td>
<td>1</td>
<td>5.08</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.16</td>
<td>4</td>
<td>2</td>
<td>5.62</td>
</tr>
<tr>
<td></td>
<td>6. Global and local food supply chains will not be seen in opposition, but rather as complementary forces for achieving resilience and sustainability.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.46</td>
<td>4</td>
<td>1</td>
<td>4.61</td>
</tr>
<tr>
<td></td>
<td>7. National policies will remain largely agriculturally-oriented, constraining sustainable models of food supply.</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Food chain assessment</strong></td>
<td>8. Current evaluations of the food supply chain give precedence to economic factors, in future they will need to be more integrated and systemic.</td>
<td>4.46</td>
<td>5</td>
<td>1</td>
<td>5.87</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.13</td>
<td>5</td>
<td>2</td>
<td>6.37</td>
</tr>
<tr>
<td></td>
<td>9. It will be necessary to account for all the resources used throughout the food supply chain (e.g. water and energy), when assessing its sustainability.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>5.43</td>
<td>5</td>
<td>1</td>
<td>5.73</td>
</tr>
<tr>
<td></td>
<td>10. In future, the reduction of food waste will become an increasing priority within the food supply chain.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.82</td>
<td>5</td>
<td>2</td>
<td>5.6</td>
</tr>
<tr>
<td><strong>Power</strong></td>
<td>12. Information and communications technology (ICT) will be a key asset in balancing power relations between international retailers and consumers.</td>
<td>5.03</td>
<td>6</td>
<td>2</td>
<td>5.08</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.92</td>
<td>4</td>
<td>2</td>
<td>4.3</td>
</tr>
<tr>
<td></td>
<td>13. Sustainable intensification will heighten power asymmetries within the food supply chain.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5</td>
<td>5</td>
<td>1.75</td>
<td>5.42</td>
</tr>
<tr>
<td></td>
<td>14. The third sector (for example, NGOs) will increasingly inform debates about the supply and consumption of food</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As a general comment, a fair degree of consensus is evident in Table 5, as indicated by the generally low IQRs. In terms of importance, statement 9, about resource use, has the highest mean
(6.37), with most panellists viewing this as being the highest food chain performance priority. Statement 1, about the influence of consumers, is also thought to be very important in the future. In relation to the likelihood statements, statements 10 and 5, about food waste and EU and global policies, respectively, stand out. In this respect, there was general agreement that food waste is likely to become a key priority in the future; there was also a general acceptance that EU and global policies are likely to dominate national food chain discussions. The responses to statement 3, concerning the importance of price to consumers, are also highly significant. In this case, the respondents clearly indicate that it is very important that price is not the overriding concern for consumers in the future (with a mode of 6 and a mean of 5.05), and yet there is general agreement that in practice this is unlikely to happen (with a mode of 2 and a mean of 2.92).

The following paragraphs take each of the themes in turn, providing a more detailed commentary.

**Theme 1: Consumers**
There was a strong consensus that it is very important for consumers to become more influential in the future; furthermore, that this is fairly likely to happen (statement 1). Nevertheless, this view was not shared by all panellists. As one expert from Peru (PER01PUB) explained, “In countries with high levels of poverty, the likelihood that consumers have influence on the food supply chain is still remote.” There is also less certainty about whether future food choice options should be limited (as implied in statement 2). Price is also seen as continuing to be an over-riding factor for consumers (statement 3), and that although ethics should become more important in informing consumer decisions (statement 4), this is unlikely to happen in practice. These responses suggest three broader issues that are important to GLAMUR: firstly, affordability remains a crucial attribute when assessing food chain performance; secondly, the economic dimension tends to dominate decisions and food choices; and thirdly, there is a need to shift choice patterns from strictly economic priorities to other factors.

**Theme 2: Policy**
There was broad consensus concerning the strong influence of European and global policies on national food chain priorities (statement 5). Statement 6, about the need not to view global and local food chains in opposition, created some interesting likelihood / importance response differences. The importance scores generally agreed that global and local should be seen as complementary, with some experts scoring this statement as a 7. Nevertheless, many argued that persistent limiting factors - such as prevailing economic crises and asymmetrical power relations - meant the likelihood of this happening in practice is weaker. For statement 7, there was a fair degree of consensus that national food chain policies would remain agriculturally-orientated, although there was some disagreement amongst the panel (evident via IQR score of 3) about how important this was in terms of enabling the most sustainable system of food provisioning.

**Theme 3: Assessment**
Panellists clearly believe that food chain assessment in the future is very important, with the resource efficiency and systemic approach statements being the two highest scoring importance statements. Holistic food chain assessment is seen to be important, although panellists felt that it may not necessarily be given the importance and action it deserves. Waste management was also highlighted as being a significant criterion for assessment, and likely to remain so. However, it is noted that this likelihood does not necessarily reflect a deep paradigm shift in society but rather a trend that may be short-lived. Nutritional quality (statement 11), although recognised as being very important, is thought unlikely to be integrated into food chain assessments in the near future, notwithstanding the rash of recent food scandals.
**Theme 4: Power**
This theme elicited strong consensus amongst the panel. Better access to information through ICT and via actors of the third sector was seen as both important and likely to happen in the future (statement 12), as two key aspects that can help to balance asymmetrical power relations in the food chain. Statement 13, concerning sustainable intensification, prompted a range of responses amongst panellists. While some were unfamiliar with the term, others (such as in the Netherlands, Spain, the UK) were, and its stated intention to increase production using sustainable technologies was an established part of food chain discussions. In relation to statement 14, panellists predict that third sector actors are likely to have an increasingly important role in terms of informing debates about sustainable food chains.

**Ranking attributes at both a global and local level**

Round 1 identified a number of key attributes related to food chain performance. This section reports how the panellists ranked eight of these attributes in terms of their importance to the performance of global and local FSC, within their own national contexts, over the next 5-10 years. The ranking ranges from 1-8, where 1 is the most important and 8 is the least important. After some general comments, this section reviews each attribute in turn (at both a global and local level).

It is evident from Table 6 that the attributes in most cases are ranked quite similarly between the local and global levels. The two attributes where scoring differs are in relation to trade relationships (lower priority for local and higher for global) and consumer engagement (higher priority for local and lower for global). At the global level, affordability and accessibility are ranked 1 and 2. For local food chains consumer engagement is ranked 1, with affordability ranked 2 and accessibility ranked 3. Both types of chain therefore place considerable importance on affordability and accessibility. Delphi experts also drew a temporal distinction between global and local, with global food chain performance seen as being related to short-term trends, whereas local food chains are more focused on long-term relationships.
Table 6: Ranking of food chain performance attributes at global and local levels.

<table>
<thead>
<tr>
<th>Level</th>
<th>Attributes</th>
<th>Overall mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Affordability</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Accessibility</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Trade Relationships</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Nutritional Quality</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Transparency</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Consumer Engagement</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Asymmetrical Power Relations</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Equity/Fairness</td>
<td>8</td>
</tr>
<tr>
<td>Local</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Consumer Engagement</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Affordability</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Accessibility</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Nutritional Quality</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Transparency</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Equity/Fairness</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Asymmetrical Power Relations</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Trade Relationships</td>
<td>8</td>
</tr>
</tbody>
</table>

The text below reviews each attribute in turn, which helps to further explain the numerical ranking provided for each.

**Affordability:** At the global level, affordability is perceived as the most important attribute in relation to food chain performance. The main reasons given by panellists for this are: 1) profit-oriented business models (SPA08SCI, GB01MAR); 2) the nature of goods traded (mostly basic commodities); 3) ongoing socio-economic crises (GBSCO01SCI); and 4) the dominance of price in food commodity relations (SWI03SCI, SPA04POL). For instance, UKSCO01SCI argued that, "economic hardship for a large part of the population, as witnessed by the growing market share of discount outlets...[and]...[t]he falling level of UK self-sufficiency [...] confirms the suggestion that global chains provide affordability". Interestingly, affordability is also ranked very highly (2) at a local level.

**Accessibility:** This attribute, defined not only in terms of the variety of inputs/products, but also in terms of reach, is considered the second most important attribute at the global level and third most important at the local level. When assessing the performance characteristics of both types of food chain, there is thus agreement that both the accessibility (and affordability) of food rank very highly.

**Trade Relationships:** There is an imbalance in terms of the financial resources available to actors, which allows those with more resources to: 1) cut down costs and offer lower prices for their products (SPA03POL, NTH06PUB); and 2) significantly influence policies (SPA08SCI). This unbalances the competition between global and local food chain players. As NTH06PUB puts it, the globalized market is “Outcompeting local producers in the country of origin of the products”. Similarly, “Corporations operating in the global food chain can be seen as political actors that powerfully influence national and international politics” (SPA08SCI).
The trade relationships attribute is viewed differently at the two levels. It scores the lowest ranking at the local level and the third highest ranking at the global level. Comments provided by Delphi experts suggest that this attribute is mainly understood as pertaining to international policies which regulate exchanges between global food chain actors. For instance, SPA07PUB argued that dependency on complex trade agreements and policies deters competition in favour of large scale companies. At the local level, it is perceived that such policies have relatively less influence than other attributes, because the relationship between the consumer and producer is the crucial trading relationship and defining supply chain attribute. At the local food chain level, therefore, consumer engagement is deemed "the most dominant factor" (NTH01PUB, NTH04SCI) when assessing performance. As noted above, engagement is understood in terms of a mutual long-term social "commitment" between producer and consumer, which brings about a form of food education for the latter. As one Delphi expert remarked, "Local markets promote consumer engagement that allows them to understand real food processes and to consume consciously" (SPA07PUB).

Transparency, which is seen as a pre-given at a local food chain level due to spatial proximity, is perceived as still needing to be worked on at the global level. As one Delphi expert usefully put it, "Locality makes food choices transparent and understandable" (DEN02POL). From a consumer-oriented perspective, at the global food chain level transparency often relates to information about the food’s content and place of origin, as well as food safety.

Asymmetrical power relations. Discrepancies in the bargaining power (PER01PUB) of food chain actors was seen as a “major cause of tension in relation to the achievement of the different objectives that the food system should aim for, such as food quality and relations between producers and consumers” (SPA03POL). In fact, this attribute originates, some panellists argued, from a lack of transparency and uninformed consumer engagement that eventually leads to unbalanced trade relations.

Equity/fairness as a food chain performance attribute did not rank highly at either the global or local level. Even though consumers are perceived as being more attentive to “fairness for producers and workers” when assessing global food chains (DEN03PUB), this attribute’s importance is deemed to be relatively less important given the socio-economic and political parameters underpinning the global food system. At the local food chain level, the social and spatial proximity nourished by long-term relationships is seen as naturally bringing about a certain degree of transparency, as well as equity and fairness, in the relationships which exist between local food chain actors.
Delphi survey – concluding remarks

This Delphi study has enabled the identification and confirmation of several key points of consensus amongst panellists, in terms of assessing the performance of both local and global FSC.

- The need to address asymmetrical power relations within FSC is the most pervasive issue to emerge. In this respect, significant distinction is made between global and local chains, not least in terms of the degree of consumer engagement.
- Consumers are perceived as becoming more influential actors in the future, although to a large extent this will be determined by the information that is available to them. There are also marked differences between global and local FSC.
- The influence of consumers is linked to their ethical awareness and engagement and yet in practice price is likely to continue to be the over-riding factor for most consumers.
- International trade policy will also be a key future driver affecting the performance of globalised FSC, although this is not so relevant for local FSC.
- Large scale retailers are seen as likely to remain the most influential actors within the FSC, notwithstanding the emergence of a range of ‘alternative’ retail models at a local level.
- Although issues related to ecological degradation and resource depletion were recognised to be highly important, the dominance of economic imperatives is also acknowledged.
- Prevailing methods of FSC evaluation are overwhelmingly economic. There is a need to develop more systemic and holistic evaluation approaches that can integrate multiple dimensions of sustainability.
- It is apparent that global and local food chains represent different potentials and trajectories for system transformation. Nevertheless, while the Delphi has identified distinctions between global and local chains, it has also highlighted the importance of interaction and complementarity between the different scales.

Acknowledgements

The CCRI would like to thank Henk Renting for his insightful and helpful comments on an earlier version of this Delphi report at the GLAMUR ‘Expert’ meeting held at the FAO in Rome on February 27th 2014.
### Appendix 3: Food chain performance context

<table>
<thead>
<tr>
<th>Country</th>
<th>Food chain performance context</th>
</tr>
</thead>
</table>
| Senegal | • Senegal imports significant volumes of the most consumed products – local supply cannot match demand.  
         | • Key imports are: rice, onions, tomatoes and milk powder.  
         | • Senegal has many structural problems.  
         | • Ensuring food security whilst reducing import dependence is the key issue. |
| Peru    | • Peru is a middle-income and rapidly developing country.  
         | • Agricultural exports increased by 10% in 2013.  
         | • The ‘gastronomic revolution’ in Peru is notable.  
         | • The contribution food chains (of all types) make to economic development is a key performance measure; food security is also back on the political agenda. |
| Latvia  | • The food and drinks industry is the biggest processing industry in Latvia.  
         | • The link with the Soviet Union is a critical point of context – when the Soviet Union collapsed collective farms were de-collectivised and privatised.  
         | • Recent decades have seen a concentration in retailing. There has always been small-scale agriculture that distributes produce via short food chains.  
         | • Recognition that food production needs to modernise to improve competitiveness. |
| Serbia  | • Key issues noted include: quality, EU accession, export potential, and quality concerns about local food chains.  
         | • Agriculture is important to help ensure rural employment and development, as well as food security and environmental protection. |
| France  | • Major world exporter of agro-food products  
         | • France is a net exporter of raw agricultural commodities and processed products; most exports (66%) go to other European countries.  
         | • Three food chain models have emerged: 1. the agro-industrial model; 2. The patrimonial-style model; and 3. alternative food system models.  
<pre><code>     | • Some key food chain trends include: the sustained role of central government; a succession of highly publicised food scares that have amplified health issues; and the economic crisis has been less severe in France. |
</code></pre>
<p>| Italy   | • Italy is the third largest food and drinks manufacturer in the EU, with |</p>
<table>
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<tr>
<th>Country</th>
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| Italy            | the sector contributing 17% of total GDP.  
• Main exports are wine, pasta, canned tomatoes, cheese and olive oil.  
• Food is a key feature/ambassador of the ‘Made in Italy’ brand.  
• Retailing is concentrated; however, the model of small-scale shops also persists.  
• Hygiene rules and quality issues (industrial v. substantive) are prominent. |
| Switzerland      | • Agriculture only accounts for 0.7% of GDP.  
• Self-sufficiency is only 52.5%, with imports high for certain products (grains, fruits).  
• Agriculture is heavily subsidised and maintained by public direct payments.  
• The dairy sector is very important for Switzerland.  
• The retail end of the chain is dominated by two main supermarkets.  
• Liberalisation of the Swiss food market is noted. |
| The UK           | • Agriculture makes only a small contribution to GDP but when all food chain activities are included it is more significant (10% approx.).  
• The market power of retailers is widely noted, including private governance model.  
• Local food chains and direct marketing are now quite well-established, although still at a niche market level. They increased in popularity post-Foot and Mouth (2001).  
• Food safety is a major issue, especially prominent in response to ‘horse-gate’ (2013); ‘global food security’ also dominating food policy debate. |
| The Netherlands  | • The Netherlands is a leading global food exporter. High levels of self-sufficiency are noted, but also a reliance on imported inputs for animal products.  
• Limited land space and availability; labour shortages too.  
• Concentration of market power in the retail sector.  
• Public debate about the sustainability of agriculture.  
• Formation of retail and agri-food industry-led models and farmer/consumer-led models are noted, plus ‘hybrid initiatives’. |
| Belgium (Flanders)| • Strong emphasis on exports – Belgium is the EU’s fourth largest exporter.  
• Historically very intensive production methods, especially for pork.  
• Highly concentrated retail sector (3 companies = 70% of market share).  
• Emerging, but as yet small level of interest in more localised food chains.  
• The report covers the area of Flanders, which has a well-established |
food industry (although represents less than 1% of total GDP).

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<thead>
<tr>
<th>Denmark</th>
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<tr>
<td>• Agriculture is a key industry; Danish farms are often highly specialised in livestock production (especially milk and dairy).</td>
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<td>• The high cost of domestic labour makes it difficult for Danish agriculture to be competitive on the international market.</td>
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<td>• Debate about the sustainability of Danish agriculture is noted, with calls for initiatives that focus on local products.</td>
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<th>Spain</th>
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<td>• Agriculture’s contribution to GDP has reduced over time (now 2.5%) but the Spanish food system accounts for 8% of GDP.</td>
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<td>• The process of agrarian industrialisation was slower and later in Spain than other European countries (linked to the civil war).</td>
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<tr>
<td>• Spain is highly dependent on imports (e.g. feeds for animals and cereals)</td>
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<tr>
<td>• The agri-food sector is characterised by small- and medium-sized enterprises</td>
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<tr>
<td>• The retail sector is concentrated and value distribution highly unequal.</td>
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11.4 Appendix 4: National report summaries

National-level Report Summary – Senegal
Ethel del Pozo - Vergnes – IIED

Context
Despite significant progress in many domains, Senegal has many structural problems. It remains among the least developed countries; 55 per cent of the total population lives under the poverty line and the country imports 60% of its basic food needs, hence the predominant background of assessing food chains against food security. This situation explains why the economic and social dimensions are prioritised by the different actors in the four spheres, even if emphasis may vary; it also explains why attributes such as animal welfare, presented as important in many of the European countries studies, are completely absent. In regards to other attributes in the composite matrix of the comparative report, in Senegal, and particularly in Dakar, attributes related to food safety or others that we could cluster under ‘convenience’ and ‘taste’ appear as also important even if at a lower level. Besides increasing awareness of health issues, easiness of food preparation in a context of growing urbanisation and women finding more economic activities out of home matter. Convenience and taste appear as determining consumers’ preferences for imported products and interestingly not only for middle classes but also for low income urban residents. Decades of import of basic food products like onions, rice and milk powder have shaped taste; local food chains in this context have a long way to go before changing consumer’s behaviours.

Ensuring food security through local production or imports is a major concern. Most of the population is still rural and agriculture is one of their main economic activities. Food exports may have created employment, both permanent and seasonal, but population growth and particular the cohorts of mostly unskilled youth arriving each year into the labour market is one of the main challenges. Senegal’s situation in the Sahel region exposes both local and global food chains to climate change which forces adaptation of crops to recurrent drought and floods. Besides climatic, international crisis and market volatility impacting in the country’s economy, Senegal is also engaged in the WTO and free trade agreement negotiations (Economic Partnership Agreements – EPA) with the European Union and with the new African regional economic and trading blocs, all bringing good opportunities but also many challenges to face in the coming years.

Local and global food chain performance: between complementarity and opposition
Availability and affordability, employment/incomes, contribution to national economy, and contribution to local economy are the four main attributes that emerge from actors’ discourses in the four spheres and all are mainly related to the economic and social dimensions. Given the high levels of poverty in Senegal it is not surprising that the environmental, health and ethical dimensions are not of immediate concern. It is important to note also that perceptions change when it comes to food chains feeding the cities and Dakar in particular as higher income consumers are concentrated there. Then we see other attributes appear: easy preparation, quality, safety, hygiene, freshness, and nutrition and taste. Ecological efficiency appears in relation to better adapting crops to climate stressed regions but also, developing or maintaining local production is perceived from a landscape and well-being angle.

If opposition between local and global food chains is important, complementarity appears to be considered important too. Local food chains are complementary to imported food as the national....
offer cannot cover domestic demand in key products and national incomes depend on both import and export taxes. Competition on specific products (imported or national production) or which agricultural model is promoted (big exporting commercial farms or small-scale family farming) opposes the diverse actors’ interests. Since the early 2000s, the government has adopted a market chain approach focusing on where there are favourable commercial conditions and then making production follow. In this new approach policies are trying to balance local food chain protection with promotion in order to improve productivity and competitiveness. But the government prioritises agri-business and commercial farming as private national and mainly foreign companies can ensure important investments that the government cannot. Many argue that if the performance of these chains is good in terms of volumes exported – mainly fruits and vegetables - the distribution of value along the chain is far from being fair. Pushed by quality standards in international markets these chains have consolidated in fewer and bigger plantations; vertical integration has meant the end of contract farming with smallholders. But others point to the fact that these developments have changed the way in which global chains may be assessed. They contribute to seasonal employment of the poorest in the countryside and thus to poverty reduction and local economic dynamism.

Assessing food chains in the future: challenges ahead
Ensuring food availability and affordability through imports and ensuring incomes through exports is a policy dilemma in which the employment issue is starting to be looked at closer. Local or global food chains performance will certainly be more scrutinised from a jobs creation perspective. If food exports remain important for employment, national and urban demand is creating more jobs opportunities for local chains. But they will need to adapt to rapid changes in urban demand: adding value processing food, ensuring regularity and quality of supply.

Global export food chains will have to account more on their contribution to national and local economies as local chains develop. Better informed local chain organisation and product and market diversification are creating a feeling of ‘resource nationalism’ that changes the rules of the game; and in this game international regulations play a role. To cope with the WTO regulations, which demand reciprocity between partners, the EU aim to turn the non-reciprocal ACP into free trade agreements, like the EPAs, where reciprocity prevails. This would translate in a much wider opening of Senegal markets and reduced margin for national policies to protect national production and infant industries. Keeping advantages to export freely to Europe while protecting national production from imports competition is proving difficult to maintain.

Senegal is in the Sahel region, water is scarce and its use is an important element to judge the performance of food chains. Climate change impact on agriculture is driving changes to match crops with the most suitable ecosystems. Environmental efficiency is being explored and developed but at the same time there are urbanisation pressures in some of the most fertile lands.

Policy interventions in local and global food chains face an important challenge regarding resilience and cost and benefits perspectives. In the one hand there’s political willingness to support local chains but in the other hand the government cannot afford the necessary investments to make this possible. Most of local food chains and the economy in general are informal and do not pay taxes. Emerging national entrepreneurs, who pay taxes, point to the absence of a professionalization and formalisation in the agri-food sector as a threat to economic and social development.

National-level Report Summary - Peru
Ethel del Pozo-Vergnes – IIED
Context
Peru is a resource rich country. After the pain of structural adjustment reforms in the 1990s the following decade has been more promising for Peruvians. The opening of markets through diverse free trade agreements, incentives for foreign and domestic investments and increased demand especially for minerals from China and India have brought a rapid economic growth. In addition to mining, exports of agricultural products have also been promoted and supported. Incomes have risen and a new middle class, even if still vulnerable, has consolidated. Urbanisation has progressed and people's aspirations of a better future have changed. But there is much concern from Civil Society Organisations and parts of academia about the viability of the growth model based on exports. This is particularly the case regarding agriculture and food where the economic growth model that the liberalization process has established, is under scrutiny. The viability of the model is questioned in a context of growing resource scarcity (land and especially water) and the livelihoods of a large unskilled rural population which still relies in part on small-scale agriculture. What is at stake for many is poverty reduction, food security, the health of national and local economies and also people’s health and nutrition. It is around those criteria that the performance of local and global food chains (exports and imports) is measured and compared.

Local versus global food chains? It all depends
Since the early 2000s agro-food exports have been growing and diversifying both in terms of products and markets. Economic growth and rapid urbanisation has also increased domestic demand for more varied food. Changing consumption patterns have boosted the food processing industry. Imports of seeds, fertilisers, machinery and inputs for basic consumption products (wheat, maize, oils) have also increased. Exporters and food processors have engaged in contract farming in many localities to ensure supply. The government is promoting food chains for exports but also for the national market. In this context narratives and debates around the performance of local and global food chains vary. As a country in transition, attributes given to food chains in Peru present some similarities as those presented in the European country studies in the comparative report. Besides contribution to the economy in general, food security or health issues, ‘territoriality’ - under other names or slogans - has become an important attribute too. The ‘gastronomic revolution’ and the promotion and valorisation of local food products with ‘cultural identity’ and the Peruvian cuisine, as in other European ‘foodie’ countries like France, Italy and Spain, is seen as an engine for economic growth and social inclusion regardless of whether it is for national consumption or for export markets. As in the Senegal case study, animal welfare is completely absent from literature and discourses.

In Peru the national debate regarding agriculture and food show the disagreements but also the convergence of views of the different actors involved. Food availability and affordability as key components of food security, contribution to national and local economies, and contribution to people’s health are the key attributes - closely inter-related - around which food chain performance is assessed at present and which set the frame for their future assessment.

The economic contribution of agro-exports is praised but also contested on its poor environmental performance (land concentration and water over-consumption) and social performance (poor labour conditions). Local chains are perceived as more economically and socially sustainable but many state that small-scale farming is not viable. Ideology and political positions play an important role in the perceptions of different actors in the public, scientific, market and policy spheres.

For many academics and NGOs local food chains and short circuits are perceived as a better option to ensure food security while global chains (exports and imports) are perceived as a growing threat.
One of the main arguments is the concentration of land and water in the hands of few big export companies which also impact negatively the environment. The other argument is the growing dependence on imported food ingredients for processed food. From the exporters' point of view their contribution is supported in terms of employment creation and increased incomes – thus contributing to local economic dynamism, and on the taxes they pay to the government. Food processors and importers state that they contribute to lower prices for consumers while ensuring food safety as they comply with all norms, something that small local food chains, mainly informal, cannot guarantee. As for the government, efforts are concentrated in supporting global and/or local chains as long as they contribute to economic growth and income generation while trying to promote healthier food.

Current policy and business and even farmers' organisations may support both local and global food chains depending on business opportunities and better incomes and returns. Environmental and ethical considerations, even if acknowledged in narratives, are not major issues in practice. Consumers are now getting better incomes and women are more deeply integrated into the workforce spending more time out of home; quantity of food and consumption convenience is highly valued. Quality and health seem to be, as of now, a secondary concern. Industrial food processing companies are adapting to satisfy this emergent but powerful national market.

Assessing food chains in the future
Environmental and social performance will matter for economic and business sustainability. Water and labour scarcity in agriculture is already pushing the government and companies to rethink their practices. These changes may be market driven as some importing countries are requesting compliance with the preservation of biodiversity, the environment and with good labour standards from their suppliers.

Inclusion of small-scale farmers will certainly be an issue to scrutinise when assessing performance of local and global chains. Safety issues are being cited to exclude small-scale farmers even from public food procurement programmes. The agro-food processing industry is interested in increasing national production to avoid dependence on imports but a fairer distribution of value all along the chain in contract farming is still to be realised.

For governments and policy, small-scale farmers, local chains and open markets are considered and treated as a cost, always needing financial support for very low returns. Big companies and food chains, agro-exports and imports are considered as an investment as they pay taxes and expand the tax base, which is a key to ensuring public services and infrastructure. The issue of informality has thus become central for the government but also for formal food chains claiming unfair competition.
The study of food chain performance in Latvia suggests that food system is influenced by two main discourses and policies: The intensification discourse and post-modern discourse. These determine the way how food chains are interpreted, evaluated and support to agriculture and food sectors is oriented. The key food chain performance attributes identified in Latvia resonate with the dominant intensification discourse and they are: economic development, efficiency, labour force, diet, export, competitiveness.

The main institution governing food systems in Latvia is the Ministry of Agriculture, however, it is difficult to identify such thing as integrated food policy. Food is a matter distributed between various policies: agriculture, economic, welfare, health, education, etc. The main state regulative principles and instruments covering food system are set in the law “On the Supervision of the Handling of Food” stating that the government’s role is to “ensure handling of food, which is qualitative and harmless to human health, life and the environment, to eliminate food risks, and promote trade and the protection of the interests of consumers.”

Currently food industry is one of the Latvia’s major productive industries recognized as priority sector. The Central Statistical Bureau of Latvia estimates food and drink industry value at 23% of overall output of processing industry or 3.5% of GDP. Not all regions of Latvia are equally involved in food production; the most of production capacity is concentrated in greater Riga region. In the recent years food industry has been influenced by economic crisis that resulted in sharp decrease of revenues in the year 2009. Since then the industry has been recovering.

The turnover in food retail demonstrates growth in last decades an overall retail turnover in non-specialized shops selling food (NACE 2.4711) grew from 49 million EUR in 2000 to 183 million EUR in 2013. The years of economic crisis (2008-2010) evidenced significant drop in retail turnover. The household share of expenditure for food has decreased in the last decade, however, it remains one of the highest in EU 27 (19.2% in 2012).

The last two decades after post-socialist transition have introduced important changes in food production and retail structures. Currently the market is dominated by two main competing retail chains. The National Competition Council estimates that market share of two biggest retail players exceeds 30% and joint share of 4 biggest chains sum at 79% of the market (2011 data).

An important aspect that explains Latvia’s food system is historical transition. The political regimes of 20th century left Latvia’s agriculture fluctuating between high decentralization and small farm structure (1920-30; 1990-2000) and concentration of agriculture in larger scale enterprises and farms (1900-1920; 1950-1980; 2000 onwards).Regardless of the agriculture ownership pattern, farmers have always been encouraged to modernize and become more productive. However, it is the most recent history that explains the collapse of Soviet collective farms, privatization of agriculture and food industry, liberalization of trade and the subsequent pressures of newly established small farms that experienced increased competition and drops of productivity. This post-socialist down-turn in agricultural productivity in 1990s along with the process of Euro-integration (Latvia joined EU in 2004) and access to EU agricultural support measures and practices promoted modernist kind of interpretation and policies that agriculture and food industry should develop along
the lines of intensification, scale enlargement, concentration and technological modernization. The same ideas, policies and processes took place also in retail sector.

During the last two decades food chain interpretation has transformed and become oriented towards high economic performance, effectiveness and competitiveness. The national scale and even local food enterprises (and farms) are deemed to integrate in global food chains and continuously raise the level of competitiveness. This discursive and policy stance determines the way how farming sector and food industry are being perceived and recognized in the public debate and EU and state support for agriculture is handled. These ideas, policies and support measures merge under common interpretation frame we title intensification discourse. The dominating interpretation of food systems and food chains in Latvia built and communicated among food chain actors presuppose the need for market development. This core assumption has been a basis of major policy and planning documents as well as evaluation of success of food chain performance.

Meanwhile, an alternative or opposition discourse to the one of intensification emerges in the recent years. It is based on new food interpretations, values and practices developing apart from the mainstream food discourse. These new food chain manifestations recognize a greater diversity of aspects that should be embraced in functioning and evaluation of food chains performance. These aspects values and practices relate: product origins, localness, the influence of food production and consumption on the environment, ethical principles, solidarity between producers and consumers, health concerns and other values that obtain importance in certain groups of consumers and producers. We term this newly emerging interpretation of food a post-modern discourse. This discourse produces (or revives) practices of a small scale agriculture, short supply chains, allotment gardens, collective purchasing groups, farmers markets, etc. Invisible and unstructured short food supply chains have always been a part of Latvia’s food system and culture. These processes and initiatives gain more visible and spread, especially among urban population with higher levels of education and income. Economic crisis also boosted farmers and food enterprises to search for new ways how food is being communicated. Short food supply chains are currently becoming ever more popular. The growing market share supporting short supply chains and more elaborated food system interpretations force the dominating food interpretation to reinterpret itself. The most vivid changes happen on the borders where two discourses: intensification and post-modern overlap and industrial and alternative food chain actors and practices develop new meanings of food and market combinations.
National context
Agricultural production is based on privately-owned farms in Serbia. The farm structure is dominated by small private households. Private farms cultivate approximately 89% of agricultural land, or 80% of arable land. However, the most important producers are large privatized or privately owned farms, also representing the important input sector for the privatized processing industry in the country. Generally, the agro-food sector is the most important single sector in the Serbian economy. The share of food chain activities in GDP is still high compared to the EU and other WBC. If the downstream and upstream activities associated with agriculture are added to primary production, agriculture, in this wider sense, was the largest single sector of Serbian economy, with around 21% of GDP during the last ten years. However, the upstream sector has been extremely weak. The share of this sector in the GDP was around 0.2% during the observed period (2001-2011). The primary agricultural production accounts for 6% of the total GDP, while the downstream sectors play significant role in the total economy with the average GDP share of 15%. The food sector is the second largest FDI sector in Serbia. During the transition process more than 2.6 billions of Euros of FDI came in the Serbian food sector. The Serbian competitive advantage is usually seen in possibility to cover the CEFTA region, as well as the Russian market due to specific trade agreements.

The above mentioned context of the functioning of the Serbian agricultural sector was essential to the selection of attributes for the national report. Totally sixteen attributes were selected as the most relevant in our case. Some of the key attributes simply reflect the European approach to sustainable food chain development (food safety, competitiveness, rural development, multifunctionality, sustainability, public health, natural resources management and high value added food). The other are result of strong influences of transition (food security, regulation, accessibility, food demand transition) and globalization processes (food chain structure, standardization, GMO). Responsibility appears to be the highly relevant attribute provoked by the public debates in the country.

It is important to emphasize that the rank of attributes significantly differs among our experts. For example, the public policy makers insist on standardization, competitiveness and high value added food. On the other hand, the business sector experts consider sustainability and competitiveness as the most important attributes. The particular attention was paid on Food safety, Food security and Sustainability by scientists included in interviewing, while food supply chain experts in the public funded institutes consider Natural Resources Management and Rural Development as the most important attributes. The common agreement among all experts exists only when multifunctionality is concerned.

Similarities and differences between the Serbian national report and the WP2 comparative report
Matching of the attributes from the national report with those obtained in WP2 comparative report seems to be both direct and indirect. It seems that we have complete overlap in terms of attributes such as: Profitability/competitiveness (in the national report it appears just under the term "Competitiveness"), Food security, Food safety and Responsibility. We note that the term "Competitiveness" from the Serbian report has significantly wider meaning, since it incorporates terms such as efficiency, exports, growth and development, as well as the profitability. On the other hand, given the circumstances accompanying the Serbian (underdeveloped) agricultural sector, it is evident that some of the attributes that characterize developed countries are without significant
attention in the Serbian case (attributes such as: Fair trade, Animal welfare, Traceability, Resilience, Food waste, Information and communication, Territoriality and Labour relations). It is important to notice that some of these attributes were interpreted as the integral part of Serbian food chain attributes such as Traceability within Food safety or Food waste within Natural resources management.

Indirect overlaps are numerous and significant. For example, the attribute “Affordability” in Serbian national rapport appears under the term “Accessibility” with quite similar meaning. Attribute “Governance” almost completely coincides with the Serbian “Government regulation”. Also, when it comes to “Contribution to economic development”, the Serbian report may come across the term "Rural development”, which partially overlaps but it is somewhat narrower in its sense, because it focuses exclusively on economic activity of underdeveloped rural areas.

Finally, some of the Serbian attributes in their sense synthesize the meaning of more attributes that appear in the comparative WP2 report. For example, "Sustainability" synthesizes the meaning of Resource use, Biodiversity and Pollution.

Assessing food chains in the future – from informal to formal competitive environment

In the near future it is expected that awareness of coexistence and complementarity between the global and the local chains become current. In this sense, increasing importance of the attributes such as Connection and Resilience could be anticipated.

Also, visible advances can be awaited especially in the domain of the local food supply chains. Alignment with EU standards on Serbia’s path towards the EU will force most of the informal parts of local chains to enter the formal economy, which activities could be then monitored and provide public revenues. In the unregistered parts of local chains quality of produced food is certainly not category under control, and confidence in the quality is mostly a matter of the final consumer’s personal perception. In this regard, the significance of the obtained attributes such as “Information and communication” and “Traceability” would probably increase in the future. Development of local chains will support more formal employment in the underdeveloped rural areas. By having in mind significant fragmentation of land holdings in some regions, development of local chains can be seen as one of the possible ways to overcome the persistent problem of lacking of scale economies, in order to create value for small producers and local buyers looking for local fresh food products.

The challenge for the global chains, which belong to the formal economy, since they are by definition export oriented, is to increase the efficiency of primary production, which would increase the competitiveness of the final product obtained in the foreign markets. Approaching to EU will imply a smaller protectionism of domestic production and greater exposure to international competition, which will in turn reinforce the need for greater efficiency. In addition, better integration of the trinity of quality, quantity and continuity, which is essential for export, means more equal treatment of primary producers in the redistribution of value created in this chain. In the current environment the largest piece of the pie belongs to the intermediaries and exporters, while the primary producers are at a disadvantage, often not enough motivated for continuous and efficient production. Putting primary producers in a more favorable position will create a healthier competitive environment. Parallel with that, attributes such as the “Labour relations” and “Fair trade” will get on its importance.

National-level Report Summary – France

Yuna Chiffoleau, Agnès Gauche, Jean-Marc Touzard – INRA

www.glamur.eu
General context
France is the leading agricultural country of the European Union in matter of production (both in value and volume) and the second country for the amount of food consumption. The country is self-sufficient in all food products, with the exception of vegetable proteins imported for animal consumption and products of organic agriculture, and is the world’s second largest exporter of agro-food products, on the same level as Germany and the Netherlands. On the production side, the French food system is organized around specialized agricultural areas. Agriculture largely remains a household activity, but new forms of capitalist agribusiness are developing. Food industries (notably cooperatives) have an important economic weight. On the consumption side, the French food system is characterized by regional differences and opposition between the rural “province” and Paris, which structure the food chains. But urbanization has been accelerated during the twentieth century, and today 78% of the population are living in urban areas. The French diet has been influenced by these evolutions, including an increasing consumption of processed food and products high in sugar, fat and salt. Nevertheless the national diet maintains some specificities (emphasis on taste…), while food still represents 14% of the family budget (vs. 7% in Germany). Finally, the French food system has been structured around two main agro-food models: a dominant agro-industrial model (standardized products; global chains) and a “patrimonial style food” model (quality, terroir products and geographical appellations; global and national chains, local ones to a lesser extent) while local consumption of convenience goods has been little considered.

Co-evolution of three agro-food models confronted to major trends
This dualism between agro-food models is now challenged by the recent emergence of a new model from alternative food systems emphasizing short food supply chains (officially defined since 2009: 0 to 1 intermediary from producer to consumer), “proximity circuits” (equivalent to local chains) and/or organic products. Major trends make these three models co-evolute: i) the role of the central government is still crucial but pressured by agro-industrial lobbies while the power of local authorities is growing, and those ones are heavily involved in the promotion of local food chains; ii) the succession of highly publicized health crises pushes to recover trust and strengthen guarantee in food through official labels and/or interpersonal relationships in short food supply chains; iii) the economic crisis has increased social inequalities, leads to find or protect employment through food chains, favours tensions between food chains, iv) environmental concerns are mostly considered as constraints while social and ethical concerns are growing, linked either with a desire “to consume better” beyond sole activists or a conservatism/defensive position, which both favour notably the consumption of “made in France” products, v) the development of technologies of information and communication are challenging traceability issues (e.g. use of flash codes) and promote exchanges between food initiatives, citizens’ participation, globalization of food diversity as well as diffusion of rumours and scares. Agro-food models both interact and react to these trends through products and food chains diversification, which favours inclusion of local attributes in global chains and vice-versa.

From agro-food models to food chain assessments
Many sources and experts in France tend actually to question the functioning of the global chains linked with the agro-industrial model, sometimes radically, even if there do not belong to activists’ movements which have been questioning the mainstream schemes since the 60s. Moreover, the local food chains promoted in the alternative agro-food model, after a long period of ignorance, then euphoria (after the mad cow crisis), have now to answer to a growing number of questions or critics, as far as they are very diverse and associated with contrasted impacts. At the same time, a part of global chains appropriate some of the positive externalities of “proximity trade” in their model (e.g. www.glamur.eu 157
local employment or agrobiodiversity preservation). In all cases, the lack of knowledge and data concern all food chains, and favours ideologies and reductionism. Furthermore, there is a debate about those who associate chain and production techniques or chain and quality and those who do not want (“chain is just trade”).

The review of sources and experts’ interviews make emerge four types of attributes regarding food chains assessment:

- **High audience**: food safety, traceability (management), employment (quantity), profitability, access to food (affordability)
- **Medium audience**: food quality, techniques, patrimony, diversity, land use, innovation
- **Low audience**: sense-making, governance, networks, autonomy
- **Growing audience**: traceability (transparency), environmental pollutions, pathologies, employment (quality), wasting, justice, knowledge (and skills), access to food (physical access)

The diverse uses of these attributes, as well as the diverse ways to evaluate/measure each of them, lead to contrasted assessments of global and local chains among sources and experts, questioning general hypotheses or public postulates (“global chains are better regarding the economic dimension”, “local chains are good regarding the social dimension”…). Nevertheless, a growing intersection appears between consumers and producers’ concerns about food price levels and what is behind (added-value repartition, labor conditions, risks for health, environmental pollutions, etc.), beyond the activists’ sphere.

**Challenges related to food chain assessment**

Food and food issues are emerging as interesting cases or vectors, in all spheres, to invent new kinds of indicators, in some cases in the perspective of the “new indicators of wealth” promoted in social and solidarity economy, and to implement or diffuse new ways to invent them (e.g. participative processes), notably from local chains. However, even if the status of local food chains has been improved these last years and makes France one of the most advanced countries in Europe in matter or supportive public policies towards these chains, they remain considered as marginal and/or backward-looking by many experts: “local chains are for people who have no means or are not able to develop global chains” (expert, market sphere). Moreover, the review of sources highlight or suggest the gap between discourses and practices, in the market sphere as well as in the policy and public spheres/ It also shows the lack of data: even if new data are now available on short food supply chains, those ones do not cover the scope of local food chains, nor precisely the market shares. That calls for longitudinal and collaborative approaches to assess the real costs and benefits of the diverse chains in a multi-level and multi-stakeholder perspective, and through case studies.
The Italian debate on food chains performances is well summarized in the comparative report. The framing of the Italian national discourses in the Group 2 “Territoriality and global competition” alongside France and Switzerland seems to describe with efficacy the national context. Further, the emphasis given within this group on the role of food chains on shaping national heritage and culture seem to give Italian case a peculiar link with the basic features of the group itself.

A reflection can nevertheless be made on this point. Three main discourses were defined in the Italian report: technological innovation for global competition, local sustainability, and glocal perspective. In the Group 2 of the Comparative Report the first and the latter have been integrated in a discourse based on global competition. This can be certainly be done as far as the role of Italian productions on the global markets is generally perceived as the result of Italian food heritage, to the widespread diffusion of Italian territory rhetoric and to the strength of the "Made in Italy" brand.

It is anyway worth underlining the specificity, or at least the peculiar role, that the glocal perspective assumes in the Italian debate, where it is often regarded as an alternative, if not in opposition, to the technology-based competitiveness, to the neo-liberal perspective and, at least in the public sphere, to the EU regulation that are perceived to be biased against small scale craft Italian productions. We could argue, in this sense, that if France seems to represent a bridge between the territoriality of Group 2 and the neo-liberalism of Group 3, Italy can be regarded as the "champion" of Group 2. In this sense, while is the whole food chain relevant, the primary production and farmers role seems to (re)gain a pre-eminence in national narratives highlighting their much needed multifunctionality.

In order to better contextualize the Italian perception of food chains performances, two main issues that often shape the national debate on food chains should be considered.

The role and importance of Mediterranean diet: The Med diet is a recurrent feature in the Italian report across all Health attributes. Though largely neglected in practice, particularly from younger generations, it keeps a relevant place in most national narratives for its role in terms of Italian heritage, consumers' health and national agricultural sectors like fruit and vegetables (but also grains). Scientific and policy spheres often report it as the most healthy possible diet, certainly healthier than the models imported from overseas (in particular the Anglo-american ones).

Should it be relevant in French and Spain reports (or even elsewhere) it might deserve some considerations for his potentially local nature in these (Med) countries and for his more global or ‘colonialist’ connotation in western dietary regimes.

With regard to the supply chains features, the debate often addresses the issue of power balance between the strong large multinational food corporations (heralding the standardized new tastes) and the small or medium size Italian firms and labels, sentinels of the Mediterranean food consumption style.

These considerations go hand in hand with the remark made during the Glamur Rome meeting on the neglect of taste & quality attributes. The Italian report –maybe wrongly- didn’t highlight them as
standalone attributes, yet their presence is somehow ubiquitous. Given their relevance, some reflection of their importance should be made.

The relevance given to the threats that are likely to hamper the further development of the Italian food sector in the global context. In particular:

- market globalisation rules and the role EU regulatory standards that are perceived to be often "against" the peculiarities of Italian peasant/artisanal productions and local food chains;
- the "Italian washing", i.e., the proliferation of Italian-sound products, labels and advertisement that resemble the true national productions, outcompeting them in the foreign markets;
- national food/environmental scandals (from the methanol scandals in the wine sector of the '80es, to the more recent news about soil and water pollution in the so-called "Terra dei fuochi");
- GMOs also deserved various considerations across the national report, though not picked in the comparative report as a specific feature of the Italian scene.

Some more reflections can be made on the relation between the attributes emerging from the Italian sources and the ones defined in the comparative report upon the whole set of attributes defined by the various national reports. In general terms the Italian set has been largely recognized and confirmed within the final set of 24 attributes, but with some differences which seem to mirror the analyses suggested above.

In particular we notice the presence of a larger number of economic attributes in the common set versus the Italian. The Italian set, on the contrary, shows a larger presence of attributes related to human health: given that "food safety" is present in both the groups, the Italian set presents "healthy food", "healthy diets" and "obesity" vs the sole "nutrition" in the common set.

Further, the Italian set lists a number of attributes ("landscape", "territory", "food activism" and "regional farming" among the others) that variously relate to the links between food, heritage and culture, vs the sole "territoriality" of the comparative report (it is interesting to note that the attribute "food activism" is mentioned in the comparative report with regard to the attributes "governance", "information and communication" and "consumers' behavior": all meaningful and pertinent references that nevertheless do not cover the relation between food activism and local traditions that is also present in the Italian attribute). 'Food activism', in fact, is also tied to a food sovereignty approach and mostly linked to a local practitioners' perspective.

Summarizing, we note that some attributes (as outlined above) are more articulated in the Italian report as being substantial part of the national debate, while they seem not to gain equivalent consideration in the comparative analysis. The difficult task, in this respect, is to find a proper balance to keep the national specificities and nuances as qualifying elements of the European puzzle, while ensuring a comprehensive view. We do acknowledge here the great job made in pooling everything together.
National-level Report Summary – Switzerland
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This report reflects upon the findings from the WP2 Comparative report regarding the national food system contexts. It is evident from an analysis of the reports that certain countries have similarities on the basis of food system characteristics, signifying a common tendency and/or dominant framing. In the following we shortly discuss the position of Switzerland in the overall setting of the studied countries.

Territoriality and global competition
Together with France and Italy, Switzerland is placed in the country grouping “Territoriality and global competition.” The distinctive aspect for this group of countries is that territoriality in some way acts as a dominant or at least equal performance frame that situates global and local food chain assessment. Indeed, “territoriality” plays a major role for Swiss consumers, in particular in the food sector. The term “Swissness” (Swiss-made products) is connoted with positive attributes like food safety, quality, fairness, precision, genuineness, reliability, cleanliness and regional value creation. Similarly to Italy and France, the link with the territory (local varieties, traditional farming systems, local communities and lifestyles) is emphasised as one of the key strengths of the food system, and enrolled in the promotion of local, regional and national brands. Indeed, the integration of labelled local food products into the retailer’s range of goods represents a huge success story in Switzerland. For example, Migros (one of the biggest Swiss retailers), offers 8’000 local food products under the brand “From the region. For the region”.

Swiss specific characteristics
Dependence on imports: Switzerland (together with the UK) are the countries with the lowest self-sufficiency rates (Switzerland: 60.4 %, UK: 62%) and hence feature a significant degree of import reliance regarding certain agricultural products. The limited self-sufficiency rate can be partly explained by the geographical conditions of the two countries. While the mountainous regions in Switzerland confine agricultural production on arable surfaces, a recent series of poor harvests as well as very wet winters hinder agricultural production in the UK. For both countries, a much higher self-sufficiency rate thus seems to be a utopic ideal due to climatic, geographical and demographic barriers.

Ecological concern: Switzerland is concerned with biodiversity and land use planning and the development of regulations to protect landscape, biodiversity and traditional ways to manage land. Indeed, the current reassessment of the agricultural policy AP 14-17 aims to strengthen the ecological direct payments (biodiversity contribution, landscape quality contribution, and resource efficiency contribution) and makes Switzerland one of the leading countries in Europe in fostering sustainable practices in agriculture through the mean of public subsidies. Moreover, the organic sector is very pronounced in Switzerland; 11.3 % of the farms are organically certified and the organic sector experienced a growth of 5.3% in 2013. In addition, 80% of the soy imports from animal feed come from certified sources (BioSuisse, 2013). This partly explains the importance of environmental attributes like biodiversity, soil protection and land use in the Swiss national context.

Common issues with GLAMUR countries
www.glamur.eu
**Powerful retailers:** Most reports note increased concentration of market power towards the retail end of the food system. In the UK as well as in the Swiss food supply chains, significant power rests with a small number of retailers who use their strong commercial positions to act as market ‘gatekeepers’ for the rest of the chain, with a variety of consequences. “This distribution of power is linked to the retailers’ attractiveness to consumers, who benefit from supermarket strategies in the form of low price. In general, farmers are identified as victims of supermarket sourcing policies and buyers face accusations of uncompetitive collusion to drive down supply prices.” (UK national report, 2014).

**Public concerns:** A general dominant framing in most studied countries is the public concern towards new technologies in the agri-food sector (e.g. GMOs, use of nanotechnologies). In Switzerland, 70% of consumers are against the introduction of GMOs in the food sector (SKS, 2005). Furthermore, in most participating countries there is increased debate about food waste and public as well as private food waste reduction initiatives are growing in numbers (e.g. foodwaste.ch, which is the central platform for fighting food waste in Switzerland).

**Import of animal feed:** In Switzerland and as well as in most analyzed countries (e.g. Spain, Switzerland, Netherlands) a high dependency on the import of animal feed is noted (mostly from South- America, China and India). This represents a major challenge regarding the sustainability performance of the meat and dairy sectors in European countries.

**References**
Introduction and contextual remarks

The UK national report captured debates and perceptions relating to food chain performance across the four spheres and five dimensions that are of interest to the Glamur project. The report identified 25 attributes and argued that three key discourses influence how these attributes and food chain performance more generally are expressed. The three discourses are noted in the comparative report and reviewed in more detail below.

a. Scientific-technological. In essence, this discourse asserts that innovation is needed to increase the UK’s contribution to food production, in response to population rises, natural resource limitations, the nutritional transition in economies such as China and India, and to increase the UK’s domestic food security. Innovations include sustainable intensification, genetic modification, nanotechnology and developments in logistical efficiency.

b. Oppositional alternatives. In contrast, this discourse argues that radical structural, cultural and political reform is necessary to change the current unsustainable performance of the food chain. Focal points underpinning this discourse include the need for greater domestic self-reliance, consumer behavioural change, tighter policing of regulation and the diversification of food chain governance structures.

c. Collaborative civic networks. This discourse argues that networks of a multi-stakeholder and cross-sectoral nature, led by a more pro-active political establishment, are needed. Faith in markets has proved inadequate in reconfiguring the food chain towards sustainability, despite substantial efforts within the food industry. It suggests the UK must work within international (especially EU) trade and political alliances to share and expand good practice.

Furthermore, the report contextualised current UK food chain discourse in a position of flux and uncertainty, at the centre of which lie a series of debates about how to achieve food security. Some key findings include:

(i) The continued reliance of the UK food chain on imports – consequently factors which affect national food security are substantially beyond national control;

(ii) The stimulation of agricultural productivity through scientific innovation is highly controversial;

(iii) The dominance of neo-liberal market ideologies and constrained public finances seem likely to prevail in the medium term, reinforcing the externalization of health and environmental costs, shifting them from the market to the public sector;

(iv) Organizational food chain innovation has been substantially stimulated at a local level, although the scale of output is currently small and it is desirable to re-imagine the global vs. local rhetoric and consider how a greater range of scales and food chain actors (including non-commercial or part-time participants) can be effectively legitimated within national food chain resilience strategies; and

(v) An integrated national food policy and clearer political leadership – following some initial developments at city and county levels – are needed from the state.
In light of the above, some comment is needed on the way in which perceptions of food supply chain performance in the UK relate to the findings and cross-country analysis presented in the WP2 comparative report. These comments follow, in three sections.

**The UK’s inclusion as part of the ‘neoliberal’ country grouping**

The inclusion of the UK within the ‘neoliberal’ cluster of countries alongside The Netherlands, Belgium, Denmark and Spain is consistent with the analysis presented in the UK national report. Inclusion is made on the basis that these countries share two common characteristics: firstly, a neo-liberal economic ideology that underpins mainstream discourse; and secondly, advocacy of free-trade market principles, not least for the pursuance of supply chain resilience. Certainly, policy and scientific views suggest that the UK’s membership of the EU Single Market presents a major strength in terms of food security, not least because, collectively, the EU is around 90% self-sufficient. Additionally, however, the UK sees itself as a contributor to future global food security in the light of population rises and changing diets. Intensified levels of food output in the UK are foreseen with recourse to technological advances. Uncertainties in global food security have, furthermore, renewed interest in all spheres in the ability of domestic agriculture to support national food needs, justifying its position and similarity with other countries in this group.

**Lack of confidence in the global livestock sector**

Despite the UK’s reliance on international supply chains, it is notable in the UK national report that public and policy opinion reflect a degree of ambivalence towards the EU, both in terms of engagement with the institution, and perceptions of the efficacy/intrusiveness of food chain regulations. For example, environmental regulations and benchmarks are regarded as costly and onerous for SMEs, while strict EU hygiene regulations have repeatedly proven inadequate to allay public concerns about livestock traceability, heightened by the 2013 ‘horsegate scandal’, which intensified discussion of attributes such as food safety, transparency and traceability.

Concerns about traceability are associated more generally with the opacity of the highly complex global food chain as a whole. Consequently, interest in localisation as a way to simplify food chains remains high and is reinforced by different food scares associated with mainstream food chains in the last three decades. The endurance of local food as a representation of positive supply chain performance – despite some scientific debates offering alternative views – has led to the appearance of more local foods in supermarkets. This reinforces consumer expectations of choice and allows shoppers to support domestic producers, but reflects too the ability of supermarkets to ‘appropriate’ localness. The concern about the inherent power imbalance between multiple retailers and farmers is also highlighted in the UK report and noted too in the comparative report. This imbalance stimulates innovation in some local food supply chains that seek to exclude supermarkets.

**The importance of consumer-end issues**

Several national reports underscore the importance of the agricultural sector to the national economy, the identity of food qualities and the reinforcement of food culture. This link to producers is weaker in the UK context. Instead, more attention is given to the role of the consumer. For example, public commentators advocate selective purchasing to achieve sustainability objectives, policymakers seek to educate and influence consumers towards healthier diets, which includes collaborations with market actors who present information on the nutritional content of foods, with consumption framed as a constituent of a ‘healthy lifestyle’. The dominance of multiple retailers, and the growing urgency presented by food–related disease such as diet-related cancers and obesity further highlight the importance of marketing and consumption. Lastly, having grown used to low
food prices, the recent global recession has created hardship and public sector austerity, and renewed concern about the ethics of food poverty and public nutrition.

Concluding comments
The comparative report reflects the key debates and attributes covered in the UK report. The comparative report is based on 12 national reports and it is inevitable that several attributes will be distributed more widely in the comparative matrix than in the national report. For example, food safety is specifically a market concern in the UK matrix, but it appears in all four spheres in the comparative report. A key absence in the UK report is the territoriality attribute. Debates about territoriality appear in the attribute descriptions of trustworthiness, resource use, power relations and food miles in the UK report. However, these mentions relate to the technical performance of local food chains, rather than underpinning the geographical embeddedness of quality or heritage.

In conclusion, the comparative report usefully groups the UK with other countries in which food chain structures and performance perceptions are – more or less – aligned. However, some particularities of UK geography, history and market structures highlight the special importance of consumption. The UK’s supply chain performance is framed within a predominantly international perspective, with an under-lying concern for the development of food security, which is principally understood as the removal of potential risks that may cause supply chain interruptions.
National-level Report Summary – The Netherlands
H. Oostindie, R. Van Broekhuizen, A. Arce (Wageningen University) and E. Hees (Centre of Agriculture and Environment)

Food chain performance analysis in the Netherlands is closely interwoven with: 1) a prolonged period of highly dominant agricultural modernization forces; 2) strongly export dependent food chains; 3) food chains increasingly disconnected from national primary production; 4) highly intensive land use systems that face changing societal demands regarding rural functions; 5) rather persistent agri-environmental problems of agri-industrial production systems; 6) scarcity of rural land resources; 7) strong concentration tendencies in food chains and 8) growing food quality concerns among Dutch consumers that relate to multiple quality dimensions.

In this wider context the identification of food chain performance attributes along the 5 dimensions as distinguished in GLAMUR has been synthesized by the distinction of two contrasting food chain performance discourses. As argued, national presence and co-existence of ‘Food is Global’ and ‘Food is Local’ discourses reflect substantial differences in terms of ideas and understanding of the meaning, interrelations and priority setting of a broad range of relevant food chain performance attributes. A co-existence and co-evolution of contrasting discourses that reveals substantial differences in stakeholders framing and scoping of food chain performances. Whereas the ‘Food is Global’ discourse focusses on aspects as consumer affordability and accessibility and the economic benefits of globalizing food chains, the ‘Food is Local’ discourse is much more concerned about the social, ethical and territorial impact of food chain performances. As such the two discourses approach the spatial and cross-scale complexities of food chain comparison fundamentally different. National ‘Food is Local’ discourse associates localness especially with better environmental, social and ethical performances. The ‘Food is Global’ discourse questions the solidity of such superior performance claims and underscores the need for a global perspective on food and nutritional security.

This on-going Dutch debate is further characterized by a broad consensus that global versus local food chains comparison becomes only meaningful when their mutual interrelations are taken into account. Dutch food chains do not allow for strict boundaries between the global and local. Ongoing attempts to re-localize food chains are impossible to isolate from the negative externalities that accompanied on-going globalizing tendencies in most agricultural sectors. Sometimes these re-localization attempts succeed to reshape these negative externalities in positive ways. Other times this reshaping might be undermined by the expropriation of the symbolic value of localness through global operating corporate agri-businesses (‘local washing’). It underpins how global versus local food chain performances may have highly place-specific outcomes, which also relates to the presence (or absence) of territory based rural governance that succeeds to counterbalance the negative trade-offs of globalizing food chains. In the Netherlands this is e.g. reflected in the emergence of agri-environmental cooperatives. As new institutional arrangements between public and private actors these allow for a more efficient, tailor made and performance-led provision of agri-environmental services in a wider context of strong dependencies on globalizing food markets. It is just one example of how global food chain performances might be mitigated by territory based rural governance. In line with national dominance of neo-liberal food policy and dependencies on food exports as well as imports, the search for these types of mitigation mechanisms gets clearly more interest, attention and support from national agri-expert system then a re-localization of food chains. The latter continues to be predominantly framed as detrimental to national agri-business' and
wider economic interests and necessary ‘sustainable intensification’ to feed the world in the future. This notion of ‘sustainable intensification’ increasingly dominates national framing of food security as part of the wider ‘Food is Global’ discourse. Consequently, national ‘Food is Local’ discourse is primarily rooted in rural and urban ‘counter movements’, including a growing amount of national farmers that prefer multifunctional rural business models, a growing percentage of consumers and citizens that opt for multiple reasons for local food provision and especially regional and local operating social movements and policy bodies. Contrastingly with the ‘bio-economy thinking and acting’ that dominates the ‘Food is Global’ discourse, these counter movements with urban and rural backgrounds share and embrace ‘eco-economy’ principles as guiding sustainability paradigm.

National tensions and contrasts between competing food performance discourses may be further understood as reflections of clear differences in terms of trust in the prospects of technological versus social engineering. The fact that Dutch society also expresses fundamentally different ideas, beliefs and values in this respect underlines in another way the importance to involve multiple stakeholders in the assessment of food chain performances. Simultaneously, Dutch GLAMUR WP2 findings also learn that a more science-led pre-identification of clearly differentiating food chain performance discourses may be a helpful methodological tool to facilitate more direct ways of stakeholder consultation, representation or involvement. A helpful methodological tool in the sense that it provides stakeholders the opportunity to react upon and position themselves vis-a-vis attributes that particularly become meaningful as part of wider discourses. As such these discourses may sharpen own ideas about most relevant, and distinctive attributes to assess and compare global and local food chain performances.
The comparative report starts with clustering the countries that were analyzed in WP2 into 3 thematic groups, based on how actors communicate about the performance of the agrifood system. Flanders was properly classified within the group ‘Neoliberalism and food system sustainability’. The comparative report describes correctly how ‘a strong neoliberal discourse and pro free-trade mantra is set against increasing food system sustainability challenges and global food security concerns’.

The neoliberal discourse is typified in Flanders by a production-oriented framework and by a consumer-oriented framework. The production oriented framework takes production and economic profit as point of departure. Food safety, food quality, sustainability and innovation are considered as crucial aspects within this framework, because they guarantee economic growth and competitiveness of the food sector. The main representatives of this framework are Boerenbond (farmers’ union), FEVIA (food industry organisation) and the Flemish government (department of agriculture). The consumer oriented framework takes consumers as the point of departure. Health, nutritional quality, food safety and affordability of quality food are key attributes in this approach. The main representatives are policy actors and retail groups. The national report also identifies a holistic framework, used by NGO’s and other actors to criticize the neoliberal discourse and to highlight social and environmental concerns.

Important attributes from the comparative report in relation to the Flemish context are ‘creation and distribution of added value’, ‘food safety’ and ‘efficiency’. Issues related to these attributes where identified in the Flemish report as being of particular importance.

‘Creation and distribution of added value’ is especially important in relation to farmers in global chains. Particularly for farmers within the pork sector, horticultural sector and dairy sector. Farmer unions communicate in the media about difficulties that farmers encounter to continue running their business. In addition they argue that costs and benefits are not distributed in a fair way among actors in the chain.

Food safety is also perceived by Flemish actors as a very important issue. Hence, it is at a very high standard in Belgium, with a very low rate of pesticide residue and biological contaminants. This is due to focus on premium produce and on export, but is also the outcome of the 1999 dioxin crisis during which a large amount of meat had to be retracted from the supermarket shelves and which led to the fall of the Belgian government. In 2002 Belgium was one of the first EU countries to establish an exemplary food safety agency (AFSCA-FAVV). Auto-regulation and industry efforts in addition to legal and retail standards are widespread.

‘Efficiency’ was related in the Flemish report to energy use, productivity and profitability. The main discourse difference related to this issue was described in the comparative report and national report. The first discourse coalition is a market-based view and macro-level view of the world that argues for the need to develop ‘highly efficient and productive systems to feed an ever-growing world population with increasing urbanization and increasing comfort requirements. Scientists / policy-makers and food chain actors that adopt this market view are contrasted with an alternative agricultural economic ontology, which as they put it: “takes into account the carrying capacity of the
territory in which it exists and not an agriculture that focuses only on maximising efficiency, productivity and profitability”.

Actors within local food networks in Flanders seem to put more emphasis on social and ethical issues. They communicate about viability, fairness and authenticity. This relates to the attributes ‘fair trade’, ‘resilience’, ‘information and communication’, ‘connection’ and ‘territoriality’ of the comparative report. Actors within global systems put more emphasis on economic issues like ‘competitiveness/profitability’ and ‘efficiency’. This is also due to the urban character of Flanders. The region is therefore not well suited for large-scale and extensive agriculture, such that farmers have been forced to intensify, that is, get more value added per hectare. The excellent location of Flanders has enabled this intensification through easy logistical access to inputs and knowledge. The Flemish agriculture and food sector is thus very export oriented. However, it has resulted in an agriculture that is heavily reliant on direct and indirect fossil energy use, and that pollutes land, air and water. Moreover, due to its intensive character land prices are very high, making it very difficult for farmers to convert to or start with organic or other forms of extensive farming.
National-level Report Summary – Denmark  
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Context
The Danish Food Industry is an important economic player, particularly in the meat and dairy sectors. Food produced in Denmark would be enough to feed the country’s population, but overproduction is encouraged as a source of income, and in 2009 the export of agriculture and foods constituted 2,2 per cent of the total World’s foods export. If the market’s share is compared to the GDP Denmark has an even higher share (Landbrug & Fødevarer 2012). Danish agriculture is today producing food for 15 million people, approximately 3 times its population making it a central industry in Denmark. It is moreover taking up two thirds of the total area of the country. In the 1930’s the total farmland constituted 76 per cent, and was then at its highest. The reduction of farmland happened due to the urban development and concurrently greater changes in the management of the chain performance happened, focusing on optimizing productivity. Changes in the management methods led farmers to specialize in e.g. one branch of livestock production, which resulted in less farms but a larger livestock production per farm. Likewise the production of pork increased by 25 per cent since 1995, and the milk production has slowly increased since the mid 80’s. In the same period livestock of cows was reduced by half, this due to the fact that the output per cow increased twice (Gyldendal 2014Den store Danske 2014).

The main issues on the assessment of the chain performance in Denmark are for example the technological burden needed to provide information such as food miles, which is expensive and difficult to obtain in a precise manner, in order to facilitate informed choice at consumer level. Societal trends towards nearness such as the revaluing of the Nordic Diet or a return to the Palaeolithic diet are among the food trends in Denmark and might be in contradiction even of the importance given to the newest nutrition recommendations.

In the social dimension there is a growing focus on the origin of food, many food-related initiatives searching for democratizing food access, increase food literacy and to get people more involved in the whole food system, however, such initiatives may only affect people with an already existing interest in food, but have little or negligible effect at a larger scale.

Neoliberalism
The 12 countries involved in GLAMUR share similarities on the basis of socio-economic characteristics and/or because of how national discourse situate and frames food system performance. In the national report there have been identified three thematic groups. In one of the three groupings there is a common theme for a strong neoliberal discourse and pro free-trade mantra set against increasing food system sustainability challenges and global food security concerns.

In Denmark this is seen in the many initiatives, where citizens have the possibility to express their values regarding societal, environment or human rights concerns. Nevertheless, contradiction is evident when consumers’ purchase behaviour often is not reflecting their stated citizen values. The Danish attributes in which the citizen values often stand out are; Responsibility, Environmental sustainability and Organic Foods. Additionally are consumers’ actions and production methods in Denmark perceived as having an impact on a larger scale and both the consumer and producer are held responsible for the outcomes. The focus on individual freedom, expressing your self, expressed within neoliberalism, is evident in the Danish report, thus it fits well with the placement in the grouping of neoliberalism.
Attributes and discourses

Price and Competitiveness were two attributes highly prioritised in Denmark. They were occasionally overlapping in their descriptions especially regarding price competitiveness, which was recurring in both attributes. These attributes are merged under Profitability/Competitiveness in the comparative report. The new attribute is described as the ability of the supply chain to make profit and be competitive in the market, referring well to the issue regarding price competitiveness in Denmark. The economic capital is standing out in the new attribute, linking three main factors: 1) producer-focused, 2) consumer-focused, 3) policy-focused. The producer focus in Denmark is reflected in the higher wages (due to an expensive welfare model), influencing the production's cost of any locally based food chain, which consequently challenges Danish farmers/producers competitiveness with global producers. The consumer focus is translated into purchases that do not reflect the citizen values, since product prices are the key cue for the final food purchase decision. This has generated an increased interest on other cues in which Danish foods may be competitive compared in the international market.

Consumer information is another highly prioritised attribute in Denmark, this is including information online, though articles or the information which is given on a food product, whether it is a label, a health claim or just a picture. Consumer Information is placed under “Information and Communication” in the comparative report and is very well including the aspects taken into the consideration in the Danish context. Moreover Information and Communication includes the Danish attribute food literacy, which is closely linked to “knowledge and skills” in the French report, also focusing on the importance of training programmes on food in schools. A general value standing out in the attribute across the countries is trustworthiness. The horsemeat scandal was connected to untrustworthy communication, in which a range of countries was affected, including Denmark, which influenced how consumers subsequently engaged with particular products. Food scandals are in a Danish context connected to the lack of traceability systems, or untrustworthy systems.

The attribute Organic foods is of a high priority in Denmark. In the comparative report this attribute is under Biodiversity, which is referring to the effects that a food supply chain has on the survival of different animal and vegetal species within a certain environment surrounding. The Danish approach is generally more holistic than the other countries represented in this attribute. In a Danish context organic foods is encompassing a set of values such as protecting the nature, increasing animal welfare and focusing on Danish foods and food tradition. Moreover a focus on Organic foods is clearly seen in the political sphere, where the agenda is to increase the share of Organic Foods in the public procurement policies, even to reach 60%.
National-level Report Summary – Spain

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Main activities carried out within WP2
a) Literature review and text analysis to select the main attributes characterizing the discourses about food systems in Spain. A total of 178 references were collected so to cover the different aspects and spheres of food systems.
b) Interviews with experts to integrate further information to the text analysis and to perform a ranking exercise on the list of attributes. 14 experts were interviewed.
c) Delphi exercise, 8 experts accepted to participate to the first round of interview representing experts from public institutions, academy, farmer unions, and environmental organizations.
e) A literature review concerning methodologies used in the food system analysis in Spain.

National context – brief description and analysis
The geography and the ecological and cultural characteristics of Spain are rather heterogeneous. Such diversity affected both the past and present characteristics of the agricultural activities and in turn the structure and functioning of the food system, so that in Spain large differences exist among regions about their agriculture characteristics. Spain ranks forth in EU as importance of the agro-food system in the economy. Spain food system accounts for 8% of the GDP and 10.3% of the employment, and represented also 16% of the total export of the country. Spain is the second most important exporter of agrifood product in EU. EU represents nearly 80% of the export market. At the same time Spain is highly dependent on imports (e.g., energy, feeds for animal and cereal).

Main conclusion
(1) Local vs. a global, and a short vs. long food chain: A complex issue
From the analysis of literature and the experts’ consultation it emerged that the issue “local vs. global and short vs. long food chain” cannot be defined in a simple way. It emerged that simply referring to the distance producers-consumers, although somehow an obvious approach, cannot and should not be the unique approach employed to properly address the issue, e.g.:

- It is not easy to define what “short” and “long” distance mean. How to set the proper geographical boundaries may pose a serious dilemma. For example, at which level should we set the geographical boundaries (e.g., local, regional, national level)? In a given country, local products may be distributed “locally” in relation to a region within that country. A region which surface may largely exceed that of a neighbourhood country that may accounts as “global” its import-export activity taking place just outside its borders.
- A local producer can sell at the local market a product of a foreigner variety (e.g., In Spain the seeds of transgenic maize are owned by Monsanto, a U.S.A. based corporation), grown employing imported fossil fuels (e.g., in form of gasoline, fertilisers), machinery (e.g., tractors made in other countries) and foreigner labour (e.g., immigrants from other continents),
- A “local” product may have gone through a long chain of passages in the trading and transformation process, before reaching the local consumer;
• Again, although locally produced and consumed, a product can be stored for a long time in local energivorous cellars;
• Some typologies of farming system (e.g., cereals) are highly dependent on governmental subsidies. That again makes the food chain open to external “inputs” (e.g., money from EU).

(2) Food chains and quality perception

• Global and long food chains tend to be perceived as more related to speculation, exploitation, power control, and less to health (more preservatives, taste enhancers, etc.), resource conservation and fair social relations. Yet, global food trade cannot be dismissed as some products cannot be grown in Spain and they need to be imported;
• The promotion of local, short agro-food chains may represent an important starting point in order to build a relation of trust between producers and consumers and a more sustainable agro-food system, and eventually improve the income of farmers;
• The identification and traceability of the food and feed product, as well as those of their ingredients, is of primary importance for the protection of the consumers. Imported products tend to be perceived as less healthy than local, but that is not always the case;
• Proximity is seen as having the potential to reduce the ecological footprint of agro-food systems and providing healthy and seasonal products.

(3) Key issues related to the attributes

• For some attributes there is a very high level of agreement among the experts interviewed, notwithstanding their expertise and role in the food chain differ widely differed.
• The attributes related to environment, production sustainability and food security and sovereignty are perceived as those most important (e.g., CO2 emissions, energy and materials consumption, soil pollution, disruption of ecosystems).
• Different products present different problems and need to be handled in a different way. Fresh products, for example, are much more difficult to manage and need special precautions and control.
• High dependence on food imports is perceived as a potential risk to national food security; the higher the dependence the higher the risk (e.g., climate events, financial speculation),
• Global trade strictly depends on the availability of cheap energy (fossil fuels in particular) and on direct and indirect subsidies that hide both the true price and environmental impact of the enterprise,
• What is important is that imported food be produced in a sustainable way, both environmentally and socially, and that the producers receive a fair price for their work and products (distribution of value along the food chain is perceived to be highly unequal and balancing the power relations within the food chain is considered a main issue).