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Addressing Policy Challenges for More Sustainable Local–Global Food Chains: Policy Frameworks and Possible Food "Futures"

Julie Smith [1,*], Tim Lang [1], Bill Vorley [2] and David Barling [3]

[1] Centre for Food Policy, City University London, Northampton Square, London EC1V 0HB, UK; t.lang@city.ac.uk

[2] International Institute for Environment and Development, 80-86 Gray's Inn Road, London WC1X 8NH, UK; Bill.Vorley@IIED.org

[3] Centre for Agriculture, Food & Environmental Management (CAFEM), Department of Biological & Environmental Sciences, University of Hertfordshire, College Lane, Hatfield, Hertfordshire AL10 9AB, UK; d.barling@herts.ac.uk

* Correspondence: juliesmith.juke@gmail.com; Tel.: +44-7866-513-940

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Abstract: The article considers how policy can address the local–global within a wider commitment to food sustainability and draws on research conducted for the EU-funded GLAMUR project (Global and local food assessment: a multidimensional performance-based approach). Case study data identifies four key policy challenges for policymakers. Addressing these challenges in order to make links between current (and future) more sustainable food policy involves three phases. The first identifies *processes* of engagement in three spheres (public policy, the market and civil society); the second identifies *points* of engagement offered by existing policy initiatives at global, EU, national and sub-national policy levels; and the third builds *scenarios* as possible "food futures", used to illustrate how the project's findings could impact on the "bigger policy picture" along the local–global continuum. Connections are made between the policy frameworks, as processes and points of engagement for food policy, and the food "futures". It is suggested that the findings can help support policymakers as they consider the effects and value of using multi-criteria interventions.

Keywords: sustainability; global food chains; local food chains; food policy frameworks; food "futures"; policy coherence

1. Introduction

Recognising that policy choices, preferences and/or investment decisions which improve food chain sustainability are a complex area for policy intervention, this article examines relationships between policy frameworks and more sustainable performance in local-global food chains and uses scenarios to illustrate possible "food futures". The dominant economic paradigm has focused on market-based policymaking to pursue sustainability goals. However, food systems operate at multiple scales and layers and require a multidisciplinary, multistakeholder approach that pushes the boundaries beyond economic considerations to include political, social and ecological dimensions. As a consequence, the "old" Brundtland tripartite definition of sustainability, rooted in the three "pillars" of the economic, environmental and social, is being reconsidered as a suitable structure for policy agendas [1]. One notable outcome of this is an emerging discourse that questions "local" and "global" distinctions in food systems. This argues that traditional assessments of sustainable food supply chain performance need updating to reflect new production and consumption patterns and new consumer concerns, with some arguing that an ecological shift is required that reveals the complexity of the food

systems" real costs and benefits along the local-global continuum [2–4]. Although these analyses of multiple "dimensions" for creating more sustainable food systems are complex in themselves, they also raise enormous challenges for policymakers. It is this that the article considers: how can policy address the local–global within a wider commitment to food sustainability? Are there any entry points or early signs of such engagement? And what outcomes could these "forks in the road" have on possible "food futures"?

The article draws on research conducted for the EU-funded GLAMUR project (Global and local food assessment: a multidimensional performance-based approach [5]). GLAMUR set out to investigate how the sustainability performance of food chains varies along the global-local continuum, what characterizes difference, and what the implications are for European and global policymaking and public-private strategies to increase food chain sustainability. The specific focus of the article identifies key policy challenges emerging from this research that have an impact on the economic, environmental, social, health and ethical dimensions of sustainability. Although the focus is confined to policymaking and implementation (in line with the research brief), it is acknowledged that there are many, wider aspects of governance that lie beyond the role of governments and the scope of this article.

The article begins by briefly elaborating the global-local discourse within food systems' analysis and the policy response. The methods section is followed by the research findings, and the discussion and concluding remarks briefly examine how policy could address this more complex agenda.

1.1. Why the Local/Global Distinction Emerged in the Discourse about Food Systems

Various food safety scandals and incidents and increased concerns about both the quality and sustainability of globalised food systems which emerged in the late-1990s resulted in more co-ordination and traceability in food chains. This included both increased control, using formalised procedures and standards, and a "quality turn", associated with quality assurance schemes and the rise of alternative food networks (AFNs), including those that promote local and regional food products. This relocalisation resulted in new relationships between producers, processors, retailers and consumers.

Previous articles have warned against the binary of global/local thinking and so-called "defensive localism" [6], and of using embeddedness to make simplistic analyses of local (good) versus global (bad) scales of food provisioning [7]. Concerns have also been expressed about the pursuit of the "local" as a hidden form of protectionism in the name of sustainability [8]. Exploration of the relationship between global flows and networks and local practices has been extensively applied to food systems, and there is recognition of the hybridity and interconnectedness of the global and local, including the inter-relationships between the political, institutional and regulatory context in which food systems operate and the local/regional context that shapes them [9–12]. This hybridity within chains, the degree of differentiation according to national/place-specific context, and the blurred distinctions between the global and local, highlights some of the difficulties faced by policymakers working within such diverse situations and aspects of the policy response that illustrate this complexity follow in the next sub-section.

1.2. The Unforeseen Consequences of Policy and Governance

More sustainable food systems need policies that first and foremost do no harm. A fine balance is required between policies that influence and support producer supply, including rural infrastructure and agricultural research and development, but also target consumer demand and influence consumer access to safe, healthy and affordable food. Current policies and standards, including regulations, taxes, tradable permits, information-based instruments, voluntary approaches and governance mechanisms activated by companies along supply chains, can have mixed results for performance of food chains along the local–global continuum.

Policy on food and agriculture has developed incrementally in the European Union since the founding of the Common Market in 1957 and the Stresa Conference in 1958 [13,14]. While the Common

Agricultural Policy (CAP) still dominates EU expenditure, other policies have grown alongside, notably environmental, regional and some economic policies, and to a lesser extent some health policy; most recently a commitment to resource-efficiency is being negotiated, latterly expressed as the pursuit of a circular economy [15]. There is, however, no single, overt, coherent, overarching food policy within Europe, rather different policy layers have been added over time that lack full policy integration but share the common aim of enabling a successful internal economic market [16]. For example, although agrifood is a major and successful part of European global competitiveness and agricultural policy and market harmonisation of standards for food products are key policy areas, local food systems have been regarded as more marginal from the mainstream policy "hotspots" and are promoted with financial supports from rural development programmes (RDPs) [17]. This "compartmentalization" of "local" can lead to tensions over how global, locality and local foods are defined within EU policy. Locality foods sit under global competitiveness and the open single market on one side of EU policymaking, whereas local foods sit under rural economic development and culture/territory. Policy has—through Protected Designation of Origin (PDO), Protected Geographical Indication (PGI) and, to a lesser extent, Traditional Specialties Guaranteed (TSG) certification standards—intervened in the first, as standards and norms are required in long chains, where exports are important, in order to communicate integrity and quality, but the role of policy interventions in short chains, which are very diverse, and where "localness" is a key attribute, is less clear. This is raising questions about how short food supply chains should be regulated in such context-specific situations [18].

Another example can be drawn from developing countries where European promotion of global food chains, especially those driven by private sector strategy, can affect the performance of food chains in these countries. The impact of European Foreign Direct Investment (FDI) on the capacity of developing countries to support their local food systems and local development has been criticized as resulting in "land grabs" with impacts on capacity to support local food chains [19]. FDI can also facilitate the globalisation of food consumption patterns that displace local production and shift dietary preferences towards imported foodstuffs and productive capacity towards agricultural export commodities [20–22]. The impacts of European promotion of global food chains need to be taken into consideration as context when looking at impacts of the promotion of local chains, and when seeking policy coherence in Europe across regional development, agriculture, trade and investment, and aid.

The above examples serve to underline not only the interconnectedness of global/local food systems, but also the sometime unforeseen consequences of policy and governance, often adding up to less than desirable policy coherence, including contradictory policy drivers and blind spots. These observations point to some significant challenges for policymakers as they seek to avoid making simplistic assumptions about "local" and "global", whilst addressing the fluidity and dynamism of the notion of sustainability within food systems.

2. Methods and Approach

Set within this context, the GLAMUR research programme (2013–2016) investigated how the sustainability performance of food chains varied along the global-local continuum. This included 32 case studies across eight product commodities (apples, berries, grain (wheat-to-bread), pork, cheese, wine, tomatoes and asparagus) and of global-local food chains in public procurement. These case studies mapped and analysed how sustainability impacts were generated within specific food chains at global, intermediate/regional and local levels along the continuum (see [5] for full details and reports). Concurrent with this research process, a detailed policy analysis report was constructed [23]. This provided valuable information for the policy recommendations, assessing the role of EU and global public and private policies on global and local food chains and identifying key policy and governance drivers of local and global food chains and their multi-dimensional impacts. The research covered in this article focuses on the policy challenges, implications and recommendations that emerged from this work.

2.1. Approach

Case study analysis along the local-global continuum was used not only to expose the policy challenges for sustainable performance assessment but also to illuminate the ways in which global and/or European policy is taken up at national and/or subnational levels. This demonstrated how policies are not simply implemented, but are shaped by specific contexts (inter-relationships between the institutional, political and regulatory) and locations. Detailed analysis of the case study data identified four key policy challenges for policymakers as they seek to address the framing of the "local" and "global" and the problematic nature of current sustainability performance assessments. The challenges identified were that:

i. policy and initiatives need to clarify the fluidity of global/local distinctions and improve transparency for the consumer;
ii. policy and mechanisms should foster plural food systems, with a balance along the local-global continuum;
iii. policy blind spots and contradictions need addressing, including the gap between public policy and corporate/ commercial policy;
iv. tools, methods and procedures need to be developed which look at "hidden" aspects of food chain performance to help policymakers pursue multi-criteria interventions.

The phased approach not only encouraged reflexivity but also identified risks and possibilities for "food futures" that were built around evidence, rather than merely relying on assumptions about sustainable performance. To begin to explore these futures, the research then developed three policy scenarios. These scenarios are possible stories, not predictions. Their intention is to illustrate visions (or simulations) of possible food futures and to explore and reflect on how future policy may (or may not) shape transitions to more sustainable food systems.

2.2. Data Collection and Analysis

Addressing these policy challenges in order to make links between current (and possible future) more sustainable food policy involved three phases. The first identified *processes* of engagement in three spheres (public policy, the market and civil society); the second identified *points* of engagement offered by existing policy initiatives at global, EU, national and sub-national policy levels; and the third built *scenarios* as possible "food futures", used to illustrate how the project's findings could impact on the "bigger policy picture" and improve sustainable food systems. The final policy recommendations emerged from this process.

In keeping with the participatory approach adopted by the project, input and feedback was sought from policy experts (drawn from relevant policy officials, academics, industry leaders and from civil society organisations) and project partners (15) at every stage of development. Analysis of the case study data was supplemented with questionnaire data supplied by the project teams (15 responses). This provided more detailed insights into the significance of policies operating in the supply chains studied and their impacts on the localisation of food chains and on supply chain performance. The policy team then drafted the initial report (June–October 2015) and this was circulated to project partners and the group of policy experts (11) for comment and feedback. In the next round of development, the report was presented at a policy workshop (Barcelona, November 2015) attended by project partners (29) and six (of the 11) policy experts. This provided an opportunity to work closely on the final version of the report and on clarifying the *process of engagement* (phase 1), the existing *points of engagement* (phase 2) and the *scenario building* (phase 3). A further draft emerged from this process which was circulated for discussion, before the full version was finalised in December 2015 [24].

3. Results

Detailed analysis of the different sustainability dimensions used to assess performance in the case study data revealed not only the differences, overlaps and synergies between global and local supply

chains, but also the blurring of boundaries and trade-offs that took place between the five sustainability dimensions—economic, environmental, social, health and ethical. Different policy settings led to different performance profiles in the supply chains studied. For example, the role of subsidies had a major influence on the ecological and economic performance of chains in some countries (e.g., Switzerland, Italy, France). Likewise, transition took different routes according to context and how national and EU policies were framed and interpreted. For example, such as when leverage of public food service in Denmark demonstrated how Copenhagen was able to work within the EU public procurement regulations and source local food from small and medium sized enterprises (SMEs). This section now summarises findings about (1) policy drivers, (2) processes of engagement, and (3) points of policy entry, before outlining three scenarios for the future, which explore how this policy mix might be addressed.

3.1. Contradictory Policy Drivers and Policy Blind Spots

Contradictory policy drivers were identified in different national contexts. Some policies provided incentives for localisation or relocalisation in the food system, whereas others worked in opposition, and disincentives posed obstacles for innovation and transition at local/regional levels. Subsidies often acted as direct incentives for localisation/relocalisation. These were implemented through agricultural policies and varied according to national priorities strategies in the French tomato sector were very dependent on CAP payments, whereas Switzerland, as a non-EU member state, had its own agricultural policy and provided subsidies for landscape and biodiversity that underpinned local production. However, there was also evidence that subsidy regimes could discourage local production, such as in the case of Swiss dairy farmers who relied on imported feed rather than developing local markets.

EU policy also acted as a disincentive for localisation/relocalisation by placing regulatory burdens and global standards on SMEs, including inflexible hygiene regulations and expensive investment requirements in certification schemes. The removal of EU milk quotas had also opened up global competition and put additional financial pressures on small dairy farmers, such as those supplying local cheese makers in the UK. In some national contexts there was a political culture with a tradition of targeting global competitiveness (e.g., The Netherlands, UK) and taxation policy also acted as a disincentive to implement value-added activity or grow in scale for small producers (e.g., France). In others, e.g., Latvia, there was a lack of clear standards to validate local chains.

The findings also revealed policy blind spots that impacted on food system sustainability. At the European level these included non-local inputs in local products, competition between exported subsidised products with non-subsidised local, a lack of regulation in some local chains and a lack of policy supports for SMEs to "up-scale". This suggests that efforts to standardise legal procedures need careful implementation in order to avoid undermining traditions that provide both livelihoods and support cultural traditions in local, rural communities (e.g,. the berry industries in Latvia and Serbia).

By exposing these policy blind spots, the case studies demonstrated how diversity in supply chains was often place-specific and affected by cultural context, and by unpacking the complexity of sustainable performance assessment, the findings also revealed the challenges that policymakers confront when trying to improve sustainable food systems. Extending sustainability impacts beyond the economic, social and environmental to incorporate health and ethical criteria also challenged some assumptions that "local" is always more sustainable [25,26]. Food systems are complex and cannot be defined solely in normative terms. Socio-cultural values and consumer perspectives and choice should also be integrated if policymakers are to engage more effectively with sustainable performance assessment and extend their thinking beyond simple "global" and "local" distinctions.

Table 1. Addressing the policy challenges: processes of engagement.

Spheres of Engagement	Public policy (Government)	Market (Consumers, Commerce and Supply Chain)	Civil Society
Policy challenges			
Policy and initiatives need to clarify the fluidity of global/local distinctions and improve transparency for the consumer.	• Give higher priority to social attributes of food, such as human capital and the values that underpin food systems;Better public education about the complexity of sustainability, particularly highlighting social and ethical values alongside "hard" data such as CO2 and GHGs, and life cycle analysis data;Conduct public consultation about new methods for giving consumers broader indicators of what is in their food, and where it comes from;Applications for GIs need to take note of the complexity of "local" designations;The impacts of FDI on global/local food chains in developing countries need particular attention at all policy levels.	• Tough monitoring of false claims about "local" and "global" food;Create a new working party to consider how to encourage genuinely sustainable local food systems, using improved food metrics;More transparent procedures for assessing local and locality foods to clarify distinctions for consumers;Food producers need to be more prudent in using "sustainable" and "local" in the same breath and employ greater care in the use of sustainability performance attributes;Clarify place-specific labeling.	• CSOs to educate consumers about the fluidity of global / local distinctions;CSOs to inform themselves about the weaknesses of current "local/locality" terms as proxies for sustainability performance;CSOs should champion improved regulation and information about the degree of localness in food.
Policy and mechanisms should foster plural food systems, with a balance along the local–global continuum.	• European Scientific advisory bodies to improve metrics of sustainability;EU to recommit to a comprehensive food policy and this to link economic, health, social, ethical and environmental policy objectives;DG Sante and DG Environment to collaborate more on improving food sustainability criteria;EU to consider reviving Communication on Building a more Sustainable Food System;Provide means for sub-national policy arenas to incorporate all costs and benefits when setting policy areas, such as creation of zoning policies that consider ancillary impacts on health and eco-system services.	• Put pressure on governments to help consumers eat and buy more sustainably, including the creation of sustainable diet guidelines, incorporating existing nutrition and food-based guidelines.	• Consumers need help to become more "literate" about the complexity of sustainability in daily food choice.
Policy blind spots and contradictions need addressing, including the gap between public policy and corporate/ commercial policy.	• EU & Member States to review the mix of incentives and disincentives to towards the localisation/relocalisation of food chains and to monitor implementation;Clarification is needed of priorities for developing countries over demands that they pursue export-led growth and sustainability;Tax policy needs reform to enhance transparency and support SMEs.	• Address contradictory policy drivers in supply chains to optimise sustainability and reduce "trade-offs" which lower standards;Work to ensure the food industry stops exploiting the messiness with false claims about "local" food;CSR to include performance in improving producer remuneration (income or share of value) in supplier relations;Provide clarity about reasons for supporting food imports from developing countries;Apply transparent social and ethical standards for food exports, FDI and marketing in developing countries;Help improve food infrastructure in developing countries for internal, South-South and export trades.	• CSOs should champion EU policy coherence on impacts of European exports and FDI on changing consumption in developing countries (and impacts on THEIR local food systems).

Table 1. *Cont.*

Spheres of Engagement	Public policy (Government)	Market (Consumers, Commerce and Supply Chain)	Civil Society
Develop tools, methods and procedures that look at "hidden" aspects of food chain performance to help policymakers pursue multi-criteria interventions.	• EU science "call" for clarification of multi-criteria methods to assess sustainable performance in food chains;Policymakers at all levels should stop assuming there is always a positive link between local food chains and rural economic development and develop tools to provide more nuanced analysis of this complexity;Relevant sub-national institutions within food policy need to get involved in multi-criteria education in order to reveal the food systems" real costs and benefits.	• Create better learning for supply chain management of the importance of multi-criteria approaches to sustainability;Share lessons between stakeholders in short and long chains to improve sustainability performance management.	• Development of EU standards for consumer-oriented "apps" which profess to give information to consumers about health, social, ethical and environmental values in food choice.

Source: adapted from Smith, Lang *et al*. 2015 [24].

Table 2. Points of engagement between the policy challenges and existing policy frameworks.

Examples of Existing Relevant Policy	Global	EU	National	Sub-national
Policy Challenges				
Policy and initiatives need to clarify the fluidity of global/local distinctions and improve transparency for the consumer.	• CFS Principles for Responsible Investment in Agriculture and Food Systems: linked to protecting capacity of developing countries to support their local food chains and local development [27]; IFOAM 3.1—global organic standards reconnecting with values [28].	• CAP Regulation 1305/2013 defines SFSCs [29]; Reforms to EU directives on public procurement (2014) [30]; GIs protect quality and authenticity and are linked to debates about locality [31]; • New Promotion Rules for farm products (Reg (EU) No. 1144/2014) explain standards and quality to importers and consumers [32]; Euro leaf logo obligatory on all pre-packaged organic food produced in EU member states [33].	• Development of National Food Policy by Dutch Government [34]; Swissness law defines what can be called a Swiss product [35]; Italian regional laws define local food/ km0 or short chains [36]; UK National Farmers" and Retail Association (FARMA) uses flexible criteria for "local"/localness [37]; "Ici.C.Local" (here, it's local): French national public brand. [38].	• Urban food strategies e.g. Milan Urban Food Policy Pact [39].
Policy and mechanisms should foster plural food systems, with a balance along the local–global continuum.	• UN Sustainable Development Goals 2030—17 concern food [40]; WTO agreement on technical barriers to trade and ecolabelling, with special attention on developing countries [41]; Consumers" International: set of recommendations towards a Global Convention to protect and promote healthy diets. [42].	• Europe 2020 targets supports to internationalise SMEs [43]; EU Roundtable on Sustainable Consumption and Production: emphasis on environmental aspects, but looking at economic and social [44]; • CAP revisions include Small Farmers Scheme [45]; RDP 2014-20 priorities include better integration of primary producers [46].	• Italy fosters cooperation between activities of the State and Regions and Autonomous Provinces through the "Conferenza Stato Regioni" [47]; French Future Food Law 2014: complements public food policy and drive change towards "agroecology" [48].	• Research policies promote innovation within local chains, e.g., Montpellier Metropole combines citizens and producers;French food aid sector experimenting with local procurement of fruit and vegetables using subsidies and gifts.

Table 2. *Cont.*

Examples of Existing Relevant Policy	Global	EU	National	Sub-national
Policy blind spots and contradictions need addressing, including the gap between public policy and corporate/ commercial policy.	• Stricter application of Policy Coherence for Development (PCD) to bring European FDI and European development policy into closer alignment [49].	• High Level Forum for a Better Functioning Food System includes social dimension of sustainability BUT neo-corporatist social partnership [50]; Simplification of the CAP: need for more consistency and complementarity between CAP and other EU policies (COR 2015-02798-00-00-AC-TRA) [51]; Review of Seed Regulations: to address concerns of organic and small producers [52]; European Platform to improve co-operation on undeclared work [53]	• Latvian Agricultural Knowledge and Innovation Systems (AKIS) has focus on small local farmers and instruments that could support these actors [54].	
Develop tools, methods and procedures that look at "hidden" aspects of food chain performance to help policymakers pursue multi-criteria interventions.	• Development of sustainability reporting such as: Global Reporting Initiative (GRI), Sustainable Agriculture Initiative (SAI) and Participatory Guarantee Systems (PGS) [55–57].	• EIP-AGRI—interactive, innovation model [58]; CAP reform and cross compliance: EC Statutory Management Requirements (SMR) and GAEC (good agricultural and environmental conditions) [59].	• Flexibility in Food Safety regulations could be exploited more by Member States to support burdens on SMEs [18,60].	• Web-based SENSE tool for SMEs to use simplified version of environmental and social lifecycle assessment methods [61].

Source: adapted from Smith, Lang *et al.* 2015 [24].

3.2. Addressing the Policy Challenges: Processes of Engagement

The first phase of the methodology identified policy processes in which the challenges might be addressed, presented in Table 1. These are given in three different spheres: public policy (governmental processes); the market (how consumers engage with the food system, and commerce and supply chain processes); and civil society (how citizens engage with the food system). For example, processes of engagement that could clarify the fluidity of global/local distinctions and improve transparency for the consumer include: giving higher priority to the social attributes of food (public policy), tough monitoring of false claims about "local" and "global" food (the market), and civil society organisations (CSOs) championing improved regulation and information about the degree of "localness" in food.

3.3. Existing Points of Entry

The second phase of the research process was in the vein of participatory research, involving the entire GLAMUR research body plus the outside experts. This identified some opportunities and policy entry points in and on the current policy agenda, at different levels of policy and emerging from different actors which connected the "processes of engagement" (Table 1) with existing policies and initiatives which could act as "points of engagement" (Table 2). These include policy and mechanisms already enacted at the global level such as the UN Sustainable Development Goals 2030; reform to EU Directives on Public Procurement; a range of instruments and initiatives aimed at supporting "local"/localness at national and sub-national levels; and various initiatives that develop sustainability reporting.

3.4. Scenarios: Possible Food Futures

The third phase of the research process was to consider how the processes of engagement (Table 1) and points of entry (Table 2) could make connections with the wider policy picture, *i.e.*, to locate these specific local/global issues within the macro level of policy affairs. The researchers constructed three scenarios as possible "food futures". These scenarios were much discussed and refined with input from outside experts, including from the food industry (see [62] for full description). The three scenarios present the following possibilities:

(1) *Business-as-usual*, where "local" and "global" co-exist in tension or as hybrid forms;
(2) *Systems change*, where a commitment to sustainability re-shapes the food system and reconfigures both the "local" and "global"; and
(3) *Big Food World*, where food supplies and consumption patterns are framed by global food trade deals such as TTIP (the Transatlantic Trade and Investment Partnership)/post-TTIP, corporate concentration and short-termism.

The scenarios chart possible "directions of travel" for the food system in general and the drivers and tensions between the local-global. They highlight how the research findings may find relevance in the real world of policymaking and can help support policymakers as they consider the effects and value of using multi-criteria interventions - and the loss if not. Multi-criteria thinking opens up options for bridging between the "macro" and "micro" worlds of policy making and suggests likely impacts on the ground, which can be researched further. The scenarios are outlined using the same sub-headings to facilitate comparison. Each scenario provides a description; an evidence basis; a judgement of likelihood; how it translates the research findings; who the key actors in the scenario are; possible points of entry for policymakers (where relevant); and finally the implications for policymakers concerned about the local/global. The scenarios are presented to illustrate how the fluidity of events could reshape both the specific dynamics of the local/global as explored in the research project, and the role of policymakers. It was felt that this was important for high-level policymakers, e.g. at national state and EU levels, and also at the more local level.

Scenario 1: Business-as-Usual: "Local" and "Global" Co-Exist in Tension

Description: In this food future, policy remains a patchwork of messages. Some support artisanal and local foods, others support continued globalisation and the development of mega-brands. Local food systems are supported but remain on the policy margins, situated within rural development. There is no coherent regulatory framework which recognises the fusion of local and global. Food system diversity plays little or no role in the framing of sustainability. The overall emphasis is on cheapening food supply chains for austerity Europe and on the global competitiveness of European exports on the world food market.

Evidence base: GLAMUR's Policy Analysis Report [23]; IIED (2015) Global or local food chains? [19]; current 2015-20 European Commission Priorities [63]; "Short Food Supply Chains and Local Food Systems in the EU" [17].

Likelihood: this is the current normality. It has tensions. It could be altered by another Eurozone crisis or an explosion of Middle East politics or drought and rural crisis in Africa, or by an invigorated carbon reduction policy push. Currently market forces are supporting fragmentation rather than consolidation as new concepts emerge to challenge the status quo. *How this affects GLAMUR findings:* Policy interventions will not go beyond market mechanisms. Synergies and trade-offs between global and local food systems will remain unrecognized. "Local" continues to be used loosely as a proxy for sustainability in food. There will be continued pressure on EU food companies to increase exports and their brands into the developing world. Developing countries will continue to face import competition in their home markets that constrain their capacity to develop local food strategies.

Key actors for whom GLAMUR findings are relevant: EU, multilateral agencies, national and sub-national governments, market actors, scientists, some civil society organisations, and the consuming public.

Points of entry: GLAMUR findings could be taken up by key actors in regulatory and public-private standard setting who acknowledge the need to adapt mainstream policy instruments to scale and diversity within the food system. GLAMUR could be used to justify more emphasis on how to give consumers information on the fluidity of global/local distinctions and on the social and ethical aspects of food products. Consumer confusion about the local is further evidence that reliance on science-led priority setting for policy is not a sufficient condition for good policy making.

Example of immediate action: GLAMUR could receive immediate uptake over marketing claims which could easily become a source of policy irritation and breakdown in consumer trust following a media "exposé".

Implications for future evidence requirements: There needs to be high quality, routine monitoring of the role of local food provisioning systems within a diverse and heterogeneous food system. Consumer beliefs would be an important variable in how the local–global is operationalized. Consumer trust is at stake.

Scenario 2: Systems Change: Sustainability Re-Shapes the Food System

Description: In this food future, sustainability and system diversity are in the driving seat, with policy adjusted accordingly. A reorientation of the food system is agreed to be necessary. The goal of long-term restructuring shapes short term strategy. Externalised costs are recognised to be a burden on society and eco-systems. How to manage the ensuring transition becomes a dominant theme in policy and politics in this period. Effects on food prices and availability become important as a politics of "trade-offs" dominates food policy.

Evidence base: Global reports suggesting the case for systems change, and identifying problems for the entire food system (e.g., [64]), for agricultural and supply consistency (e.g., [65]), for eco-systems services (e.g., [66]), for public health (e.g., [67]), for sustainable food choices (e.g., [68]), for climate change (e.g., [69]) and for trade (e.g., [70]). Reports for the EU on consumption [71] and the goal of the circular economy [72], as well as FP7 projects, such as SOLINSA [73] and SUPURB FOOD [74] are exploring aspects of what this might mean.

Likelihood: Governments signed the Sustainable Development Goals: Goal 12 is for sustainable consumption and production [75]. Currently, systemic transformation is not likely but it remains a possibility. Companies have a strong self-interest in addressing sustainability because they want to survive and prosper in the longer term. Some sections of the food industry want a new framework to create a new "level playing field" for business [76]. Although such moves are welcome moves, and although some companies are making big commitments to change their business models [77,78], there are blocks preventing systemic change or limiting its speedy transition. The maintenance of current consumption patterns and aspiration for "high" living standards, with consumption as the driver of economic growth coupled with some degree of consumer debt, remain key rationalisations for business-largely-as-usual. If sustainability was to triumph, it might emerge out of crisis but would then be likely to lose coherence and inclusive processes.

How this affects GLAMUR findings: GLAMUR exposes the weaknesses that arise from the lack of coherence in current policymaking, especially with regard to "local" food chains. This requires a "re-engineering" of skills and data about the food system. Long chains are intrinsically more complex, but short chains using globally sourced ingredients and labour also have complexity.

Key actors who will run with GLAMUR findings: European political leaders are needed to champion a broader framework which places sustainability at the heart of planning. Existing political leaders already committed to local, regional and identity food chains would receive the multi-level support they require. City and regional leaders could, for example, champion and provide the profile for new directions in food culture [39].

Points of entry: The growth of "alternative" food products (5.1% per year in 2004-12, in one EU study) shows policymakers the viability of commercial expansion [79]. Public contracts and procurement become essential baselines for policy effectiveness. The notion of sustainable diets from sustainable food supply chains becomes significant. Deliberations by OECD Agriculture Ministers (e.g., 7–8 April 2016) signal interest in moving beyond business-as-usual strategies. The Urban Food Policy Pact signed by 100 World Cities in Milan, October 2015, becomes the policy "umbrella" for thought-leaders. European institutions such as the EC, the European Parliament, and national Parliamentary debates become important signals for consumer culture change.

Implications for future evidence requirements: Policymakers need access to a range of sustainable performance assessment tools that recognize "difference" in the food system, and also the complementarities and synergies between local and global food chains. Close monitoring of public opinion is important. Routine and more accurate studies of public attitudes and preparedness to change would improve policy and strategy. This could be a Eurobarometer and/or European Social Survey task.

Scenario 3: Big Food World: TTIP, Recession and Short-Termism

Description: In this food future, sustainability remains a divisive issue and perhaps even falls down the policy agenda and is narrowly framed as eco-efficiency, affordability and availability. The socio-cultural dimension of food is submerged in austerity food politics. Attempts to revitalise the macro economy sees TTIP as key. Maintenance of "affordable" food drives food politics at EU and member state levels. Concentration of food markets continues [79]. There is a dominance of brands (manufacturers and retailers, including deep discount) traded over long distances. Policy tools that regulate chain integrity, safety and compliance further marginalize local food. TTIP becomes another driver of food industry consolidation. Appetite to resist climate change drops with only upmarket brands able to risk internalizing externalized costs; CO_2 rises are accepted as inevitable. Food consumption impacts remain in the "too hard to tackle" policy box. Some countries retreat to an individual and drawbridge mentality. The food economy remains torn between pressure to deliver living wages and the historical legacy of low wages.

Evidence base: There is strong public expectation of plentiful and cheap food [80]. There is also deep concern among analysts that proposals to "tackle" climate change are unlikely to stop a 2 degree rise

in world temperature [81]. Strong economic evidence is cited in pressure for conclusion of TTIP [82,83]. The growth of large retail chains and private label products continues; the top 10 retailers grew from 26% of EU market in 2000 to 31% in 2011 [79].

Likelihood: There are already some signs of elements of this scenario emerging. The TTIP agreement looks likely. Concentration in the food sector continues. The UN Climate Change talks in Paris have happened but not sufficiently radical enough to hold temperature rise below 2 degrees centigrade [84]. Consumers pursue bargains in food and across the economy. Political attention is affected by social concerns such as migration and Middle East politics. The Lisbon Agenda's emphasis on growth and jobs trumps the Sustainable Development Goals.

How this affects GLAMUR findings: GLAMUR would lack strong champions. Or the resolution of policy blind spots and contradictions identified by GLAMUR would be viewed mainly through conventional market mechanisms that favour economic primacy. GLAMUR-type analysis would remain in the alternative food markets and in civil society, niche rather than mainstream.

Key actors who will run with GLAMUR findings: GLAMUR is received and perceived as marginal and of concern only to "old" policy, with its emphasis on production. It would be of interest only if this scenario itself comes into a point of crisis.

Implications for future evidence requirements: A wide range of evidence would be needed to monitor the changes in externalities and consequences for all types of food supply chains, and to consider options for changed policy priorities. Leadership on research might fall to the bigger civil society organisations, particularly those concerned about ecosystems or consumers, for whom the local–global "slipperiness" might be a distraction. A new consortium of academic and civil society researchers might emerge, an inter-University inter-disciplinary Roundtable on Food Systems.

4. Discussion and Concluding Remarks

Exploration of the policy implications of the research findings suggests that policymakers need to improve recognition of the hybridity and interconnectedness of global and local food systems in order to address this more complex agenda and achieve a wider commitment to food sustainability (see also [24]). The processes and points of engagement (Tables 1 and 2) start to address not only these policy challenges but also the impacts of policy blind spots and contradictions and suggest tools, methods and procedures to look at "hidden" aspects of food chain performance to help policymakers pursue multi-criteria interventions.

The evidence in Table 1 suggests that the "direction of travel" for a more sustainable food system should be one steered by engagement and informed by wider science-based evidence and socio-cultural values. Rather than directing policymakers to a technically "sustainable endpoint" (should such a point exist), this could help guide policymakers, business and consumers alike through the multi-criteria interventions that the findings suggest are required. Table 2 then provides examples of the wealth of initiatives enacted at the global, EU, national and sub-national policy levels to help support these processes of engagement. However, the evidence in Table 2 also points to the fact that part of the policy challenge for sustainability is that there is a plethora of institutions both formal (government, elected, appointed *etc.*) and informal (thought-leaders, civil society, media, *etc.*). These all have a stake in trying to push the food system in the direction they consider desirable, and are in tacit competition with other stakeholders. There are thus multiple opportunities for engagement. On the one hand, this engagement could be a necessary precondition for sustainability or, on the other hand, this could lead to further policy incoherence—as identified by the research—termed elsewhere as "policy cacophony", literally a multiplicity of policy noise [85].

It is also suggested that these findings act as "forks in the road", and have different outcomes depending on future policymaking. The scenarios illustrate that "reality" is malleable, and that different interpretations and visions of progress for the food system will categorise the local and the global differently. In one respect, the scenarios merely reinforce a conventional social science perspective—that human reality is socially constructed. But in other respects, the scenarios demonstrate

that there is no one roadmap for policy implementation for more sustainable food systems; there is always a range of possible roadmaps. And by outlining at least three possible scenarios, the detailing of the roadmaps could become a more robust process; this justifies further research—that is, for actors in the food system each to consider how they might react as political reality shapes the food system. If political events lead to scenario 1 and "business-as-usual" remains, the entry points and implications will be different from if scenarios 2 and 3 were to emerge. This is helpful for policymakers, and for different actors in the food system, to help them articulate their own roles, their aspirations and their strategies.

GLAMUR's research raises a nuanced understanding of terms which are easily used in current food policy discourse, such as, "sustainability", "local" and "global". This article has presented some of the policy ramifications and also proposes new policy frameworks. These carry rich messages for existing actors in the food policy debate. CSOs should be wary about pursuing glib cultural messages. The food industry needs to consider how it measures its footprint not just in a material way (as encouraged by the pursuit of the circular economy) but culturally. Governments and EU institutions would gain from seeing the local/global tension and hybridity as a useful opportunity to recalibrate longer-term direction for the food system. For all actors, a common theme is the need constantly to debate "what is a good food system?".

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