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XX (Chapter no)

The New Food Insecurity

Damian Maye

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Abstract

This chapter focuses on the ‘new food insecurity’, which relates to the re-emergence of the term in global geopolitics since the 2007-08 price spikes and related debates about the role of financial markets in determining food prices. Understanding finance and food economy relations is important, particularly in relation to landscape space and land use because it is necessary to break the link between financialisation and food systems in order to enable a greater diversity of agricultural land uses. Capturing discursive framings related to food security discourse is also critical because they produce social realities and determine agri-food governance responses. Techno-scientific approaches view sustainable intensification as one important solution to the global food crisis. Political economy perspectives frame structural conditions of the food system as needing to be challenged. Place-based approaches to food security, including new forms of multi-level reflexive governance, are identified as the most progressive to enable sustainable and resilient foodscapes.

Price volatility and the ‘new food insecurity’

Food security is a multi-dimensional concept. For example, it can be analysed at different scales, from the individual and household level to a region, nation state or globally (Lee, 2007). The UN

FAO's definition of food security is the most commonly cited (Lang and Barling, 2012). It suggests that "[food security] exists when all people at all times have physical, social and economic access to sufficient, safe and nutritious food to meet dietary needs and food preferences for an active and healthy life" (FAO, 2009: 8). Food security is therefore about more than just producing more food (i.e. availability); it is also about access, utilisation and social agency (Ericksen, 2008). Moreover, food security involves two-way interactions between food systems *activities* (producing food, processing and packaging food, retailing and distributing food, consuming food) that give rise to food security *outcomes* (food availability, access to food, food utilisation) (Ingram, 2011). In essence, "[t]he attainment of food security is primarily about the social, economic, cultural and political circumstances that either enable or restrict the provisioning of food to needy populations..." (Pritchard, 2016: 162).

This chapter focuses on a specific aspect of the food security debate, which I term the 'new food insecurity'. This relates to relatively recent national and global food security discourses and specifically the re-emergence of the term in global food politics since the infamous 2007-08 price spikes (see Tomlinson, 2013). Before 2008 food security was viewed in developed market economies as a backward-looking form of agricultural fundamentalism, because it framed rural land use as primarily a mono-functional space for food production (Lobley and Winter, 2009; Maye, 2013). After the 2007-08 price spikes food security had renewed geopolitical status and meaning (Maye and Kirwan, 2013; Hopma and Woods, 2014), with politicians more aware of the potential threats to food security and the "political and social importance of affordable food" (Ambler-Edwards et al., 2009: 5). Food security was once again an issue of global and national urgency, symbolised by international meetings, such as the Food and Agriculture Organization of the United Nations (FAO) Rome Summit on World Food Security in June 2008, global food security research programmes, such as Foresight's (2011) *'The Future of Food and Farming: Challenges and Choices for Global Sustainability'*, and a number of academic publications and special issues (see, for example, Ambler-Edwards et al., 2009; McDonald, 2010; Foresight, 2011; Maye and Kirwan, 2013; Hinrichs, 2013; Marsden, 2013; Hopma and Woods, 2014; Candel et al., 2014; Sonnino et al., 2016). From a global politics and food discourse perspective, the June 2008 FAO

Rome Summit was particularly important because it introduced two projections that became central pillars of the new global food security consensus frame (Tomlinson, 2013): first, that food production needed to increase by 50% by 2030 to meet rising demand (Ban Ki-moon, 2008); and second, that food production needed to double by 2050 to feed a world population of 9 billion (Diouf, 2008). The projections have since been questioned but meetings like this were crucial to help to establish a consensus that the 2007-08 price spike was not merely a blip.

The 2007-08 price spike event itself is now well documented. In summary, global food prices increased sharply during the period (by 83% over three years up to February 2008; see World Bank, 2008; Ghosh, 2010; Tomlinson, 2013). Prices had started to increase in 2006 but were initially steady. They rose sharply in the latter part of 2007 and the first half of 2008. Figure 1 uses FAO food price data from 2002-2016 to show price changes in 2007-2008 contextualising that particular spike event in terms of prices changes before and after. The FAO food price index is derived from the price of five main commodity groups (meat, dairy, cereals, oils and sugar) and is therefore a reliable general indicator of commodity price changes. Figure 1 also shows individual prices for meat, dairy and cereals. Very sharp increases were evident from 2006 for dairy and cereals and for all four in 2008, although less dramatic for meat. Prices rose very sharply in the first half of 2008 then peaked around the middle of that year and then fell back again. We have seen price spikes again since this time in 2011 and prices remained high until 2014 before dropping again. Price spikes and volatility are nothing new for primary agricultural commodities (Ghosh, 2010; Gardner, 2013) but the sharp nature of the spikes is historically unprecedented. The 2007-08 spikes were also distinct in that they applied to most food and feed commodities (Evans, 2008).

The feature that captured most political and media attention in relation to price spikes was the public reaction, with riots and demonstrations in Africa, Asia, South America and the Caribbean (Maye and Kirwan, 2013). Addressing high levels of volatility in global markets is therefore critical “because of the adverse effects they have on consumers and producers, because of the disruption they cause to the global food system, and, when particularly severe, because of the

general economic and political instability that can occur” (Foresight 2011, exec. summary, p. 22). Impacts on landscape space and land use are not mentioned explicitly here, but they are potentially very significant, if we think, for instance, in terms of how food security discourse influences and promotes particular forms of agricultural land use practice and/or potentially how land is used (to grow food rather than other land uses, scales of agricultural land use).

Figure 1: Annual Food Price Indices, 2002-2016 (Source: <http://www.fao.org/worldfoodsituation/foodpricesindex/en/>; accessed: 03/06/2017)



Note: All indices have been deflated using the World Bank Manufactures Unit Value Index (MUV) rebased from 2010=100 to 2002-2004=100

There is now significant debate about the factors causing volatility in global food prices, including the extent to which financial forces influenced and exacerbated the 2007-2008 crisis (Clapp, 2012; Gardner, 2013; House of Commons, 2013). Understanding this debate and related analysis of relations between food systems and finance - the ‘middle space’ of the world food economy (Clapp, 2012) – is a key focus of this chapter. It is important in a handbook about landscape and

food because it points to a fundamental but often forgotten relationship in contemporary foodscapes between finance markets and agriculture (Clapp et al., 2017), a relationship which can determine how farms and agricultural landscapes are valued and used (also see Chapters X, X & X – Justice, Wasfelt & water).

To develop this argument the rest of the chapter reviews the food security discourse and links between food systems and finance, including debates about how best to respond and how to make future agri-food systems and agricultural landscapes more resilient (also see Chapter X – resilience). The first part of the chapter examines supply and demand arguments that were used initially to explain price volatility. Although initially convincing, such arguments oversimplify food system complexity and relations, linking the food crisis to a simple resource supply argument (Deutsche Bank, 2009; Foresight, 2011). The food system is connected and related to wider global environmental change and socio-economic drivers (Ingram, 2011). To explain the food crisis – and in turn to fully comprehend relations between food systems and landscape space and use – a systems perspective is needed that goes beyond agriculture and resource inputs. Key work from agricultural economics is reviewed that examines the role of finance markets and their links with the food system. Capturing the perceptions and discursive framings of this new food security discourse is also critical, as these mechanisms *produce social (and spatial) realities* and determine agri-food governance and land uses (Nally, 2014). The rest of the chapter thus looks at governance responses to the ‘new food insecurity’, comparing science-driven bio-economy approaches with critical political economy, eco-economy and place-based approaches. Examining these debates (Foresight, 2011; McMichael, 2009; De Schutter, 2011; Sonnino et al., 2016) reveals the complex nature of global agri-foodscapes and associated modes of governance and the contested nature and geography of food security politics, including some tentative suggestions about what this means in relation to landscape space and land use (also see Chapter X – Food justice/politics).

Supply and demand arguments to explain the global food crisis

The new food security debate concerns the character and origins of the crisis and also what needs to be done in the name of food security. A number of reports, discussion papers and statements are now available from public and private institutions to document and explain the 2007-08 price spikes and their consequences (Rosin et al., 2012; Maye and Kirwan, 2013). Early analysis of the 2008 food crisis and volatility in food prices pointed to “problems with the market fundamentals of supply and demand” (Clapp, 2012, p. 126). On the demand side of the equation you have the emerging demand for grain to feed biofuel production, rapid population growth, and escalating middle-class demands for dairy and meat products in India and China (Rosin et al., 2012; Gardner, 2013). On the supply side, factors include short-term extreme weather events in Australia, Russia and elsewhere, which reduced the harvest of staple grains, and longer-term factors such as global climate change concerns that will disrupt food production in some parts of the world (see Chapter X – CC). This market fundamentals perspective was described as a “silent tsunami” (Economist, 2008) and a “perfect storm” (Lacey, 2008); in other words, the food price crisis was not caused by one single disrupting factor but was instead a “result of the compounding effects of coincidental factors” (Rosin et al., 2012: 4). A series of reports were published (e.g. Evans, 2008; Ambler-Edwards et al., 2009; Deutsche Bank, 2009; House of Commons, 2013) which recognised the impact played by various *short-term factors*, especially a series of extreme weather events, low global stock levels, the use of food crops for biofuels, rising energy prices, export bans and increased financial speculation.

Studies also recognised the influence of *longer term trends* and recognition that the food crisis was also a consequence of structural problems rooted in global resource limits (Goodman et al., 2012), including changing global patterns in diet and world population pressures. The Foresight (2011) report, for example, identified a list of ‘key drivers’ of change in the food chain, noting population growth, changes in food demand, both in terms of size and the nature of demand (especially for meat and fish), climate change impacts (both to the biophysical environment and how policy responds) and competition for key resources (namely, land, energy and water). Foresight also identifies how national and international food system governance develops as a key driver. This includes globalisation, production subsidies, trade restrictions, and how and

whether governments work together in the future to solve food problems. Changes in the values and ethical stances of consumers is listed as a final driver (see Chapter X – Ethics). Other reports use different language but usually point to similar landscape conditions and often present them in similarly pervasive, uncontested terms. For example, Ambler-Edwards et al. (2009: 11-18) describe seven “*new fundamentals*” which will affect the global food system: 1. a rapidly rising world population; 2. the effect of the ‘nutrition transition’; 3. the cost of energy and dependency on energy; 4. land resource issues; 5. global stresses on available water for consumption and food production; 6. climate change; and 7. labour in both developed and developing world countries.

Looking for explanations beyond the food system: the ‘middle space’ of finance markets

Initial analysis of the 2007-08 price spikes is open to critique. A key weakness in the supply and demand analysis presented is the failure to recognise links between food and finance markets. Some fundamental pressures may be pushing prices upwards over the long-term, but *volatility* (i.e. rapid fluctuation in prices both upwards and downwards), evident through the huge fluctuations in prices over a short period of time, suggests a strong link to the “expansion of the intermingling of food and financial markets” (Clapp, 2012: 126; Ghosh, 2010; Gardner, 2013; House of Commons, 2013). In other words, fluctuations in financial markets may have played a significant role in recent periods of food price volatility. Crucially, supply and demand arguments can only explain some of the underlying pressures that created price volatility in 2008. They do not fully explain the extent of the crisis. The demand for food and ‘nutrition transition’ processes taking place in India and China, for example, has been known about for a while, making it an unlikely trigger for sudden food price rises, especially as both are largely self-sufficient in food. The short supply argument is therefore open to question. Furthermore, the export restrictions that many suggested caused volatility were in many cases a *response* to already rising prices (Clapp, 2012).

Price volatility then is not explainable by supply and demand for food arguments alone. As Ghosh (2010: 77) put it, such wild swings “cannot be explained by short-term supply and demand factors or any other ‘real economy’ tendencies...these acute price movements are clearly the result of

speculative activity in these markets”. Financial markets provided “an additional ingredient to the perform storm” (Clapp, 2012: 134). Early accounts of the food crisis tended to downplay financial markets role. This view is now changing, prompted by the global financial crisis which led to a significant dropping of food prices at that time and alerted analysts to the role finance played in the food crisis and food pricing. Financial actors occupy a new ‘middle space’ in the world food economy (Clapp, 2012), with food and changing farming conditions used increasingly by financial institutions to make money.

This ‘middle space’ of the world food economy – that is, the financial dimensions of food pricing – is often *hidden* from view, with greater attention on the material aspects of supply and demand. The financial transactions I am discussing in this ‘middle space’ of the world economy are nothing new. Agricultural futures markets have been around for hundreds of years. ‘Hedging’, for example, was traditionally viewed as beneficial to producers and users of the commodity (Gardner, 2013: 57), with speculation allowing both parties to see what market conditions would be in the future and therefore helping them to plan for volatility. However, because traditional markets, including food commodities, are now absorbed into a much wider market for financial instruments (Clapp et al., 2017) some suggest this acted as a major price inflating factor during the 2007-08 food price spikes and subsequently (De Schutter, 2010).

A key product sold to investors by banks was *commodity index funds (CIFs)*. “The root of speculative pressure on food prices in 2006-2008, according to the critics, came from [CIFs]” (Gardner, 2013: 58). CIFs bundled commodities, including oil, minerals and agricultural commodities, into a single financial instrument based on a commodity price index (Clapp, 2013: 140). Crucially, CIFs are a further step removed from the physical commodity because “investors are able to bet on market price movements, rather than the purchase of the commodity itself” (ibid). Investors do not need detailed knowledge of futures exchanges or even the nature of the commodities themselves. They have only to deal directly with the bank selling them, which tracks a specific group of commodities via indexes like the Dow Jones. Financial investment in commodity futures markets has increased significantly since the early 2000s due to the economic

climate, with a weak US dollar and rising commodity prices, but also because of deregulation of agricultural commodity markets in the US which allowed banks to offer CIFs to investors (Clapp, 2012). The upshot of this deregulation of agricultural derivatives is that it attracted a new set of investors (both small and large) and the trade increased sharply, in turn exposing agricultural trade to global financial markets.

As a result of the increased investment in agricultural derivatives the link between food and finance is now much stronger. “[F]ood and agriculture had effectively been financialized, with agricultural derivatives widely seen as simply a financial investment, interchangeable with any other financial asset” (Clapp, 2012: 143; see also Clapp et al., 2017). The risks that this new exposure to global financial markets posed to global food security were not understood until after the 2007-08 crisis. As prices rose sharply in late 2007 financial speculation it seems was a key factor causing price volatility, with speculators using CIFs as a way to protect themselves from financial instability, which was driving up food prices. De Schutter (2010), the UN’s special rapporteur on the right to food, argued, for example, that the price spike in wheat and other agricultural commodities was mainly a consequence of a ‘speculative boom’, which he asserts is further justified in the subsequent price rises evident in 2010-11. During 2010-11 food stocks had been rebuilt, demand was reduced as a result of the global recession and biofuel production was also static. Consequently, “the main cause of price rises is a speculative bubble created by the massive growth in financial instruments linked to food commodities” (De Schutter, quoted in Gardner, 2013: 62).

De Schutter is by no means alone in his critique of speculation as a contributing factor to food prices rises in 2006-08 and beyond (see Ghosh, 2010, for example). For some speculation was a central factor causing the food price rises. Other analysis rejects the argument that the financialisation of food and agricultural markets was a major factor leading to price volatility and food price increases. These analysts are usually pro free trade, in contrast to consumer groups, aid charities and humanitarian agencies (e.g. the World Development Movement, the United Nations). The World Bank argues, for example, that supply and demand fundamentals and policy

decisions are the real factors, not speculation. A major OECD study of 2006-08 food prices by Irwin and Sanders (2010) viewed speculation as a significant force that *stabilised markets* because speculators provide an immediate connection between buyers and sellers (Gardner, 2013; see also Foresight, 2011, executive summary, p. 22).

Governance responses to global food insecurity and links to landscape

Debates about the role of financial speculation are therefore hotly contested. Most analysts now accept that “financial speculation on futures markets could be responsible for either causing or exacerbating food price volatility” (Clapp, 2012: 146). This ‘middle space’ of the world food economy was initially ignored. Some distinct ideological positions divide opinion about the role of speculation (e.g. human rights vs. market liberalisation). From a human rights perspective, the financialisation of food markets and speculation in food futures have tangible landscape impacts beyond materially what is grown on land by further separating people from land access in terms of food production and recreation. Policy failings also play a part here (Pinstrup-Andersen, 2013; Candel et al., 2014). Price spikes can be caused by a variety of factors but *poor policymaking* by affected countries and regions can exacerbate the problem. In Pinstrup-Andersen’s (2013) study, changes in world market prices were transmitted differently to national markets. They varied depending on the degree of openness the trade policies followed and the nature of domestic markets and infrastructure. In this next part of the chapter I turn to examine responses to the food crisis and the ‘new food insecurity’. This is also contested and political, with different framings shaping policy responses and landscape connections.

Techno-innovation and sustainable intensification

The UK Foresight (2011) programme on global food security was commissioned in response to the 2007-08 food price spikes. The report identified five key challenges for future food security and some associated actions:

Challenge A: Balancing future demand and supply sustainably

Five classes of action are identified in the report to address this challenge:

- *The better use of existing knowledge*: the application of existing knowledge and technology could increase average yields two to threefold in many parts of Africa, and twofold in the Russian Federation. However, in determining where and how much to invest in producing more food, policy-makers will need to consider a range of criteria rather than increases in production alone.
- *Capitalising on new science and technology*: this is necessary, it is argued, to raise the limits of 'sustainable production' and address new threats. The need for new technology not just to raise productivity and manage threats such as pests, but also to ensure ecosystems sustainability.
- *Reducing waste*: from post-harvest (especially in poor countries) through to consumers.
- *Improving governance* (of the food system, fisheries and corporate governance): self-sufficiency as a goal is rejected. The need to end rich world production subsidies and to reduce trade restrictions at times of crisis is emphasised.
- *Influencing demand*: various approaches are identified, including economic measures, choice editing and consumer awareness.

Challenge B: Addressing the threat of future volatility in the food system

Determining acceptable levels of volatility in food prices is regarded as a political judgement that needs to consider the negative effects of volatility, but also the costs of intervention.

Challenge C: Ending (world) hunger

Producing enough food in the world so that everyone can *potentially* be fed is not the same thing as ensuring food security for all (Garnett, 2012). The report points out that "For many governments, the purpose of agriculture is seen primarily as food production", and argues for "a repositioning of agriculture as a profession dedicated to multiple ends, of which hunger and poverty reduction are central. *Food production is the means, not the end*" (Foresight 2011, p.25, emphasis added).

Challenge D: Meeting the challenges of a low emissions world

A strong case is made for “substantially integrating and improving considerations of agriculture and food production in negotiations on global emissions reductions” (ibid., p 28) although it is noted that the special features of the sector must be taken into account.

Challenge E: Maintaining biodiversity and ecosystem services while feeding the world

Foresight points out that “policies in conservation and in food security were largely developed in isolation. However, increasingly and rightly, they are being pursued together, driven by a growing realisation of their interdependence”. It goes on to argue that “the global food supply will need to increase without the use of substantially more land and with diminishing impact on the environment: sustainable intensification is a necessity. Pursuit of this agenda requires a much better understanding of how different policy options, both within and outside the food system, affect biodiversity and ecosystem services” (ibid., p. 31; see also Chapter X & X – Water & nutrients).

A key point of debate to emerge from Foresight (2011) is the recommendation that the best way to achieve global food security is through the delivery of *sustainable intensification* (see also Royal Society, 2009). This suggests that we need to produce more food from less land, resources, energy and water using a mix of ‘eco-efficiency’ approaches such as genetic modification, nanotechnology, genomics and computerisation (Garnett, 2012; Garnett and Godfray, 2012; Lang and Barling, 2012). The relationship to landscape is in terms of how technologies can make land and food growing productive but eco-efficient (see Chapter X – Sustainability). Crucially, solutions to food security are not just about food production but also how we use resources and agricultural landscapes to maintain biodiversity and ecosystem services and how the food system interacts with other systems (see Chapter X – Ecology). As noted under Challenge C, food production is the means not the end and issues such as volatility, sustainability, climate change and hunger are *not* just food system issues but should be developed in conjunction with policies about energy, water supply, land use and biodiversity.

Food rights and food sovereignty

Foresight (2011) is thus in keeping with a food systems-focused 'emerging' discourse that accepts the need to address a complex range of problems, not just food production (Lang and Barling, 2012). In this regard, it suggests that landscape needs to be framed as a *relational concept* with landscape relationships viewed in holistic ways. It also raises questions about the financialisation of food markets that continue to homogenise and centralise agricultural practice in the hands of big business. In a system discourse what is required is a greater diversity and range of scales of agricultural land use, including urban, peri-urban and suburban land. However, when the oil and agricultural commodity prices spiked in 2007-08, this emerging complex analysis was side-lined. What we have seen instead was a renewed international focus on primary production and the needs of low income countries that highlighted production and demography as the key factors (i.e. neo-Malthusian; Jarosz, 2009; Pritchard, 2016).

In response to this neo-Malthusian framing, other responses to the crisis have emerged that place greater emphasis on food sovereignty (Hopma and Woods, 2014; Sonnino et al., 2016). The most significant is in relation to 'food rights' (see Chapters X & X- Sov & Justice). Leading food policy thinkers, notably De Schutter (2011), actively challenge neo-productivist strategies to food security on the basis that such an approach may not enhance the *human rights* to adequate food. What we see through this human rights approach is a shift in scale from a rather abstract and complex global food system problem to consider more concretely the needs and rights of individuals, local communities and agricultural landscapes (Sonnino et al., 2016), much more in keeping with the entitlement arguments that underpinned early definitions of food security and hunger (see Pritchard, 2016). The largely productivist strategy associated with the exhortation to double food output at a global scale is therefore inappropriate, it is argued, because of structural problems linked to the food system (Sage, 2013), and because the industrial food system is strongly resistant to alternative framings and may consequently actually increase vulnerability and food insecurity for many.

International political economy and ecology

Work in international political economy and ecology conceptualises the problem of food crises and hunger as “rooted in the social relations of agricultural production and the political, cultural, and economic relations of food access, distribution and consumption...[which are]...socially and spatially constructed through long-term historical processes across the globe and within specific regions and places” (Jarosz, 2009: 2066). The 2007/08 food crisis (and other shock events) are not an unexpected ‘perfect storm’ but “an entirely predictable outcome of an oil-dependent feedgrain-livestock complex” (ibid., 2067) that supplies a meat-centric diet to those who can afford to buy it. This links international patterns of food production and consumption to the development of the capitalist system (Jarosz, 2009; McMichael, 2009; Sage, 2013). The crisis is a consequence of industrial agriculture’s long-term over-dependence on fossil fuel (Chapter X – Sustainability), combined with the inflation-producing effects of biofuels offsets, financial speculation activities, and the concentration and centralisation practices of agribusiness capital. The food crises therefore emerged out of the conditions of the globalised food system, which is designed to produce large quantities of cheap meat using food grains that are increasingly commodified under neoliberal food security policy. It also views the food crisis in its relational position to other crises. The ‘feedgrain-livestock’ complex significantly contributes to climate change and the food crisis is linked to much wider energy, climate change and financial crises. Thus this more critically draws attention to the structural conditions of the neoliberal food system that have caused the problem and the need to view landscape and food relationships in holistic and relational terms.

Multi-level and place-based reflexive governance

A multi-level and place-based reflexive governance approach emerges out of a critique of various existing conceptual frameworks (productivism, food sovereignty, livelihood security, the right-to-food, food democracy, food citizenship, community food security) which have a tendency to be ‘locked into’ fixed scales and represent oppositional assumptions (Sonnino et al., 2016). It calls for new forms of food governance as mechanisms to respond to food insecurity issues. The thinking behind this approach is connected to wider work examining transitions to sustainability (Kirwan et al, in press). In the Netherlands, for example, Hendriks and Grin (2007: 345) suggest

that "steering for sustainability can be understood as reflexive governance - a process of fundamentally reconsidering the way our socio-technical systems are structured, practised and most significantly governed". They distinguish between first- and second-order reflexivity. First-order reflexivity is largely an unconscious process that does not necessarily result in substantive change to the existing order of things. It is more about adapting to external pressures that may have been created by the unintended consequences of the actions of a particular system (Sonnino et al. 2014). In contrast, second-order reflexivity is much more dynamic and intent on criticising the processes associated with modernity.

Dialogue and the development of collective action and understanding through inclusivity in that dialogue is critical here (Sonnino et al. 2014); moreover, these practices require particular landscape spaces for their enactment. Governance mechanisms are needed that encompass a wider range of perspectives that include state, private and civil sectors, who are all recognised as having a valid perspective (Pereira and Ruysenaar 2012), and the different actors may be positioned at different scales/landscape spaces (Kirwan et al., under review). In practical terms this requires *place-based (or landscape-based) integrated approaches to food governance* (for example, bringing together different interests and voices rather than working in silos). A place-based approach "engages with the complex multi-actor, multilevel and reflexive political and social structures that support the emergence of distinct food security trajectories in a highly contested and unequal landscape" (ibid., 486).

The key to a reflexive governance framework is that it is flexible and dynamic, as well as providing adequate spaces for deliberation (Pereira and Ruysenaar 2012; Kirwan et al., in press). These fora give voice to a variety of discourses and interests. Examples of such deliberative spaces include commodity fora that multinationals have activated to local level forums such as Solidarity Purchasing Groups, Community Supported Agriculture (Renting et al. 2012) and food councils (Pothukuchi and Kaufman 1999). Food policy councils, for example, many of which are city-based, bring together public, private and civic actors and in theory, encourage the sort of reflexive policy thinking described above. The extent to which reflexive governance can challenge and transform

the perspective of the dominant food paradigm will vary, dependent on the scale involved, the context, and the changes demanded of the normative framings of what is considered to be acceptable practice (Marsden 2013).

Conclusion

This chapter has focused on a specific aspect of the food security debate, the 'new food insecurity', describing the re-emergence of the term in global geopolitics since the 2007-08 price spikes. Metaphors such as 'perfect storm' and related short-term explanations "identify the world food crisis as a onetime, contingent event that will end when food prices decline" (Jarosz (2009: 2066). The implication is that "the global food system functions well under normal conditions and that the real failure during the crisis was the unfortunate and ill-timed simultaneous pressures on food commodity supplies and prices" (Rosin et al., 2012: 4). Analysis of the 2007-08 price spikes points towards longer-term structural problems associated with the food system. The chapter has revealed the importance of price volatility not price rises per se. Until recently the role of financial markets in determining food prices has been underplayed.

This 'middle space' of the world food economy is therefore an important part of food security crisis narrative. Understanding finance and food economy relations is important, particularly in relation to landscape space and land use debates. Sustainable agricultural land use will require two things: first, it will be necessary to break the link between financialisation and food systems (trends suggest financial speculation will maintain homogenised and centralised agricultural practices when greater diversity and a range of scales of agricultural land uses is required, with landscape relationships viewed in integrated and relational ways); second, if market-led approaches dominate, bad agricultural landscape practices will likely persist, unless corporate social responsibility of finance markets is made more transparent in terms of impacts on food system governance.

The different food security perspectives reviewed in this chapter have helped to build up this critique. Food security as we have seen is a concept that has '*discursive fungibility*' in response to global political economy changes, national pressures, social movements and a wider neoliberal agenda (Hinrichs, 2013). It can be used to support different arguments from different perspectives. Perceptions and discursive framings produce social realities (Nally, 2014). In this regard, techno-scientific approaches were reviewed (esp. Foresight, 2011) that view sustainable intensification as one important solution to the food crisis. Foresight (2011) also recognises that we need to view food security challenges as part of a more holistic mode of governance. Other more critical social science perspectives suggest structural conditions of the food system and neoliberal responses to it need to be challenged and transformed to foster more sustainable food systems and land uses. This includes critiques by transnational social movements which frame food security in terms of food rights and democracy and discourse-based critiques which concern the way food is framed as a market-based commodity and less as a public good. Place-based approaches to food security, including new forms of multi-level reflexive governance (Sonnino et al., 2016; Kirwan et al., in press), are arguably the most progressive. They have the potential to allow landscape and food relationships to be viewed holistically, in the sense that it is using place/landscape as a focus for discussion which can deal with more complexity and diversity than a single food security narrative. Reflexive governance can thus foster social action at multi-levels and change the perspective of the dominant food paradigm in more transformative ways to fully address new food security challenges.

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