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Citation: Lang, T. and Barling, D. (2012). Food security and food sustainability: reformulating the debate. *The Geographical Journal*, 178(4), pp. 313-326. doi: 10.1111/j.1475-4959.2012.00480.x

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Link to published version: <http://dx.doi.org/10.1111/j.1475-4959.2012.00480.x>

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Food Security or Food Sustainability? The return and reformulation of an old debate

Journal:	<i>The Geographical Journal</i>
Manuscript ID:	Draft
Manuscript Type:	Regular Paper
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Food Security or Food Sustainability? The return and reformulation of an old debate¹

Tim Lang and David Barling

Centre for Food Policy, City University London e: t.lang@city.ac.uk

Paper for submission to Geographical Journal

Co-ordinator of themed issue: Brian Ilbery

GJ editor: Klaus Dodds email: K.Dodds@rhul.ac.uk / journals@RGS.org

For publication 2012

Wordcount: 7k (incl 650 in tables)

Author guidelines: <http://www.wiley.com/bw/journal.asp?ref=0016-7398> (submit an article)

Abstract

The notion of food security has a long history as a key concept for policy-makers. Two competing overarching perspectives on food security are proposed. One is dominant, centred on raising production as the answer to under-consumption and hunger. The other is an emerging perspective, accepting the need to address a complex array of problems, not just production. The first is primarily agricultural focussed; the latter a food systems approach. From its inception in post World War 2 international reconstruction, the UN and governments have given food security a high profile, via a changing package of policy measures. Within a few decades, the production-oriented approach or paradigm was being questioned by the emerging paradigm with its more complex, multi-focussed notion of the challenges ahead. When oil and agricultural commodity prices spiked in 2007-08, the emerging and complex agenda was marginalised by a renewed international focus on primary production and the needs of low income countries. Against this background, the paper explores the diversity of perspectives on what is meant by food security, concluding that the core 21st century task is to create a sustainable food system. This requires a more coherent policy framework than currently exists, a goal thwarted by competing solutions vying for policy attention and policy failure thus far to integrate the complex range of evidence from social as well as environmental and economic sources into an integrated policy response.

Keywords: food security; sustainable food; policy frameworks; food policy;

STARTS>>>>

This paper reviews current policy thinking about food security. It suggests that food security suffers from more than just the common policy ailment of a mismatch between evidence and policy. It is dominated by an analysis first charted scientifically in the early to mid 20th century but modified subsequently. This is that food insecurity must be centrally addressed by producing more food. Other issues are important, but that is the core task. The paper suggests that there is now a considerable rupture in this discourse. The 'Old' analysis centred on availability, hunger and unmet need, but is now being stressed by 'new' evidence and concerns about social, environmental and health pressures on food supply. This is generating a new or 'Emerging' more complex analysis and policy direction.

¹ This paper draws on presentations by TL to the British Science Festival (British Association) Food Security programme, Aston University (16 Sept 2010); the 8th Peter Wilson Lecture, Royal Society of Edinburgh (14 Feb 2011); and by DB to Australian Institute for Food Science and Technology 44th Annual Convention, Sydney (11 July 2011)

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3 The paper then outlines six policy problems to illustrate the more complex policy analysis. It
4 concludes that the term food security may not be useful or even viable in this new policy context.
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7 **The Food (In)Security policy problem returns**

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11 The most commonly cited definition of food security is by the UN's Food and Agriculture
12 Organisation (FAO) first coined in the late 20th century: (FAO, 2009: p 8)

13 [...] a situation that exists when all people at all times have physical, social and economic
14 access to sufficient, safe and nutritious food to meet dietary needs and food preferences for an
15 active and healthy life."
16

17 At the end of the first decade of the 21st century, there was an outpouring of major reports, events and
18 appeals to policy-makers to address the global challenge of food security. These reports and
19 recommendations make powerful statements individually; collectively more so. Their sources
20 included the World Bank and UN Food and Agriculture Organisation (FAO) (IAASTD, 2008b),
21 scientists in France (Paillard et al., 2011), the Chief Scientist's office in Australia (PMSEIC
22 (Australia), 2010), the UK's Chief Scientist's Foresight programme (Foresight, 2011), as well as
23 different international scientific consortia such as the 10 year Global Environmental Change and Food
24 Security (GECAFS) project (Ingram et al., 2010), the European Science Foundation's Forward Look
25 (Rabbinge and Linnemann, 2009) and the European Union's Standing Committee on Agricultural
26 Research (SCAR) Foresight reports, the last of which was looking at the future of agriculture
27 (Freibauer et al., 2011), and national accounts of the implications such as the UK's Chatham House
28 report (Ambler-Edwards et al., 2009).
29

30
31 The reports are important for the wealth of data that they collate, using official and independent
32 scientific sources. Inevitably there is some overlap between them, and there are interesting
33 divergences of method and focus too. The World Bank and FAO IAASTD report, for instance, was a
34 process of collation of both natural and social scientific knowledge, delivering different analyses and
35 priorities for different regions. For Africa and low income regions, it emphasised the role that small
36 farmers and women could have to increase food output if given support, credit and better
37 infrastructure such as transport and storage (IAASTD, 2008a). The French *Agrimonde* report created
38 scenarii which emphasised the protection of the ecosphere, pointing to some hi-tech solutions and the
39 convergence of diets (Paillard et al., 2011). The UK Chief Scientist's Foresight programme report
40 emphasised the need to bring supply and demand into better alignment, pointing to the need for a
41 combination of market improvements and technical innovation plus better use of known methods
42 (Foresight, 2011). This should deliver the goal of 'sustainable intensification', an apparent oxymoron
43 yet required nonetheless. This offers a mix of approaches such as genetic modification,
44 nanotechnology, genomics, droplet irrigation and computerisation, all to deliver the goal of more
45 (food) from less (land, resources, energy, water etc). The FAO's High Level Taskforce emphasised
46 the need to provide food immediately for the hungry by delivering aid and welfare, with longer term
47 research and development growth plus trade reform. The European Union's third SCAR report
48 identified two dominant narratives around productivity and sufficiency, based on a meta review of
49 other recent policy, scientific and foresight studies with a time horizon up to 2050 and which shared a
50 predominantly EU focus (SCAR 2011; 5). It drew upon other food and agriculture foresight reports
51 such as the ESF/COST referred to above. The dichotomy SCAR identified depicted the future as
52 shaped by a mix of 'old' or 'classical' scarcities related to natural resource use (land, water, energy,
53 phosphorus, nitrogen) and 'new' scarcities from pushing to environmental limits, e.g. through climate
54 change and societal pressures which exacerbate scarcities by consumption. It placed an emphasis on
55 the need to give more attention to the sustainability and equity of food consumption and production.
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59 While data and thinking that the food system faced serious challenges ahead - some of it captured in
60 the reports cited above - had been building up for some years, the undoubted trigger for this flurry of
reports and panoramic thinking was the remarkable price rise of oil and world agricultural

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3 commodities in 2006-08. 2008 was a point of departure. It is when the old discourse on food security
4 and insecurity came under threat. It is as yet uncertain, however, whether a clear analysis will replace
5 it. Strong appeals to redouble agricultural research and development, unleash new technologies, tackle
6 waste and improve supply chain efficiencies have been made in various forums worldwide. But is
7 there any coherence to these analyses? Do they provide the full picture? The present paper suggests
8 that there may well be a period of uncertainty as different strands and perspectives compete for
9 dominance.
10

11 12 13 14 **The UN and FAO response** 15

16
17 The UN itself was surprisingly ill-prepared for the 2007-08 price spike policy crisis. No major
18 conference on food insecurity was in the pipeline. The 5 year review of the 1996 World Food Summit
19 (WFS) actually occurred later than planned in 2002. The world's economy was booming. Then
20 suddenly there was the 2007-08 price spike, brought on by the banking bubble deflating. At short
21 notice, a bio-energy conference was converted into a high level gathering in Rome, June 3-5 2008
22 (FAO, 2008c). This presented the crisis as primarily one for the developing world, exacerbated by
23 unfair destabilisation such as the USA and EU incentives to grow biofuels (the impact of which is still
24 much debated) (FAO, 2008d). This analysis made little connection to other strands of thinking within
25 the UN, let alone the FAO itself, about food's impact on the environment or public health, and the
26 economic cost of the nutrition transition on developing countries, all of which were studied and
27 acknowledged by the FAO or its sister UN bodies such as the World Health Organisation or the UN
28 Environment Programme. The food crisis was presented as one of under-consumption due to changed
29 prices, in terms that would have been familiar in the 1930s or 1970s, previous crisis points. The
30 modern complex analysis was sidelined. The opportunity to explore and develop policy options based
31 on a full and deep analysis was not taken, despite there being within the FAO (a large organisation)
32 strong evidence showing the biodiversity loss from modern farming systems, the water-stress from
33 undue reliance on irrigation, the implications of exponential growth in animal production, and the
34 health impact of rising consumption of meat and dairy products (WHO / FAO, 2003, FAO, 2006,
35 FAO, 2008b, FAO, 2010a).
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38 At the June 2008 meeting, the UN created a High Level Taskforce (FAO, 2008a), but this was given a
39 remit which focused upon the immediate symptoms and problems as experienced by the Less
40 Developed Countries most at risk. The international multilateral political response to the food price
41 crisis that then unfolded included four main streams of activity.
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43

44 Firstly, there were promises of emergency funding for more immediate hunger relief and food aid.
45

46 Secondly, there was a raft of proposals for better management systems for the international co-
47 ordination of information on food and harvest production and national food stocks, with a view to
48 managing shortages and having reserve stocks available on a year on year basis, with greater co-
49 ordination sought between the main international agencies (HM Government, 2010). These
50 recommendations can be characterised as attempts to facilitate the international trading of food
51 commodities on a better managed and internationally co-ordinated basis in the event of external
52 shocks dislocating harvests and regular supply. Further reform suggestions have advocated greater
53 controls over the commodities exchange and futures markets, as well as regionalised international
54 food reserves.
55

56
57 The third area of policy response was the promotion of a productionist-agricultural technology
58 solution employing both low and high technology, which emerged from the succession of multilateral
59 summits and meetings from 2007. The UN's Comprehensive Framework for Action (CFA) spawned
60 the Global Agriculture and Food Security Programme (GAFSP), a multilateral response to provide
funding through initiatives designed to fund production and disseminate technology and extension

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3 services, including amongst small farmers in poorer producing areas. The CFA and the funding
4 mechanism of the GAFSP adopted a twin track approach of addressing immediate priority need and
5 seeking to build up medium and longer-term resilience guided by the FAO's High Level Task Force
6 (High Level Task Force on the Global Food Security Crisis, 2010), Missing from this response was
7 any comprehensive attempt to address the deeper structural environmental and natural resource
8 depletion factors upon demand and the complexities of the evolving global demands for food.
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10
11 The fourth theme was the attempt to activate more civil society participation in global food security
12 governance through a revamping and reinvigoration of the legitimacy of the FAO process. Central to
13 this was the reform of the Committee on Food Security at the FAO, to open it up to a much wider
14 civil society representation and participation through the civil society mechanism and to integrate the
15 committee's deliberations into the multilateral negotiations on food security (Duncan & Barling
16 2012). This reform of the global governance of food security was buttressed by the active presence of
17 the UN Special Rapporteur on the Right to Food. Olivier De Schutter, a law professor and the second
18 incumbent of this role, became an advocate for many issues in line with civil society organisations
19 critical of the main focus of the multilateral reforms (De Schutter, 2011).
20

21
22 It is easy to look back and suggest that others, in a crisis situation, ought to have thought and acted
23 differently. In crises, crisis management thinking tends to dominate. There was a real fear that the
24 world's less developed countries would be pushed into reverse. Indeed by 2009 FAO's figures on
25 global hunger showed precisely such a situation, with a sharp upturn in hunger to 1.023 billion people.
26 When commodity prices fell the next year (2010), that fell to 925 million, still higher than the
27 situation in 2007 before the price spike. In late 2010 the FAO talked of a 'protracted crisis', by which
28 it meant a continuation of mass hunger at higher than pre-2007 levels (Committee on World Food
29 Security, 2010). In 2011, the hunger figures had again risen to over 1 billion. In fact, hunger figures
30 had been rising since 1995-7 when the drop in absolute numbers of hungry people ended and grain
31 productivity rises had flattened (see Figure 1) (FAO, 2010b). The main response to 2007-08 has been
32 to resuscitate the 'grow more to feed more' policy position.
33

34
35 **Insert Fig 1 about here**

36
37 **Fig 1. Undernourished people in the world, 1969/71-2010**

38 **Source: FAO (FAO, 2010b) p 9**

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41 At the policy level, throughout the late 20th century, food security had almost become normalised. The
42 1974 World Food Conference view was that hunger and insecurity are ameliorable if not eradicable
43 (FAO, 1974). The 2000 Millennium Development Goals, for instance, reaffirmed a commitment to
44 tackle food insecurity, reflecting the optimism of rising wealth in the late 20th century. Food output
45 was a key challenge for a better world (United Nations Development Programme, 2000). But
46 dominant policy thinking was still based on the intellectual recipe first laid out in the 1930s and 1940s
47 (Vernon, 2007). This proposed that a combination of science and technology, plus capital investment,
48 would enable food production to increase and, if accompanied by better distribution and reduced
49 waste (itself alterable by management, science and technology), this would bring down food prices
50 and enable improved access and affordability (Lang and Heasman, 2004). This approach had been
51 championed by the FAO from its inception (Hot Springs Conference, 1943, Boyd Orr, 1966), and
52 would be delivered by raising production via an incremental combination of better management of
53 land, agriculture, technology, requisite investment and aids to efficiency. This productionist policy
54 paradigm was forged by liberal and humanitarian belief that human effort could keep the Malthusian
55 problem at bay: more people could be fed, food could be more affordable, population growth need not
56 be a problem, and farmers could have better livelihoods.
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Conflicting 'Old' and 'Emerging' discourses on food security

It is the view of the authors that a different structural analysis was called for. Some features of one were already being aired, and have been reflected in aspects of the post 2008 reports with varying emphases. The 2009 Chatham House report, for instance, talked of 'new fundamentals' shaping food supply, which are not just material and about farms but also throughout the supply chain and about society. The 2011 Foresight report too referred to consumer demand but not in the sense meant in this paper. Demand was assumed to be fixed. What we here refer to here as the Emerging Analysis stresses a different and more complex constellation of issues including:

- A shift from 'top-down' government-driven policy frameworks to more market-driven ones (Lang et al., 2009).
- Changed consumer demand in high population, formerly low income countries as they consume differently and go through a nutrition transition (Popkin, 2009a).
- Deepening impacts from food production, distribution and consumption on the environment, from energy use, land use, water uptake and more (UNEP et al., 2009).
- Changed patterns of diet-related disease leading to a more complex healthcare challenge, especially from non-communicable diseases (WHO, 2003).
- Power and control over food systems now split between governments and commercial interests (Lawrence et al., 2009).
- Power and influence continuing to move off the land towards retailers and traders, with farms squeezed by new forms of governance of value chains (Gereffi et al., 2005, Burch and Lawrence, 2007).
- Food culture changing from traditionally rule-bound to consumer choice driven (Schwartz, 2004).

This analysis suggests that the 2007-08 food crisis was of a food system already under stress and with key indicators going in the wrong direction. Biofuels exacerbated but did not create the crisis (Evans, 2008). From this perspective, it was already not credible to seek solutions to food insecurity by solely raising food production. More subtle questions are raised: How? With what focus? Prioritising whom? At what cost to finance, people, environment, land use? Shaped and driven by whom – government, commerce or civil society? Combined in which system of governance at what level: local, national or international (Barling et al., 2008, Lang, 2010a)? Table 1 summarises some differences between the 'Old' and 'Emerging' analyses of food security.

Table 1: 'Old' and 'Emerging' analyses of Food Security

<i>Focus</i>	<i>'Old' Food Security analysis</i>	<i>'Emerging' Sustainable Food analysis</i>
<i>Core concern</i>	Under-production	Mismatch of production, consumption and policy
<i>Route to food security</i>	Produce more	Redesign food system for sustainability, defined by multiple criteria: social, environmental and economic
<i>Analysis of 2007-08 crisis</i>	A sudden crisis caused by external shocks (eg banking and oil price crises) then exacerbated by national tariffs & export controls	A long-running failure coming to a head exposing new complex combination of factors straining an already stretched food system; a forewarning of a possible coming 'perfect storm'
<i>Preferred action</i>	Improved co-ordination amongst international food bodies; better information exchange on national production levels and food stocks	Begin long-term reorientation of food supply and consumption patterns better to align environment, health and inter- and intra-society inequalities; rebuild buffer stocks as safety net
<i>Conception of Health</i>	Malnutrition and hunger	A wide range of non-communicable diseases (NCDs), including malnutrition
<i>Environmental</i>	Primarily on farm	Throughout supply chain

<i>concerns</i>		
<i>Where waste lies</i>	At farm and distribution	Throughout the system, particularly consumption
<i>Consumer issues</i>	Under-consumption	Over-, under- and mal-consumption
<i>Energy focus</i>	Land use for energy generation	Carbon emissions through food chains
<i>Geographical hotspots</i>	Low-income developing countries	Global (markets are distorted by high-income countries)
<i>Economic approach</i>	Generate efficient supply	Need to internalise full costs
<i>Role of science</i>	Agricultural R&D, mainly life sciences	Social as well as natural sciences
<i>Locus of power</i>	Mainly Government but also commercial interests	Concerned about split between private governance (commerce) and government; international institutions and regimes; global governance

Some key tensions in the 21st century

Within this larger picture of Old versus Emerging analyses, a number of key tensions are discernible. Each has its champions, competing for policy space and attention. Collectively they are helping destabilise the old certainties while creating new ones. A different and looser agenda competes for attention than that first articulated in the 1930s by the powerful coalition of scientists and international reformers whose ideas momentarily influenced post World War 2 reconstruction. (Vernon, 2007)

Farm versus food system focus

The first issue centres on the role of the farm. Is a renewed policy emphasis on the farm needed or should policy grapple with the whole food system and put farming into its context as but one link in the chain? Many of the overview reports have focused in the main on agricultural production, yet for the last two decades a view has emerged from social science that even if one's focus is on farming, a supply chain or systems approach becomes essential. Some studies have shown how farming has been increasingly drawn into commodity production, being the first link in increasingly complex food value chains, straddling the globe and even within continents subject to labyrinthine systems of contracts and specifications (Barrientos and Dolan, 2006). Others have tracked the steady growth of application of efficiencies set by gate-keepers (notably supermarkets) meeting perceived needs of increasingly urbanised consumers (Burch and Lawrence, 2007, Barling et al., 2009).

This 'farm versus food' policy tension is palpable, spilling into public discourse over issues such as fair trade, the power of supermarkets, and who profits most as food travels down value chains. In the 19th and 20th centuries, State policy focus was almost entirely on farming. Most countries had Ministries of Agriculture, not of Food. As societies have urbanised, the links between primary producers and consumers have lengthened. Entire new industries have emerged, such as logistics. Yet in the 2007-08 crisis, public policy attention reverted to a primary production focus with little acknowledgement of this changed governance.

This reversal to normality is surprising in that awareness of changed power relations is common in the food world. A food systems perspective is inevitable, covering food from production to consumption. The term's entry to common parlance suggests awareness of an inter-related and systems bound entity. (Erickson et al., 2010, Tansey and Worsley, 1995), but policy-makers find it hard to address the inter-relatedness of the whole food chain and the whole food cycle. Policy-making processes are more used to addressing single issue problems, not the connections of, for example, the production sphere with its environmental, natural resource and ecosystem impacts, or the impact of consumption on waste or public health impacts. The reliance upon 'market' thinking to resolve this complexity in practice means a focus on the price mechanism and the active engagement of consumers. Yet, as

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3 farmers in both developed and developing countries attest, the power of consumers is disparate
4 compared to the power of retailers' or traders' buyers and contracts.
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6 **Labour efficiency**

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9 Agriculture is still the world's main source of employment, but the mainstream approach to economic
10 development still sees a shift of labour from the rural and agriculture to the urban and off-farm as
11 progress. This has been the trajectory of change for food labour in European and OECD countries.
12 Labour shifted away from the land and grew down supply chains. In the EU or USA, more people
13 work in catering than on farms, yet the International Labour Organisation estimates that 1.3 billion
14 men, women and children still work in agriculture, 450 millions of those as waged labour
15 (International Labour Organisation, n.d [2004]). For decades, not least promoted by the IMF, World
16 Bank and structural adjustment and other programmes, policies have encouraged a diminution of
17 labour on the land. De-ruralisation has heightened urbanisation. A majority of the world now lives in
18 towns or cities (UN Habitat, 2010). One criticism of the Green Revolution was that it encouraged this
19 drift by appealing only to those with credit, thereby excluding small, self-sufficient farmers. Now a
20 counter-narrative has emerged, notably via the World Bank and FAO led IAASTD, that small-scale
21 farming is important for landcare; that smallholder and female-run productivity per hectare can be
22 high; and that there is more social value in raising their output further than in driving them from the
23 land, adding to already fast growing conurbations. This revitalises an old element in classical
24 economics: how to define efficiency. Should it be in capital terms or ecological terms, or in output
25 per unit of labour or per hectare? If, as the Millennium Eco Assessment argued, (Millennium
26 Ecosystem Assessment (Program), 2005) humanity's future relies upon investment in eco-systems
27 support, what would a labour process for a sustainable food system look like? Labour efficiency from
28 a conventional market capitalist perspective may not be the same as a labour efficiency dedicated to
29 output on sustainable lines.
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33 **The role of Big Business**

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36 In the early 2000s, the World Bank (WB), International Monetary Fund (IMF) and big business
37 lobbies started to look more intensely at the food system twenty years or so ahead. Although
38 associated with 'hard-headed' neo-liberal and market-led approaches, these bodies began to champion
39 longer and less ideologically restricted perspectives (World Bank and Organisation, 2003, World
40 Bank / International Finance Corporation, 2006). At the same time, leading food corporations
41 assessed non-economic threats to their own long-term capacities and business models and began to
42 recognise the need for new ones, sometimes in collaboration. In 2002, the Sustainable Agriculture
43 Initiative (SAI) was created by Danone, Nestlé and Unilever, and now includes Kellogg's, Kraft,
44 McDonalds, PepsiCo and Sara Lee (SAI, 2008). It has two aims: to support sustainable agriculture
45 worldwide, and to communicate the issues into the food sector. In 2010, the World Economic Forum,
46 the annual meeting of big business interests in Davos Switzerland, created a policy roadmap for
47 global agriculture, produced by McKinsey. This recognised a lack of governmental leadership and
48 clarity of direction (World Economic Forum and McKinsey & Co., 2010). Such concerns are not
49 altogether new to big food business, and reassert a strand of macro-analysis of demographic and
50 environmental pressures on food articulated, for instance, by the 1972 Club of Rome report
51 (Meadows and Club of Rome., 1972).
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54
55 There is now a paradox in the food policy world: companies, often depicted as the enemy of
56 environmental and social justice, are now engaging. Some see this as 'light green' or 'greenwash',
57 others as essential. (Monbiot, 2000, Porritt, 2005) Arguably, large companies are thus reasserting a
58 social dimension in food security which has been marginalised in the global fiscal crisis by
59 governmental efforts to maintain banking liquidity and consumer capitalism. They are championing
60 (some would say weak versions of) the sustainable development agenda that emerged in the 1970s
and 80s, through the 1980 North-South Commission chaired by former West German Chancellor

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3 Willi Brandt (Brandt, 1980) – which had called for funding transfers from the rich to the developing
4 world – and the environmental focus of the 1987 Brundtland Commission chaired by Gro Harland
5 Brundtland (the former Norwegian Prime Minister, public health doctor and later the WHO Director-
6 General). Brundtland had argued that economics itself needed to be reframed around sustainable
7 development, with well-being and sustainability rewoven to give the world new political direction
8 (Brundtland, 1987). Ironically, the early 21st century confluence of Big Business and sustainable
9 development means some large food companies are being drawn into a social analysis of food
10 systems, particularly via the discourse about food ethics and social standards of production. It
11 remains to be seen how far corporations will pursue tough ethical, social and environmental standards
12 beyond those set by the State.
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15 16 **Western levels of consumption**

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18 A common assumption in many recent reports on food security is that Western levels of food
19 consumption are acceptable, will continue and are sound aspirations for the 21st century. Modern
20 Western supermarkets with c.30,000 items on sale offer previously unimaginable choice. They
21 represent a fundamental shift in food culture from one based on necessity and restricted choice
22 (dictated by seasons and local availability) to one based on desire and choice (dictated by retailer
23 contracts and price). (Burch and Lawrence, 2007) A critique of untrammelled choice as a desirable
24 public policy goal has emerged from the public health arguments about the nutrition transition. This is
25 the term describing the dietary change as consumers shift from staple traditional foods to fatty,
26 sugary, ‘modern’ diets; and as they trade ‘up’ their demands from simpler to more complex eating,
27 mainly symbolised by changing to more processed foods.
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31 The nutrition transition is symbolised by consumption of more meat, dairy and soft drinks (Popkin,
32 2009a, Popkin, 2009b, Popkin and Nielsen, 2003). This has measurable public health impact, but also
33 adds to ecological pressures by requiring more land, water and grain consumption for animals
34 (Steinfeld et al., 2006). The European EIPRO study found that food, drink, tobacco and narcotics
35 (taken for data reasons together) accounted for an estimated 20-30% of the environmental impact of
36 all consumption by European consumers. Meat and meat products (including meat, poultry, sausages
37 or similar) were the largest contributor, accounting for 4-12% of the impact on global warming of all
38 consumer products (Tukker et al., 2006). The Stern report estimated that agriculture and food are
39 considerable sources of greenhouse gas emissions (GHGs) (Stern, 2006). Farm animals (globally)
40 have been calculated as being responsible for 31% of GHGs, and fertilizers for 38% of nitrous oxide
41 (N₂O). While farm animals’ methane effects have been rightly highlighted, the effects of fertilizers
42 have received less attention but are more potent. The discourse about future consumption patterns is
43 now inexorably being drawn into a debate about whether Western patterns are replicable globally let
44 alone damaging the West.
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47 48 **Sustainability of diets**

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50 For policy-makers, the above debates are framing a challenge. What is a good diet and how can the
51 food system help generate an integration of human and environmental health (UN, 2011)? The
52 productionist Old paradigm accepted a culture of choice shaped by price. Reducing prices was the
53 goal. The Emerging agenda, however, highlights the need to address other factors equally, yet if
54 climate change, water stress, pressures on land use, social justice and so on were integrated into food
55 systems, they would change dramatically, and probably become more expensive (Lang, 2010b, Lang
56 et al., 2011). In the 2000s, there were a number of attempts to address this issue. Most centred on
57 whether nutrition could be dovetailed with environmental considerations to give coherent advice. The
58 nutritional evidence for eating fish, for instance, is strong but so is the environmental evidence for
59 either eating very little or only some not at risk species, to protect stocks (Royal Commission on
60 Environmental Pollution, 2004).

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4 The Swedish National Food Administration and Environment Agency was the first to issue formal
5 advice on how to juggle this and other issues (National Food Administration (of Sweden), 2008). The
6 UK Government's Sustainable Development Commission argued that the nutritional evidence for
7 cutting down on fats, sugars and processed foods melded well with environmental concerns
8 (Sustainable Development Commission, 2009b). The Netherlands also broadly agreed (Health
9 Council of the Netherlands, 2011). The sustainability of total diets – not just particular products –
10 raises important policy difficulties: is a sustainable diet the same globally? Or will it vary by location?
11 Can 'soft' policy measures such as labelling and consumer information address complex issues such
12 as water conservation and the reduction of unnecessary 'virtual' water in food supply chains? Some of
13 the world's largest food companies are already tightening specifications for their product ranges,
14 factoring in carbon in particular (Carbon Trust, 2008). In so doing, they are choice-editing before food
15 arrives on the supermarket shelf, and not giving consumers the option of doing the 'wrong thing'.
16 Choice versus choice-editing emerges as another tension.
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18

20 Power relations

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22
23 The history of food, a basic human need, is a long one of power politics, yet policy and scientific
24 reports usually side-step the issue, preferring to offer themselves as neutral, leaving the terrain to
25 NGOs (Vorley, 2004, Tansey and Rajotte, 2008) and an older radical tradition of food security as a
26 social not production problem (Dumont and Rosier, 1969, George, 1976, Caldwell, 1977). Two
27 exceptions among the reports cited at the start of this paper were the UK 2011 Foresight report, which
28 acknowledged the power of traders, and the EU's ESF/COST, which explicitly reviewed the power of
29 giant food retailers (Barling et al., 2009). Generally, however, the issue of power, if it surfaces at all,
30 does so in relation to trade relations between developed and developing countries. Yet, the academic
31 literature – indeed the original formulation of world thinking about how to tackle food insecurity and
32 hunger – stemmed from a recognition that the hungry lack power, both through purchasing power
33 (income) and through access to land. That theme was underplayed in the moral landscape of
34 government level policy in the late 2000s.
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37 A number of policy questions about the future emerge from this account. Firstly, what can policy-
38 makers do to shape change? Secondly, which bodies or societal forces can do what? And thirdly, even
39 if they could and want to address the issues, are they clear about their policy goals and what a good
40 food system is? These questions partly raise political issues about who and what drives change in
41 complex food systems, and partly highlight philosophical debates about what societies want and the
42 role of food in defining progress. The 21st century's complex food challenge is drawing policy-makers
43 into an old debate within wider political philosophy about progress. Is a good food system really one
44 which produces more? Is there not enough to feed the world already, but grossly unequally
45 distributed? The present authors are among those who have argued that new dietary guidelines will be
46 required, which meld health, environment and other criteria, all of which contribute to a definition of
47 sustainability appropriate for the 21st century. Across the century, particularly with the triumph of
48 neo-liberal thinking about markets and strong support for the Washington Consensus constraining
49 public policy, progress began to be defined as that which markets can deliver, unfettered by State
50 intervention (Williamson, 2004). From that perspective, agricultural subsidies and tariffs were drags
51 upon pure supply- demand dynamics. The goal of public policy should be to enable consumers to
52 make informed choices and to be able to eat what they like. Supply chains efficiencies work to that
53 end. This consumerist-influenced approach is now at the centre of the conflict between the different
54 versions of food security policy. This is sometimes presented as the consumer-citizen dilemma, with
55 the citizenship agenda being the internalisation of environmental, health and social costs and a
56 renewed cultural relationship with the land.
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59 These questions and positions, again, are continuations of old debates, the evolving policy discourse
60 about how to tailor food systems to respond to industrialisation and urbanisation, and how to enable
people to be fed from a natural and biological world, a discourse first mapped by the Rev Dr Thomas

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3 Malthus in the late 18th century (Malthus, 1798). It is helpful to note that Malthus himself was unclear
4 when it came to policy advice. Following his liberal and pro-trade views, he first argued that the
5 English Corn Laws (which raised taxes on any grain imports to protect English farmers) should not be
6 supported. A few years later, he reversed and argued that food production was so important that
7 farming should be protected (Malthus, 1815).
8
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10 11 **Is Food Security useful as one term in a complex discourse?** 12

13
14 Is the term Food Security now useful? Even by the 1990s, the term Food Security had been mapped as
15 used in nearly 200 different ways (Smith et al., 1993). The common FAO definition cited earlier
16 pitches food security as about three A's: accessibility, affordability and availability (Lang, 2009).
17 There is little centrality here for sustainability or social or psychological needs, yet the latter factor –
18 in the form of trust and confidence – has been highlighted by Sen's work on entitlement (Sen, 1982).
19 This derived from analysis of dire hunger in a developing country but even in rich societies public
20 confidence is important, as is shown in food safety crises. For that reason, Rocha and colleagues have
21 suggested that the meaning of food security needs to be widened to 5 A's: availability, adequacy,
22 accessibility, acceptability and agency. The last term refers to the need for bodies to 'own' and
23 deliver the term (Rocha, 2008).
24

25
26 Another modification emerges with the notion of food sovereignty, proposed both as a precondition
27 for general food security, as the peasant movement Via Campesina has argued from the first World
28 Social Forum in 2001 (Windfuhr and Jonsén, 2005), and as a notion that goes beyond it. Rosset and
29 the NGO Food First have suggested that food security means people "must have the certainty of
30 having enough to eat each day [...] but says nothing about where that food comes from or how it is
31 produced" (Rosset, 2005: 2). To fix this gap, the Sustainable Development Commission, the UK's
32 former government advisory body, proposed an approach where food security is an aspiration for:
33

34 "genuinely sustainable food systems, where the core goal is to feed everyone sustainably,
35 equitably and healthily; which addresses needs for availability, affordability and
36 accessibility; which is diverse, ecologically-sound and resilient; and which builds the
37 capabilities and skills necessary for future generations" (Sustainable Development
38 Commission, 2009a: 10).
39

40
41 These are all versions of, and highlighting aspects of, what has here been called the Emerging
42 approach. Their own differences and nuances suggest some fluidity about future directions. There is
43 no unifying policy framework. Foci vary from primary production to end-consumers; from farmers to
44 retailers; and from insecurity in developing countries to insecurity in rich societies (Riches, 1997,
45 Riches, 2002). We conclude that food security is subject to competing positions even by proponents
46 from broadly similar 'policy camps'. In reality, food security is a policy term within a set of
47 overlapping policy-relevant 'intellectual neighbours' (see Table 2). Table 2 is more than a list of
48 policy definitions; it implies a complex set of social and policy-relevant meanings which now
49 compete for policy legitimacy and presence. These range from autarky, the now discredited position
50 of food production entirely within closed borders, to food control, the term used by the British in
51 World War 1, and more modern terms such as food resilience, pointing to the necessity to ensure food
52 supply chains' capacity to bounce back from external shock, and to food sovereignty, the term
53 championed by the international peasants movement Via Campesina. The term food rights has grown
54 in influence by shaping the FAO's Voluntary Guidelines on the Right to Food adopted by the FAO
55 Council (i.e. all member states) in 2004 (FAO, 2004).
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Table 2. Some terms contributing to food security discourse

Term	Focus	Policy implications	Illustration
<i>Autarky</i>	Production from within closed borders	Usually implies existence of authoritarian control	Cambodia Pol Pot 1970s regime (Kiernan, 2008)
<i>Food control</i>	System of regulations and measures to meet the interests usually of the state (rationing)	'top down' system of control; usually rationing (if state); contracts and specifications (if commercial)	British food rationing in World War 1 (Beveridge, 1928);
<i>Food capacity</i>	Ensuring capability and potential to produce	Building natural, social and economic capital to enable food system maintenance	Swedish Food 21 programme to build farm and food capacities (Institute of Food Sciences (Sweden), 2005)
<i>Food Defence</i>	Anticipation of stockpiles in dire circumstances	Stockpiles and back-up systems	Grain stocks; proposal to create new 'virtual' grain stocks system (von Braun and Torero, 2008)
<i>Food Democracy</i>	Full social engagement with decisions	Investment in citizenship throughout the food system to move from passive to active modes of relating with food	Historical perspective on uneven growth of English food democracy 14-20 th century (Lang et al., 2009)
<i>Food Nationalism</i>	General aspiration for national self-sufficiency where possible	Combines appeals to produce and consume nationally sourced food	Celebration of national culinary cultures (Wilks, 2001); 'buy country X' marketing appeals
<i>Food Resilience</i>	Capacity to recover from or withstand shock	Requires assessment of risks and what is necessary to ensure recovery	Planning to restore food supplies after shock (terrorism, tsunami, oil crisis, etc) (Peck, 2006)
<i>Food Rights</i>	Ethical principles to shape supply	Building strong social networks to ensure people have a sense of entitlement	FAO 2004 Voluntary Guidelines for governments to activate; Brazil and South Africa have it in their constitutions (FAO, 2004)
<i>Food Risks</i>	Any factors which threaten goals	Having monitoring systems to detect when	WHO Global Environment Monitoring System - Food Contamination Monitoring and Assessment Programme (GEMS/Food) (WHO, 2011)
<i>Food Sovereignty</i>	Movement articulating the right to define one's own food system, usually associated with small farmer viability	Support for small farmers and the rural infrastructure against perceived threats to existence represented by agribusiness	Campaign work of <i>Via Campesina</i> peasants organisation (Borras, 2003)
<i>Food Sustainability</i>	Food systems must be designed to exist for the long-term	Defining food systems to meet multiple criteria and values	Position proposed by UK Sustainable Development Commission (Sustainable Development Commission, 2009a)
<i>Food Welfare</i>	safety nets for availability	Food donations or welfare benefits to enable poor to buy	Food stamps (MacDonald, 1977); Food Banks (Poppendieck, 1999)

Table 2 is also a reminder that the discourse now labelled as about food security has a lengthy history. Policy approaches to hunger have evolved and been fiercely contested for centuries (Vernon, 2007, Dowler et al., 2001). Even in the 20th century, from the 1940s, access to food became locked in a debate about the role of the State, commerce and the people. The language of food security to some extent neutralised social class and inequality as framing issues. Food security put food into the same policy language as the military and 'national interests' yet it has inevitably always been a moral discourse (hence food rights featuring in the 1948 Universal Declaration of Human Rights). This 'rights' approach was reinforced and updated in the 1970s at the World Food Conference, mindful of two great famines in Sudan and Bangladesh, although the Green Revolution and its technical solution was already underway. In the 1980s, there was a lurch towards market-led approaches, shaped by neo-liberal attempts to liberalise trade alongside reductions in state subsidies. This period also generated a 'micro' perspective on food security as mediated by family, gender, locality and individual factors, and also by entitlement and rights. These have been strengthened in the 2000s with more organised

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3 voices looking at food security through the lens of trade justice, small farmers and sustainability. Such
4 evolving meanings are perhaps normal.
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7 8 Conclusion

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10 The policy responses to food security are fractured and contested, a status reflected in the definitional
11 fluidity just discussed. Different interests offer competing analyses. Food 'philosophies' vary. Some
12 emphasise markets, others citizens. Some see the state's role as facilitative, others as oppressive.
13 Some see price as incorporating all values, others as externalising costs which ought to be
14 internalised. Some see food security as about developing countries, others as a challenge to the
15 world's food system in different ways according to level of development. In this policy debate, there
16 are now many actors. Much of the food security discourse still is about governments, farmers and the
17 hungry, but in the Emerging analysis, a return to first principles can be detected, in the terms that were
18 first debated in the late 18th century enlightenment: what sort of food system is environmentally,
19 socially and economically sustainable? And can societal forces reshape it to public benefit?
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22 The complexity added by the existence of multiple actors in the policy domain is also noted. Some
23 large companies and commercial bodies, for example, are troubled by future threats, but resist being
24 made entirely responsible for world food security, preferring to map common frameworks which
25 actually require State involvement. Commercial interest is partly shaped by brand protection and
26 reputational and financial risks yet the emergence of common commercial positions such as the
27 McKinsey report for Davos suggests new policy dynamics in the making. At the same time, pressure
28 from within agricultural and biological science for another round of technical innovation also grows,
29 illustrated by the UK Foresight 2011 report's oxymoron 'sustainable intensification'.
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32 There is growing awareness of food system's capacities being under stress yet a basic truth remains
33 that only a food system which is sustainable could possibly be food secure. Translating what is meant
34 by sustainability is, however, a matter of marrying complex standards, values and modes of delivery,
35 from production to consumption. It is possible, we conclude, that the notion of food security may
36 even fade into obscurity and be replaced by a more all-encompassing term such as sustainable food
37 systems.
38

39 Such fluidity of the debate is normal for food policy. The juggling of evidence, interests, challenges
40 and policy responses is inevitably messy. Although the debate about food security is wracked by
41 moral and humanitarian values, given harsh commercial and human needs, it is unsurprising that
42 differences and variable policy responses exist. Better bubbling democratic debate than benign
43 indifference; it would be worse if food security was ignored. Debate, not just entitlement, helps
44 prevent shock. The reports with which this article began testify the sober list of potential shocks to
45 world and regional food systems. These threats have articulate champions, but the challenge of
46 integrating them all currently seems to elude world leaders. The world needs to explore – at global,
47 regional, national and local levels of governance - how policy forums could better include these
48 'social' considerations into a discourse which is still shrouded by neo-Malthusian assumptions that
49 production and demography are the key factors and that the solutions lie in producing more food.
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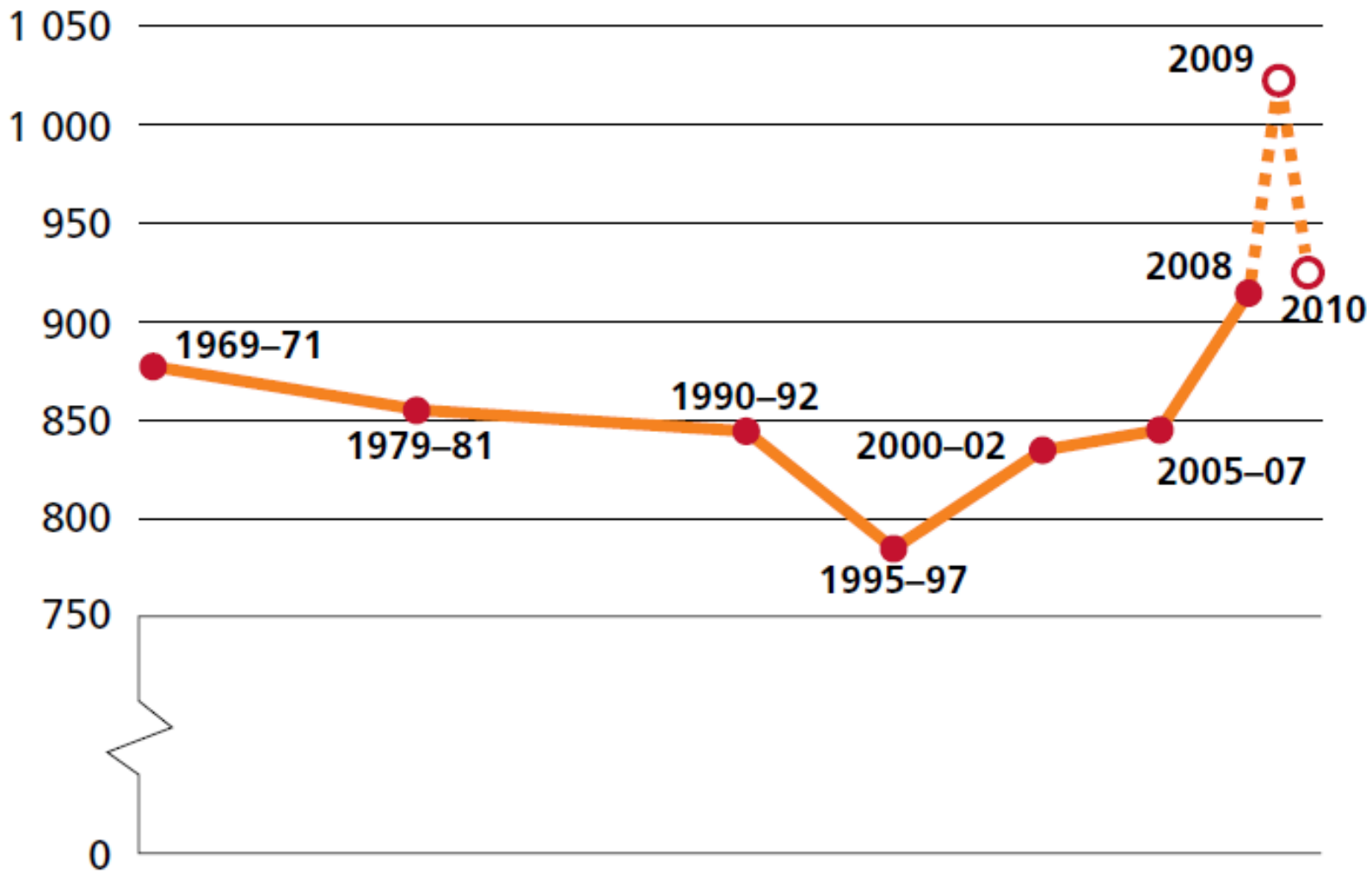
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Fig 1. Undernourished people in the world, 1969/71-2010

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Millions



Source: FAO (2010) The State of Food Insecurity in the World 2010. page 9