Food Matters: An integrative approach to food policy
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Briefing based on paper to 'Mobilising the Food Chain for Health', Third Meeting of the OECD Food Chain Analysis Network, 25-26 October 2012, OECD Conference Centre, Paris

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Contents

Summary and key points

- The developed world's food system is under pressure from a combination of material, biological, economic and societal forces. These are now the 'new fundamentals' for 21st century food policy.
- Meanwhile the real world of food policy is still under the sway of the formula or paradigm which has dominated thinking since the mid 20th century. This proposed that society's health problems could largely be resolved by producing more food, which in turn required the application of science, technology and capital. Honourable and successful in some respects though this has been, it is now inappropriate and too crude to address the 'new fundamentals' for today.
- The new fundamentals are co-existing mega issues: climate change, water, land use, urbanisation, massive social inequalities, nutrition transition, eco-systems damaged, demands from growing wealthy populations, rising and expensive non-communicable diseases eg obesity, diabetes, heart diseases.
- Policy thinking meanwhile vacillates between a desire for the norm ('business-as-usual') and tentative consideration of what living within environmental limits might mean. The 'elephant in the room' is that this means big consumer change.
- The paper thus contrasts 'radical' with 'mainstream' policy positions. It proposes that debate and direction for food, agriculture and health policy now ought to centre on addressing the key question: what would the food system look like if it addressed ecological public health, the combined emphasis on health, eco-systems and social sustainability. This requires OECD and rich societies to engage more with their own excess consumption and heavy footprints from food.

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Introduction: the weight and range of evidence

There is now broad agreement that the world's food system has entered a difficult period and is now in a period of flux, as it adjusts to a combination of environmental, health, economic, societal and consumer changes. Major scientific reviews led by national government scientific advisors from around the world provide key evidence.[1-5] If we summarise at the global level, the picture is sobering. The UN like others point to an on-going food security crisis, despite great gains in agricultural production since the 1970s.[6, 7] Economic indicators point to price volatility after decades of food becoming ever cheaper, as measured by the FAO Food Price Index.[8] The WHO points to a crisis of diet and physical activity such that non-communicable diseases now almost outweigh or certainly compete with health problems from insufficiency.[9] UNEP and FAO have both documented food's role in environmental degradation.[10] Eco-systems on which humanity depends are being seriously depleted by food activity: water depletion, biodiversity loss, fish stock destruction, soil degradation, and more. Some scientists now ask whether planetary boundaries are already exceeded or approaching limits on key measures for sustainability such as the rate of biodiversity loss, the nitrogen cycle and climate change.[11, 12]

The World Bank, formerly known for a focussed financial perspective, has for some time voiced urgency about the need to re-emphasise food and agriculture's role in development.[13, 14] Big Business, previously confident that the mid to late 20th century business model exemplified progress, now sees food security as a threat to business-as-usual. The World Economic Forum, for example, has charted another course.[15] a key worry to these interests is pressure and competition for material resources, as previously underdeveloped countries now seek their share of minerals, or recognise the strategic importance of control over important ones: land, phosphate, oil. Much of 20th century progress in fact depended on mining the earth's material resources, notably oil for fertilisers, transport, agrichemicals.[10]

Meanwhile, away from these concerns about physical and biological / eco-systems dependencies in the food system, informed voices raise deep social concerns about food injustice. The UN Secretary General's Special Rapporteur on the Right to Food, for instance, reminds policy-makers that food is a significant source and indicator of social inequalities and injustice.[16] Wide intra-societal inequalities have also emerged as determinants of health, catalogued by the WHO's Commission on the Social Determinants of Health, and others.[17, 18] As if to add insult to injury, a problem the 1930s scientists thought could be technically dispelled – food waste – has returned in new more complex forms. The global estimate is that 30-40% of food fit to eat is wasted, with the reasons varying in rich and poor worlds.[19] In the developing world, it is often due to poor facilities on or near farms; poor consumers waste little. In the rich developed world (OECD world), the estimated 30% wasted food is largely after consumers buy it, with debates about why ranging from over-selling, changed skills, and pricing. These 'old' and 'new' forms of waste co-exist.[10, 20]

What to do about it: mainstream and radical policy packages

Given this mounting evidence and the serious analyses which have emerged in the 2000s, it is good to record that new, better informed discussions about what to do, and which options lie ahead, have begun to emerge. The reports cited above have significant points of difference: some favour more, others less emphasis on raising production now or later; some see consumption patterns as fixed, others as being more pliable; some centre on climate change as the change agent, others more on the combination of the Malthusian problem with changed geo-politics. These sub-texts are important. Different policy positions focus on contrasting problems and emphasise varied bodies and points of evidence. The nuances of difference in and between these various positions are not explored here but deserve considered policy analysis. Instead, to heighten debate, a contrast is drawn between what we might term a 'mainstream' food policy package (problems, solutions, measures) and another more 'radical' package.

The mainstream package sees the present food policy challenge as mainly a problem of encouraging consumer behaviour change in a more healthy direction while continuing to deliver internal supply chain efficiencies. The 20th century, according to this narrative has been an unparalleled success of more food, more products, higher productivity, a triumph of science and technology over the Malthusian problem. If there are now problems associated with over-consumption, these can and should be resolved by unleashing behavioural sciences to entice ('nudge') and culturally constrain consumers into more responsible patterns. The food system is essentially fine but, looking ahead and globally, there needs to be a huge effort to increase production, if the growing world population and changed dietary habits of the developing world are to be fed. A contradiction and difficulty emerges, however, which we might call the Problem of the 'Wrong Consumers'.

In market-oriented policy thinking, of course, consumers are sovereign, although gthere can be a difference between the rhetoric and the reality. Marketers know the complexities better; not without reason do food companies pour billions of dollars, euros and pounds etc into advertising and now soft marketing. It shapes markets. Meanwhile the evidence from diverse disciplines and topics mounts that consumer behaviour in rich societies is, if anything, now characterised by excess. Too much food, too much resource use, too much impact. There are huge disparities between rich and poor consumers within developed societies but overall – as societies - there is a mismatch of food consumption with environmental and health ideals.

So are consumers at fault for this? Politicians and policy-makers know the delicacy here! Despite health education, consumers will keep eating inappropriately and not exercising enough. Thus, if governments have mainly left the food and health dynamic to consumers and sellers, what can be done? For decades as this problem has emerged, the policy response has been health education but this has been 'light touch': advice, labels, an emphasis on responsible eating. The behavioural sciences are now being asked to help resolve the issue with more light touch thinking – but actually attempting control. Fashionable at present is the 'nudge' approach to behaviour change.[21] Ideologically, this remains within the dominant paradigm of consumer choice, but it suggests some fraying of

the ideological paradigm. More extensive behaviour change is needed, on a mass scale.[22] New societal frameworks not individualised nudges are needed.

By contrast, the radical position sees the health problem as embedded in a wider, more systemic failure to redirect food production around public health nutritional needs. Price signals and the success of the processing industries in reducing costs send signals which are inappropriate for health. The rich world has an overproduction problem: too many calories seeking mouths, and now historically remarkably cheap and ubiquitous. 'Buy me, eat me' messages are everywhere in furious competition for sales. The 'consciousness industries' compound this by their large investment in marketing, branding and now the virtual media, distorting health-related behaviour. Public education (in schools and information channels) cannot seriously alter the mismatch of bodies, food supply and environments. Indeed, society has delivered a model of progress measured by car use and sales rather than bicycle use or sales. Building exercise into daily life will not come from widening gym membership but from re-engineering towns and cities for routine rather than exceptional physical activity. For the radicals, the case for wider systems change is becoming stronger, if the 'new fundamentals' combination of environmental, energy, health, cultural and social inequalities challenges are to be addressed. The policy-makers' dilemma is how to postpone such systemic change while not burying the evidence. Plan B's are likely. Policy discussions make more frequent reference to coming shocks which would result in rapid, enforced re-shaping of the food system. Climate change is not the only likely contender but is significant.[5, 23, 24]

Time will tell how these competing interpretations of food and the public interest fare. One is more focussed on individual change; the other systemic. One remains within the productionist paradigm; the other sees paradigm change. A key factor will be public values and engagement: minds not just markets and mouths. [25] But something remarkable has happened in the last decade. The status of these two interpretations of the food state of play has become heightened. The many reports from expert groups point to growing concern from scientific disciplines. They collectively suggest that the stakes are high. Climate change science might be the highest profile concern (attracting deniers as a result) but it is not the only cause for potential alarm about the food system. Increasingly sober analyses also emerge about water and biodiversity problems within the environmental policy portfolio,[26, 27] about obesity and non-communicable diseases within health,[9, 28]; food inequalities within societies,[29] and rampant but different forms of consumer waste, a nightmare for supporters of 'light touch' public policy.[7] Hence the emergence of versions of the Wrong Consumer analysis. Consumerism is fraying but being reasserted as the ideal for getting Western economies back on track after the financial crisis.

The food policy problem: global or Western?

We need to remind ourselves that there is nothing new about food being a major policy problem. It was for the ancients.[30] Humans have long known how important what we now call food security is. Yet in the West, particularly in the second half of the 20th century, the belief took root that the systemic nature of food problems was an analysis that could safely be consigned to the history books. Economic development could defeat the Malthusian

problem. The return of concern about Malthus speaks volumes, a stark diagnosis of a mismatch of humans' need for food, population size, and productive capacity made at the of the 18th century![31] The vanquishing of the Malthusian problem incentivised 19th and 20th century agricultural science. Productionism won majority scientific opinion in the 1930s. A combination of science, technology and capital investment could be expected to raise production sufficient to feed mass populations, themselves increasingly urbanised. Production could resolve the food problem. This optimism was given its chance and became mainstream in post World War 2 reconstruction.[25, 32] We note that it required state action to restructure and direct markets, and to unleash productive capacities and to help farming produce more. The role of the state in food is often to set the so-called 'level playing field'. Individual actors and sectors cannot do it, or as Adam Smith noted centuries ago, cartels and conspiracies against the public interest may triumph.

Yet within decades of the new paradigm being in place, it was in trouble, first with the hiccup of the 1970s oil price spike and then more systematically at end of the 20th century. The 2007-08 agricultural commodity price rise brought the issue up the policy agenda for developed nations who had hitherto felt food was a problem mainly for poorer nations. A rapid sequence of meetings, analysis and commitments occurred: High Level groups, statements, programmes, etc followed.[33, 34] The focus quickly turned into one on the developing world - it needing help to grow more - rather than the West needing to grow, process and consume differently. Nevertheless, doubt had now set in that previously much-vaunted efficiencies might be threatened by a combination of environmental, societal and economic factors including climate change, water stress, population growth, global media and rising consumer aspirations, raised purchasing power, and more. These, coupled with Western home-grown debt and financial crises, at least meant food policy received more attention within the West itself. Some economists argued that the 2007-08 price spike was temporary. Like previous price spikes (World Wars 1 and 2, and the oil crisis of the early 1970s), in this one farmers would be incentivised to plant and produce more, which would lead to lower prices. Business-as-usual would resume. Progress was safe. Other analyses were less sure. Indeed, the reviews set up by Western governments from their senior scientific advisory bodies collectively produced a sober analysis of the food system's capacity to feed the world adequately unless there was considerable investment and political leadership. Clearly business-as-usual was not happening or, in the radicals' view, adequate. These tensions in analysis and policy direction continue.

Where there is agreement

Although this paper has highlighted divergence between the (previously) mainstream and radical policy packages and between single issue and systemic analyses of the food challenge, there are also remarkable agreements. As I see it, any new serious food policy analysis would have to begin with something like the following:

1. The era of food policy shaped by the pursuit of ever lower food prices has probably ended. Volatility is the new norm, with prices edging higher. This will have an impact on health and the dietary choices of people on low income and low income countries.

2. There is a structural mismatch of human bodies, food supply and environment. This has generated a bizarre world in which under-, over- and mal-consumption co-exist.

3. The 20th century pursuit of cheaper food from more efficient food supply chains has externalised previously unexpected costs for health, environment and social inequality.

4. The 1930s and 40s policy belief in the unproblematic advantages of producing more food is now out of date. Cheap and plentiful food does not automatically yield better health and wellbeing. Mal-distribution and mal-consumption can distort both.

5. Food policy suffers from uncertainty of political will and disparate leadership. No clear vision is currently shared at global or regional levels in the West, yet a new direction is urgently needed, if the evidence on coming and present challenges is correct. Too much effort goes into relatively small difference between vested interests, competing for policy attention.

6. Large food businesses are increasingly troubled by the future (they read the evidence too) and their own policy frameworks which have been mainly about micro-managing their own internal supply chains are not able or sufficient to address the coming challenges. While frequently presented as a positive example of social responsibility reshaping market dynamics, this actually is creating a fissure in food governance. Parallel systems have emerged from state, commercial and civil society players. This adds to rather than resolves the problem of policy complexity.

Could food systems be built for health and eco-systems?

This is now, surely, the big policy question for OECD member states, one which requires some fundamental and deep thought. What would food systems look like if built for health? A number of positions compete for policy attention:

- Business as usual. Although not a new position (!), this retains a grip on some policy-makers' thinking, a default position. The argument is that health gain emerges from wealth generation, so let economies thrive and enable populations to have more disposable income. Then health follows. The problem with this position, however, is that part of the 21st century challenge is due to knowledge that undoubtedly great health gain follows from increasing incomes, if the starting point is very low. But when incomes become higher, the pattern becomes more complex and 'messier'. Rising wealth does not automatically generate health. More food does not prevent the epidemiological or nutrition transitions from happening.

- Leave it to food business. Quietly, companies are 'choice-editing'. They not consumers are altering recipes, product specifications and price signals to alter and mostly reduce the modes of production, processing and packaging. Some companies are even committing publically to this new business model,[35-38] combining calorie reduction with environmental footprint. There are two main difficulties here. Firstly, as industry knows, there is only so far hidden change can go to reduce health or environmental

impacts; consumers have to alter quite dramatically. Secondly, although currently loved by supporters of corporate responsibility, some thinkers already know that if business assumes the mantle of responsibility, it can be made accountable next. And that, sceptics say, is not the idea; the goal is to put distance between companies and blame, not to be left taking it.

- Technical solutions. This takes two different foci in developed and developing country markets. In the developed world, the aspiration is to harness the power of genetics through personalised health solutions: epigenetics, diagnostics, functional foods and new forms of supplementation. In the developing world, the focus on emergency relief for feeding the needy. New generations of supplements and fortified foods are sought, too, by some big donors and in comparatively new initiatives such as GAIN and SUN. The former focuses on functionality in emergency feeding, and the latter prioritises the building of political support for the poor in key low income nations, aiming to unblock national political barriers.[39, 40] Feed those who desperately need it now is the call.

- Sustainable intensification. This phrase is much cited and means different things to different adherents.[41] Critics see it as a nod in the direction of environmentalism but essentially an increase in application of new technologies. This is unfair. For most subscribers – in the science and policy worlds - it can be summarised as the case for producing more food from less land, with fewer inputs and lower impacts.[2] The focus tends to be on Africa and development but the model extends far wider.[5]

- Social justice at the global level. NGO coalitions such as Oxfam et al's *If* and *Food Justice* campaigns take a more global perspective, targeting political leaders in rich countries such as the G8 and calling for restructured trade rules, debt waiving, stops on transnational 'tax dodging', and more.[29, 42] Such policies would require restructuring of financial flows and imply the case for ensuring more money getting to primary producers. This is fair-trade write large.

- Contract and converge. The UK's Royal Society 2012 *People and Planet* report, chaired by a Nobel Laureate, has proposed a 'contract and converge' policy approach with, in food, the rich developed world eating less and differently we presume to allow the developing world to consume more.[24] The future will be one of low impact diets. Academics have long been discussing the case for a new ecological public health approach based on delivering sustainable diets.[43] This position provides a systemic framework.

- Sustainable diets from sustainable food systems. Most developed countries have population based dietary guidelines. The legacy from the 1987 Brundtland report cast sustainable development as centrally about environment, economy and society. But this fits uneasily with the practical problem of food and health. Health requires a different policy template. Some argue that the new direction is covered by 'low carbon and healthy'.[44] Others that a more complex set of headings is required. What goals for food can ignore quality or culture? The UK's Sustainable Development Commission proposed a 6-heading approach for food and health policy: quality, social values,

environment, health, economy, governance, with each of these acting as headings for other key issues.[45]

- Focus on plants - 'plant the plate'. Health analyses broadly agree that 'good' diets should be largely plant-based. Dietary guidelines in most western countries urge populations to consume more fruit and vegetables. If they did, more plants would need to be grown, with a commensurate drop in the ever-rising production of meat and dairy. This 'plant the plate' policy position calls for a focus on horticulture rather than agriculture to apply health guidelines in the field. If the USA, for instance, were to double its consumption of fruit and vegetables in line with its governmental health advice, one estimate suggests that 180, 000 jobs would be created in horticulture.[46]

These and other positions now need to be brought out into the open, analysed, explored and considered seriously. Who gains, who loses? What needs to happen? What costs? What benefits? The usual critical policy analyses need to be conducted. This is not happening so far. In a sense, the ill-health consequences of unhealthy developed economy diets are 'normalised'. This normalisation must be confronted and rejected.

Where next?

A process of democratic experimentalism is underway. Companies are readjusting goals, some overtly, others nervously. As noted, in the late 2000s, rich world Governments began to engage with the new fundamentals too. In Europe, particularly, there was a rush of interest in facing consumer change through food. Sweden announced advice for environmentally conscious consumers, combining health and eco concerns.[47] The advice was withdrawn from consideration by the European Food Safety Agency, by repute for recommending consumption of seasonal and local foods, thereby questioning the rationale of the Single Market. Meanwhile, Germany, the Netherlands and the UK took steps into this terrain, acknowledging the need to shift from public health nutrition influenced dietary advice to sustainable dietary guidelines.[48-50] They too then backed away from this policy development. But as they did, the European Commission stepped forward, building on a commitment to reduce resource use in EU industry as a whole. The policy statement in the 2011 *Roadmap to a Resource Efficient Europe* used food as a key example, proposing radical reduction of resource use as a new European business norm.[51] A communique on sustainable food is in preparation for 2013, with waste reduction a particular concern.

This tentative policy development is normal. But the hard fact remains that there is a policy gap between the 'new fundamentals' facing future food systems and the slow changes now underway. Food market rules will almost certainly have to be restructured. Consumer culture will almost certainly change. In theory, mainstream policy thinking favours leaving this process to market dynamics, with on-going reduction of state involvement in society as a whole. A thorny issue is how and whether to alter the long-term commitment to reduce food prices. With data on rising health costs from food consumption patterns and similar environmental externalities – such as climate change, biodiversity loss, water depletion – the question remains as to whether food markets in 'business-as-usual' have been distorted. For some, the challenge ahead is how to internalise currently externalised costs: diet-

related healthcare, damage to environmental public goods, and so on. This is why there is such attention on the experimentation around the world with measures such as fat taxes. This is taxing 'bads' to promote 'goods'. A policy debate is emerging about whether a more extensive use of the full range of policy measures is needed. The reliance on 'soft' measures such education, information, labelling, advice cannot address the dramatic changes needed to reduce climate change gas emissions, or cultural constraints on 24 hour eating and drinking. 'Harder' interventions such as standards, regulation, fiscal change, imply a stronger role for the state. Mainstream thinking favours consumer-led markets. This debate is now the real new politics of food.

The radical critique, in this context, raises fundamental question about the late 20th century policy centrality on consumer- led choice culture. Food policy, it argues, requires the food system to be re-engineered to lower embedded carbon and water, to blend human and environmental health, to be based around sustainable dietary guidelines, and more.[52] The 21st century already shows a complexity of challenges. Just producing more is not going to be smart food policy. The goal ahead must been to feed and educate people to be food citizens rather than consumers, to engage with and deliver multiple values, not just cheapness. This future food system will be shaped by 'values-for-money' rather than 'value-for-money'.[53] Is this just an ideological divide? Almost certainly not. The evidence for real rather than imagined difficulties is overwhelming. A period of considerable change looks likely.

The 20th century saw major changes in food production, processing and consumption. The food industry is right to argue that these changes brought great advances for consumers, but few deny also that the pursuit of ever cheaper, better and plentiful food is less certain. In the 21st century, more complex demands face food supply and consumption. Companies now know they need food supply chains to be sustainable. The question is whether this sustainability is deep or light green. And where are consumers in this new policy landscape? Should they eat fish? Yes say nutritionists; no or less or only some species say fish stock analysts. Can the world produce food on a gargantuan scale to enable everyone to eat like the US (eating as though there are 3-5 planets) or Europe (a mere 2-3 planets)? This is not likely.[52, 54, 55] Even the most optimistic proponents of genetic modification know that there is a limit to the effectiveness of technical fixes. Time will tell, however.

In conclusion, firstly, we certainly need expanded and open debate across the full range of options and perspectives. If policy-makers constrain the future to a minor tweak or alteration with the goal of returning to pre 2008 commodity price spike business-as-usual, the likelihood of subsequent shock grows. We need a Hot Springs 2 for the 21st century, an attempt to hammer out a new shared framework which countries, sectors and societies work hard to deliver.

Secondly, institutional structures currently do not help serious consideration about the 'big picture' for food, agriculture, health and environment. Too often, ministries of health, environment, agriculture and trade, quite legitimately, take partial perspectives. They need better working together, with shared policy frameworks. I believe that Ecological Public Health could and should one element of that.[22, 56]

Thirdly, we need to explore what the food system would look like if it was based on ecological public health. Almost certainly, it would refine efforts on increasing plant-based output: horticulture rather than agriculture.

Fourthly, if this agenda seems distant or utopian, we should note that potential pressure points have not gone away since 2008. They were there before the oil/commodity price spike. Climate change is looking likely to be happening faster than cautious IPCC thought. Obesity rates and non-communicable diseases are spreading to regions which cannot afford them; nor can the OECD rich world. Price volatility has creeping effects on developed world consumers. Sudden changes can bring the disenchanted onto streets, but civil engagement can also be worn away by slow, incremental change. The lack of political grip over food is highly charged and carries risks.

Finally, there is much that this paper has not covered but which deserves attention. Continued low wages in the food system would shock the 1930s-50s pioneers of the productionist paradigm. They thought that efficiencies would bring better wages and conditions to food workers. Those who remain on the land in rich societies might live better, but low wages have crept into food work off the land, in the factories, kitchens, retail outlets.

A decent food system for the 21st century will strive to address multiple challenges, not reduce all to a simple formula of 'produce more, make it cheaper, leave it to consumers'. We know enough that this policy package is already frayed. Let the serious debate now begin.

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