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Sustainable Diets: another hurdle or a better food future?

NOT FOR QUOTATION….to appear in *Development,* 57 (4), Special Issue on Nutrition, November 2014; guest editors: Nicola Bullard & Stefano Prato

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Abstract

The notion of sustainable diets has emerged forcibly onto the food policy agenda in recent years, but also has met resistance. The paper reviews the case for sustainable diets. It counterbalances the current dominant policy emphasis on raising food output as the best route to a sustainable food future. The paper suggests that a process of democratic experimentation is underway. Some official guidelines have emerged,, alongside a mix of civil society and academic formulations. More coherence of data, principles and purpose is needed at the global and regional policy-making levels for these to become effective in the common task of reducing the food system's negative impact on health, environment and economies.

Bio note

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Keywords

Sustainable diet; food-based dietary guidelines; environment; public health; food policy

Introduction: the argument summarised

This paper considers the value of the notion of sustainable diet as a policy goal for development everywhere, both in affluent and low income countries. The notion is simple yet has immense ramifications for public policy and the shape of the food system. It proposes that a good diet in the 21st century is one which is healthy,

environmentally low impact, culturally appropriate and economically viable. Using a variety of indicators – land use, biodiversity loss, water use, climate change gas emissions, health, economic costs etc - at present, the trends in world diet are not in a sustainable direction. The notion of sustainable diet helps concentrate policy attention on transforming consumption not just production and distribution. In a consumer-oriented world, it addresses a key element of what it means to be a good consumer. The policy discourse around sustainable diets is already formulating versions of population guidelines for appropriate eating. Since dietary preference varies throughout the world, sustainable diets will be different; there is no 'globo-diet'. The notion of sustainable diets thus has immense implications for current debates about food policy. If modern diets have negative impacts, which need to be addressed, this implies that different economic signals need to be directed back down the food supply chain. The clarification of sustainable diets thus becomes a critical task in the current debate about what is required from the global food system.

Given the argument summarised above, it is perhaps not surprising that the term sustainable diet has become so powerful, yet also so threatening. For the last half century, a gradual process of marketization of the food system has been underway, marking the triumph of neo-liberal thinking. (McMichael, 1994; Goodman and Watts, 1997) In this neo-liberal vision, a good diet was characterised by the pursuit of surplus (beyond sufficiency), expanded choice, lower prices, and free flow of foods (and goods). This has been a remarkably successful policy if measured by its reach and influence. But the data now suggest that consumption patterns are in some respects out of control, having disproportionate impacts on biodiversity, health, culture, land use, water and other resources. There is excess consumption in the rich world and even in the developing world; food supply chains have also been created with rising negative impacts.(UNEP et al., 2009) The pressure to reconfigure what is meant by a good diet for the 21st century has thus grown.(Garnett, 2013; Garnett, 2014; Lang and Barling, 2012; Carlsson-Kanyama and Gonzalez, 2009)

The English word 'sustainable' is a fluid one, yet it captures the new complexity and multiple criteria for what must be delivered by the food system everywhere. At the same time, advocates of sustainable diets also know that sustainable diets need to be affordable, accessible and available to all, and to provide appropriate cultural

'goods' such as pleasure and social meaning. These were the ostensible and now popular promises of the mid 20th century food revolution; the 'productionist' policy paradigm promised that with investment, technology and science, output could become more efficient, reduce waste, increase output, make food cheaper and more available, thus delivering health and progress.(Lang and Heasman, 2004) Today, this productionist paradigm is in distress; more complex policy goals are needed. Better and clearer public guidelines are required. Dietary advice can no longer be framed around delivery of nutrient mix and price alone. Methods of production and distribution shape impact; so does what is eaten. Rising consumption of processed foods, meat and dairy and salty, sugary, fatty processed foods typify the challenge of food in an urbanising world of rising incomes. . This is the public policy challenge to which the notion of sustainable diet can make a powerful contribution.

Why it is needed and is being championed

From the 1970s to today, evidence has mounted about modern food systems' impact on the environment, public health and social justice.(UNEP et al., 2009; WHO, 2002) From industrialised agriculture to commodified fast foods, a model of eating associated with 'Western' or affluent lifestyles has delivered a 'nutrition transition'.(Popkin, 2009; Popkin, 2002) This transition sees populations shift from simpler diets, initially to a better range, but then to mass consumption of foods high in fats, sugars and salt. Abundance of pre-processed foods reshapes culinary traditions. The result is a world with vastly more people overweight and obese (1.5 bn) than hungry (0.9bn). A mismatch of people, physiology, health, and food economy has created simultaneous over-, mal- and under-consumption. Decades in which environmental, health and mal-distribution effects were monitored in isolation has now generated realisation by scientists that these trends are connected and interact. Diet-related health, for example, is affected by climate change's impact on land use, nutrient flows, water availability, and so on.(Millward and Garnett, 2009) Eco-systems, human health and food production capacity are linked.(McMichael, 2001; Smith, 2012)

The term sustainable diet is usually traced back to papers by Gussow and Clancy.(Gussow, 1995; Gussow and Clancy, 1986; Herrin and Gussow, 1989) It is in

fact much older, and has intellectual roots in the 1970s food policy reawakening with the first oil crisis, the early environmental movement, famines in the Sudan, Biafra and Bangladesh famines, and even the western counter cultural pursuit of simpler lives and anti-consumerism.(Lang et al., 2009) Still older roots lie in the Malthusian problem of food supplies within a finite world,(Malthus, 1798) 'living within planetary limits' in modern language. The term really achieves its current policy 'edge' and value in the 2000s, however, when serious modelling, thinking and scientific debate began. There is now a considerable literature on what is meant by sustainable diets.(Garnett, 2014; van Dooren et al., 2014; Macdiarmid, 2012; Lang and Barling, 2013; Carlsson-Kanyama, 1998; Carlsson-Kanyama et al., 2003) In 2010, the Food and Agriculture Organisation (FAO) and Bioversity International (part of CGIAR) hosted a large scientific conference which formulated the much cited definition:

> Sustainable Diets are those diets with low environmental impacts which contribute to food and nutrition security and to healthy life for present and future generations. Sustainable diets are protective and respectful of biodiversity and ecosystems, culturally acceptable, accessible, economically fair and affordable; nutritionally adequate, safe and healthy; while optimizing natural and human resources. (Burlingame and Dernini, 2012)

This reasonable definition implies a better alignment of consumption with eco-systems, but in fact stirs up some policy resistance. Policy makers may have gradually become aware of food's high carbon, water, land use, and biodiversity impact, but they have also been reluctant to intervene too strongly to tackle them because that implies changing consumption. Consumers are voters, with strong culinary preferences, attachments and economic roles. Is there an inevitable clash between consumer aspirations and planetary and public health? Or is a realignment possible?

Unsustainable consumption from unsustainable food systems

Although distorted food consumption has been a major contribution to a globalising food system putting its eco-systems, public health and societal infrastructure under great stress in the last century, we should not forget there has also been considerable success. There is no world shortage of food at present, although there

might be a few decades hence if current consumption trends continue.(Foresight, 2011) Many large-scale scientific reviews have concluded trends in the food system are unsustainable, whether we look at food through the lens of health or the environment or socio-economic development or human rights.(PMSEIC (Australia), 2010; Foresight, 2011; Paillard et al., 2011; Beddington J et al., 2012; Conway, 2012; De Schutter, 2014) According to the WHO, worldwide obesity has nearly doubled since 1980.(WHO, 2013) In 2008, more than 1.4 billion adults, 20 years old and above, were overweight. Of these over 200 million men and nearly 300 million women were obese. Thirty five per cent of adults aged 20 and over were overweight in 2008, and 11 per cent were obese. Sixty five per cent of the world's population live in countries where overweight and obesity kills more people than underweight. More than 40 million children under the age of five were overweight in 2011. Health problems from over-, under- and mal-consumption and non-communicable diseases now co-exist even in low income countries(WHO, 2011) Rates of death due to non-communicable diseases in sub-Saharan Africa, for instance, are predicted to rise 17 per cent in the next decade.(Scott et al., 2013) The most recent global burden of disease review summarised the effect of mal- and over-consumption as resulting in over 18 million deaths annually caused by different food-related factors: high blood pressure (9·4 million), high body-mass index (3·4 million), high fasting blood glucose (3·4 million), and high total cholesterol (2·0 million).(Moodie et al., 2013) In the WHO's global assessment of health risks in all income levels of society, diet featured centrally in 10 out of the top 19 factors.(WHO, 2009) Much of this coincides with the spread of what the Brazilian epidemiologist Carlos Monteiro and colleagues have termed 'ultra-processed' foods and drinks.(Monteiro, 2009; Monteiro et al., 2011) A review by Harvard and the World Economic Forum estimated that in 2010-30 non-communicable diseases would cost US $30 trillion, equivalent to 48 per cent of global GDP in 2010, the effect being greater in low income developing countries, a dire drag on economic 'efficiency'.(Bloom et al., 2011)

Modern agriculture currently contributes around 14 per cent of greenhouse gas emissions.(UN, 2011) Of these, animals are responsible for 31 per cent, and fertilisers for 38 per cent.(Stern, 2006). In Europe, food is the European consumer's biggest source of greenhouse gas emissions (GHGs), (Tukker et al., 2006) and meat and dairy products account for 24 per cent of their GHGs.(Tukker et al., 2009;

Tukker et al., 2006) Globally, 36 per cent of the calories produced by the world's crops are used for animal feed, and only 12 per cent of those feed calories ultimately contribute to the human diet as meat and other animal products.(Cassidy et al., 2013) This drive for grains to feed animals as well as humans plays a significant role in destroying ecosystems.(Millennium Ecosystem Assessment, 2005) It is little wonder that modern food systems have their immense impact in biodiversity loss, water use, and land use.(UNEP et al., 2009) The UN Millennium Ecosystem Assessment calculated that, of 24 of the world's ecosystem services, five are being degraded or used unsustainably, and that food is a major source of this degradation. Global agriculture consumes 70 per cent of all freshwater extracted for human use;(WWF, 2006) and intensive livestock production is probably the largest sector-specific source of water pollution.(UN, 2011) Modern diets consume significant 'hidden' water; for instance, one Dutch study found 200 litres of water were used to produce a 200 millilitre glass of milk, and 2400 litres of water to produce a 150 gram hamburger.(Chapagain and Hoekstra, 2006) In the 20th century as a whole, an estimated 75 per cent of the genetic diversity of domestic agricultural crops inherited from the 19th century was lost.(FAO, 1995) At the same time there has been increasing concentration on particular crops.(Khoury et al., 2014) By the end of the 20th century, 12 plant species accounted for 75 per cent of global food supply, and only 15 mammal and bird species accounted for 90 per cent of animal agriculture.(FAO, 1998; FAO and Bioversity International, 2010) While nutrition guidelines worldwide encourage the consumption of fish and fish oil, FAO calculates that over half (52 per cent) of global wild fish stocks are already 'fully exploited'.(FAO, 2007)

Overviews of data such as these have led to the proposition that planetary boundaries might already be exceeded or approaching limits on key sustainability measures such as the rate of biodiversity loss, the nitrogen cycle and climate change.(Rockström et al., 2009a; Rockström et al., 2009b) Never has so much food been produced in all human history, yet global food waste is 220 million tonnes a year, equivalent to the total food production of sub-Saharan Africa.(Gustavsson et al., 2011) In low-income countries, food waste occurs near the farm while consumers waste very little. In high income countries, by contrast, consumers waste up to a third of what they buy.(Gustavsson et al., 2011) In the European Union, 89 million tonnes

of food waste are generated each year, with a monetary value of about £950 (US$1,500) per tonne per household. (House of Lords EU Committee, 2014) The EU rate of waste is growing such that if not checked it will be 126 million tonnes by 2020. Across the world, growing populations and changing dietary demands which follow from rising incomes in developing countries mean competing demands on land use for housing, fuel, food, water, wood, and amenity everwhere. The United Nations Environment Programme (UNEP) estimates that, even if more land is made available for food growing, only 0.2 hectares (1,970 m2) of crop-able land per person will be available by 2030.(UNEP, 2014) Such figures have led to an intense debate about the rise of meat and dairy consumption, and in particular, about the advisability of feeding animals approximately half of all cereals grown globally.(Steinfeld et al., 2006; UNCTAD, 2013; Lymbery and Oakeshott, 2014)

Specific advice: emerging sustainable dietary guidelines

Policy responses to the evidence and to the complex mesh of problems depicted above has been disappointing, slow and patchy. Nevertheless five strands of policy response are discernible, summarised in Table 1.

The first has been to question whether this can be tackled at all. There are, for example, climate change deniers who see no problem in food's greenhouse gas emissions. Others downplay the rise of non-communicable diseases as consumers' self-inflicted harm, or not the responsibility of the state anyway. Still others argue that, even if there is a problem, the cost of tackling this all is simply too great, and that events must follow their course.(Dietz and Stern, 2008)

The second has been to see this as interesting but not the priority for food policy makers whose main task should be preventing and resolving hunger. The objective of development is to feed the hungry, and to do this with urgency, whether by raising incomes or applying technical fixes. This position does not necessarily oppose the juxtaposition of health and environment as a food policy; the priority is simply hunger eradication.

The third has been to put responsibility onto consumers, by promising (if not fully providing) tools for change within the market model such as food labelling. In the UK, for instance, a government body set up to champion carbon reduction experimented with putting a carbon label onto some products, but withdrew them after criticism and instead specialised in helping companies to improve monitoring and reduction.(Carbon Trust, 2007; Carbon Trust, 2008; Carbon Trust and Coca-Cola, 2012)

The fourth response is to reduce some environmental or health impacts by product reformulation or other means before consumers encounter the food on supermarket shelves. This strategy is known as 'choice editing', as it literally alters choice without giving the consumer the option to reverse how the choice is structured other than to purchase elsewhere.(National Consumer Council and Sustainable Development Commission, 2006) This is change by stealth, 'below the radar' of consumer consciousness.

The final strategy has been to take sustainable diets seriously, to model them and to explore how it might be used to recalibrate food systems, land use and dietary choice.(Carlsson-Kanyama, 1998; Carlsson-Kanyama et al., 2003; Carlsson-Kanyama and Gonzalez, 2009; Smith et al., 2013; Blake and Zero Carbon Britain, 2014) It is this response which has captured the attention of scientists and some state institutions, as well as civil society organisations.(Sustainable Development Commission, 2009)

Table 1 Five broad policy responses to dietary (un)sustainability

Policy position	***How manifest***	***Example***	***Rationale***	***Comment***
There is no problem; or if there is a problem is intractable	Marginalisation of the agenda associated with sustainable diets	Downplay food and climate change; or stress the costs of action	This is progress; broadly neo-liberal trust in market dynamics	Business-as-usual.
This is a rich society problem	A persistent focus on under-	The focus is on hunger; the	Retain western model of eating as	Ignores growing evidence of nutrition

	consumption / hunger	complexity of health patterns and environmental implications are downplayed	the ideal; choice, if one has little, would be progress	transition and food-related environmental problems in developing world
It is a consumer responsibility	If consumers are to make informed choices, they need help	UK Carbon label	Consumer choice depends on education; self-interest	This assumes food markets work with maximum flow of full information
Choice-edit	Product reformulation; new supply chain efficiency goals;	Smaller product size to cut carbon, packaging or calories	Corporate responsibility	Brand protection; prevention of future litigation; 'below the radar' actions
Sustainable diets	National guidelines	National eg Sweden (2011), Germany (2013); intergovernmental eg Nordic Council (2012)	Food citizenship should replace consumerism	Has cost implications; requires changed policy frameworks beyond diet, too

Source: author

These strategies have emerged within a more general discourse about the future of the food system at global, regional, national and even local levels. The 2007-08 banking and commodity crisis fanned a new concern about falling farm productivity levels, the response to which was mostly 'productionist', ie on how to increase production to feed rising populations as they changed what and how they eat. Part of this discourse focused on population as the problem, with others focussing on the impact of rising meat and dairy consumption (even in vegetarian cultures).(Lang and Heasman, 2004; Lang and Barling, 2012) Ever-rising choice and the spread of consumerism are assumed. The 21st century challenge, from this perspective, is mainly how to produce more (food) from less (land, water, animals, resources, etc). Sustainable diets, seen thus, is an after-thought, a threat to the productionist rationale. (Lang and Barling, 2012; Lang and Barling, 2013) This perhaps explains the reluctance of the 2014 UN International Conference on Nutrition (ICN2) to address the issue of sustainable diets. If so, this misses the point about the centrality of consumers as drivers of unsustainable food systems and about diet as causing huge externalised health and environmental costs.

Sustainable diets: democratic experimentation has begun

In the 2000s, some valuable attempts to produce sustainable dietary advice emerged to fill the policy vacuum. Table 2 provides examples of some official advice from five European government bodies. Table 3 provides the UK Sustainable Development Commission's 2009 *Setting the Table* advice, put separately because it provided its advice in the form of three types of impact.(Sustainable Development Commission, 2009) It explored the policy argument that there was a 'match' rather than mismatch between health and environmental advice. This was supported, too, by the Swedish 2008 inter-agency advice, and later the Nordic Council's 2012 Nutrition Recommendations, and Germany's Council on Sustainable Development (all in the bottom row of Table 1).(Nordic Council of Ministers, 2014; German Coucil for Sustainable Development (RNE), 2014; National Food Administration and Environment Agency, 2008)

INSERT TABLES 2 and 3 ABOUT HERE

Dietary guidelines set a framework at population level by which dietary intake can be evaluated. In a world where cultural rules have been eroded, mixed up, made more flexible (all of these), and in a world where food is increasingly pre-processed (and ubiquitous in rich countries), the norms for eating become more fluid. Cultural 'rules' change. The distinction between good and bad diet blurs. This is why public health advocates have developed food-based dietary guidelines (FBDGs); and why many countries have plates, pyramids or other simplified guidance based on their scientific review bodies' recommendations.(WHO, 1998) FBDGs are also used to send signals to supply chains. These should now be brought into line with environmental data on food's impact, a task that ICN2 and UN bodies could lead. The question is measured against what criteria?

Table 2: Some 'principles' from Government bodies on sustainable eating compared

Source/ country	Environmentally effective food choices (Sweden) (National Food Administration and Sweden's Environmental Protection Agency, 2009)	Sustainable Shopping Basket (Germany) (German Coucil for Sustainable Development (RNE), 2014)	Guidelines for a healthy diet: the ecological perspective (Netherlands) (Health Council of the Netherlands, 2011)	UK Green Food Project, 8 principles (Defra, 2012)	Brazilian Food Based Dieta Guidelines (Ministry of Health (Brazil), 2014)
Date	*2009*	*1990s→ 2013 (4th edition)*	*2011*	*2013*	*2014*
Lead Body	*National Food Administration & Environmental Protection Agency*	*German Council for Sustainable Development*	*Health Council of the Netherlands*	*UK Government working party*	*Ministry of Health. Brazil*
Prime concerns	*Pro health and environment to reduce climate change and promote non-toxic environment*	*To integrate advice from many sources for daily food shopping*	*Linking gains in public health nutrition to lower ecological impact*	*To combine health and environmental advice*	*To promote public health; ar to realign health and food culture*

Actual Advice	Eat less meat. Replace it with vegetarian meals; choose local meats or organic if available	Follow the food pyramid	Move to a less animal-based, more plant-based diet – this is the key advice	Eat a varied balanced diet to maintain a healthy body weight.	1. Prepare meals from staple and fresh foods
	Eat fish 2-3 times a week from sustainable sources	Eat less meat and fish but savour them	Lower energy intake, and eat fewer snacks	Eat more plant based foods, including at least five portions of fruit and vegetables per day.	2. Use oils, fats, sugar and s in moderation.
	Eat Fruit, vegetables, berries: a good rule of thumb is to choose seasonal, local and preferably organic products	Follow 5-a-day on fruit and vegetables	Eat two portions of fish a week but from sustainable sources	Value your food. Ask about where it comes from and how it is produced. Don't waste it.	3. Limit consumption of read to-consume food and drink products
	Choose locally grown potatoes and cereals rather than rice	Eat seasonally and regionally as your first choice	Reduce food waste	Moderate your meat consumption, and enjoy more peas, beans, nuts, and other sources of protein.	4. Eat regular meals, paying attention, and in appropriate environments
	Choose pesticide-free or organic when possible	Eat organic products		Choose fish sourced from sustainable stocks. Seasonality and capture	5. Eat in company whenever possible.

				methods are important here too.	
	Choose rapeseed oil rather than palm oil fats	Choose fair trade products		Include milk and dairy products in your diet or seek out plant based alternatives, including those that are fortified with additional vitamins and minerals	6. Buy food at places that off varieties of fresh foods. Avoi those that mainly sell produc ready for consumption.
	Eat fish 2-3 times a week from sustainable sources	Choose drinks in recyclable packaging		Drink tap water	7. Develop, practice, share a enjoy your skills in food preparation and cooking.
	Eat Fruit, vegetables, berries: a good rule of thumb is to choose seasonal, local and preferably organic products	Use designated certification schemes (many are cited in the document)		Eat fewer foods high in fat, sugar and salt	8. Plan your time to give mea and eating proper time and space.
	Choose locally grown potatoes and cereals rather than rice				9. When you eat out, choose restaurants that serve freshly made dishes and meals. Avo fast food chains.

					10. Be critical of the commercial advertisement o food products.

- See more at: http://civileats.com/2014/03/12/brazils-new-dietary-guidelines-cook-and-eat-whole-foods-be-wary-of-ads/#sthash.WuQF40lp.dpuf

Table 3: The UK Sustainable Development Commission's 2009 *Setting the Table*

Changes with significant and immediate impact, where health, environmental, economic and social impacts are more likely to complement each other	***Changes likely to have a significant positive sustainability impact, but where gains in one area might have a more negative impact in other areas***	***Changes which will make a smaller contribution to making our diets sustainable, with largely complementary effects across key areas***
Reducing consumption of meat and dairy products	Increasing consumption of fruit and vegetables, particularly seasonal and field grown vegetables, particularly seasonal and field grown	Reducing energy input by shopping on foot or over the internet, and cooking and storing food in energy conserving ways

Reducing consumption of food and drink of low nutritional value (i.e. fatty and sugary foods)	Consuming only fish from sustainable Stocks	Drinking tap water instead of bottled water.
Reducing food waste	Increasing consumption of foods produced with respect for wildlife and the environment e.g. organic food.	

Source: SDC (Sustainable Development Commission, 2009)

The examples given in Tables 2 and 3 indicate the beginnings of policy engagement with what would ultimately replace current nutrient-based and food-based dietary guidelines. Five sources of input are identifiable. These range from *informal* private attempts to articulate new 'cultural rules' or principles, to *semi-formal* nutrition guidelines with the weight and approval of official processes and *formal* such as Sweden's in 2008. Sustainable diet advice sources include:

- Activists. Arguably theirs was the first type of advice to emerge. The 1971 *Diet for a Small Planet* is over forty years old.(Lappé, 1971) Newer 'rules' might include those of the *Vancouver 100 Mile Diet* from British Columbia,(Smith and Mackinnon, 2007) or the *Fife Diet* in Scotland, a group of households who from 2007 committed to eat 80 per cent of their diet from food grown in Fife, their county.(Kinross et al., 2012) Many are localist or bio-regionalists and locavores, putting a premium on plant-based locally sourced food. Others are more focussed on meat reduction and eating better.(Eating Better, 2013)
- Government advisory bodies. The earliest official source appears to have been Germany's Council for Sustainable Development, which since 2003 has produced advice on food and other consumer expenditure, giving common principles and guidance (see Table 2).(German Coucil for Sustainable Development (RNE), 2014) Another is the UK's Sustainable Development Commission's (2009) *Setting the Table* (see Table 3).(Sustainable Development Commission, 2009)
- Central government. Table 2 illustrates three formal sets of advice. Sweden's 2008 advice remains the most comprehensive, created by its two national food and environment agencies.(National Food Administration and Environment Agency, 2008) It was withdrawn on a procedural basis, said by some to be from US meat industry pressure, but officially cited as due to infringing the EU's free movement of foods by recommending to eat locally and seasonally where possible.(Lang, 2012; Boyle, 2012) Brazil's 2014 nutrition guidelines give strong cultural advice formulated with the environment in mind. The Ministry of Health distilled this to three 'golden rules': (a) Make fresh and minimally processed foods the basis of your diet; (b) Use oils, fats, sugar and salt in moderation when preparing dishes and meals; and (c) Limit consumption of ready-to-consume food and drink products.(Ministry of Health (Brazil), 2014)

- Industry. The most significant illustration is that of Barilla's double-pyramid (see Figure 3), but company dietitians and advice sheets are edging into this territory.(Barilla Center for Food and Nutrition, 2010) WRAP, an industry research body has reviewed 30,000 food items, using a multi-indicator analysis, concluding that companies ought to reduce the impact of a number of especially high impact products.(WRAP Product Sustainability Forum, 2013)
- Academics. The New Nordic Diet is the output of a project run by Copenhagen University academics, and is being used to benchmark academic work and inform school meals provision in Scandinavia.(OPUS, 2009) The Barsac Declaration's focus is the nitrogen cycle.(Barsac Declaration Group, 2009) The Centre for Food Policy's eco-nutrition sought to develop social 'rules' incorporating rather than leading on health and environmental impacts.(Lang, 2007)

Simplifying policy for the post-Brundtland agenda

The notion of sustainable diets bridges aspects of food which should be brought together. These include: public health nutrition; food's impact on the environment; the economics of food; food's cultural role; food system politics as they shape consumer choice. The latter two deserve greater exploration. In a 2013 Australian study, Dixon and Isaacs found that household budget and nourishment practices took precedence over sustainability and nourishment practices.(Dixon and Isaacs, 2013) This is a reminder that policy-makers' good intentions can easily fail to engage with the realities of consumers' lives, an argument rehearsed by those opposed to the notion of sustainable diet (see Table 1). The very notion of sustainable development, the term associated with the Brundtland report, might need revision. Brundtland suggested equal and overlapping emphasis on environment, society and economy; none on its own would deliver security to future generations. Hence the much-cited definition:(Brundtland, 1987: : pg 43)

> Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts:

- the concept of **needs**, in particular the essential needs of the world's poor, to which overriding priority should be given; and
- the idea of **limitations** imposed by the state of technology and social organization on the environment's ability to meet present and future needs.

Admirable though it is and was, the Brundtland triple focus does not fit the complexity of the modern food world. Health is missing, as are important cultural dynamics such as quality, taste and social life. Culture cannot be reduced to 'society'. To fill this gap and make a more realistic policy framework for food and sustainability, the UK's Sustainable Development Commission proposed a six point approach for policy-makers, supply chains and consumers (see Table 4). This proposes food sustainability as a complex set of omni-standards or poly-values, in part to be of use in the concept of sustainable diets.

Table 4: Sustainability as a complex set of 'omni-standards' or 'poly-values'

Quality	**Social values**
• Taste • Seasonality • Cosmetic • Fresh (where appropriate) • Authenticity	• Pleasure • Identity • Animal welfare • Equality & justice • Cultural appropriateness • Skills (food citizenship)
Environment	**Health**
• Climate change • Energy use • Water • Land use • Soil • Biodiversity • Waste reduction and circularity	• Safety • Nutrition • Equal access • Availability • Social determinants of health eg affordability • Information & education • Protection from marketing
Economy	**Governance**

• Food security & resilience • Affordability (price) • Efficiency • True competition • Fair return to primary producers • Jobs & decent working conditions • Fully internalised costs • Circular economy (full recycling)	• Science & technology evidence base • Transparency • Democratic accountability • Ethical values (fairness) • International aid & development • Trust

Source: modified from SDC 2011(Sustainable Development Commission, 2011)

Arguments for and against sustainable dietary guidelines

This paper has summarised some policy considerations introduced by the notion of sustainable diets. Although data and the trend in scientific opinion favours the creation, consolidation and coherence of sustainable dietary guidelines, note should also be taken of arguments against them. One is that public health nutrition already sends complicated messages to policy-makers. To add environmental considerations (eg climate change emissions, water, biodiversity) merely heightens policy 'cacophony', where multiple messages vie for policy attention.(Lang and Rayner, 2007) Human physiology and nutritional requirements are broadly the same everywhere, so why muddle policy-makers with unnecessary complications? (The counter to this is that broadly health improvements are in line with lower environmental impacts as they recommend low meat and dairy consumption.) An even harder position is that sustainable dietary thinking actually questions the success of 20th century food systems, undermining for example the growth of meat and dairy consumption worldwide. This is an ideological position in favour of choice. A softer line is that existing Food-Based Dietary Guidelines (FBDGs) are recognised tools in policy-making and should not be undermined, as they are backed by WHO and FAO and are a useful bridge between them. FBDGs symbolise scientific knowledge's triumph over 'unscientific' cultural knowledge. There is thus no need for sustainable dietary guidelines. (The counter to this is that without integrated advice, consumers are not given clear advice.)

The positive case for sustainable dietary guidance is that the data on diet's multiple impacts are so strong that integrated advice is essential. Indeed, with the UN's Sustainable Development Goals (SDGs) being finalised,(United Nations, 2014) a policy symmetry could emerge if the 2015 SDGs were complemented by sustainable dietary guidelines: a policy 'win-win' from a 'SDGs x 2' strategy. Sustainable dietary guidelines would help narrow the evidence-policy-behaviour gap. They would enable broad goals (benchmarks) to be set for and within supply chains. They address the real problem of choice that consumers meet in the market place: what to eat as a rational consumer-citizen. They bring diverse bodies of science – natural and social – to help policy-makers, producers and consumers. They would help reset the moral and political drivers for future food systems, and provide new, exciting, practical work for institutions, governance and commerce. They provide a new basis for *public* advice.

The notion of sustainable diet raises critical issues for food and development, on how important choice is, in particular. To date, those sections of the food industry engaged with sustainable diets have tended to work within a 'choice-editing' framework.(Marks & Spencer plc, 2009) This relies on measures such a product reformulation, size reduction or ingredient substitution applied to retain sales and brand loyalty, an approach that can only be taken so far. A danger here is that this creates parallel systems of governance championed by state, private and civil society. There is a limit to how much a 'below the radar' policy approach can transform a wasteful food system; extensive change is needed to consumer behaviour and aspirations yet current policy initiatives are still tip-toeing around consumer choice. A current 'hot' policy approach in the developed economies is to articulate a 'circular (food) economy'.(Ellen Macarthur Foundation and McKinsey, 2013; European Commission, 2014; WRAP, 2014) While recognising this would be progress compared to current wasteful and over-consuming trends, the ideal of a low carbon, low eco-impact, zero waste, pro-health diet almost certainly requires significant behaviour change on a mass scale and population level.(Blake and Zero Carbon Britain, 2014) How such extensive change could occur speedily enough even to tackle climate change, let alone embedded water or the deleterious impact of ever-rising meat consumption remains to be seen. Certainly, it comes up against

decades of policy support for choice as the driver of market dynamics. Should policy now address less choice as appropriate in rich societies, while promoting more in low-income countries with restricted diets? The Royal Society's 2012 People and Planet commission proposed a dietary contract-and-converge policy approach in that vein.(Royal Society, 2012) The clarification of sustainable diets is now a frontline policy issue. The UN ICN2 conference in Rome November 2014 ought to have addressed this fully. This was the perfect opportunity to inject ecological public health thinking into what should be a showcase for 21st century nutrition and food policy. Whether UN or national governments or industry consortia or consumer organisations face or avoid the problem of sustainable diets, the issue will not disappear. A process of democratic experimentation is underway, as indicated in this paper, but would be enhanced by contributions from bodies such as global and regional levels. Methodologies, models and indicators are emerging from academia, agencies and industry but need to be brought into a coherent framework, and to move from informal to formal processes of policy creation.

Consumers also need help. As the Menus of Change programme by the Culinary Institute of America, a catering industry education body, has shown, sustainable diets need not be 'culinary hair-shirts'. The positive attributes of sustainable diets - pleasure, health, taste – are considerable and do not need to be moralised. A positive consumer message exists.(Culinary Institute of America and Harvard School of Public Health, 2013) Consumer attitudes to behaviour change are complex,(Gabriel and Lang, 2006; Defra, 2007) Vast commercial marketing and advertising budgets currently promote unsustainable food products and unsustainable dietary patterns. Civil society organisations deserve help to create nuanced and realisable messages which are both pro-consumer and helping their transition to a 21st century food citizenship. Messages on sustainable diet are inevitably a mix of tough and kind. This transition is a shared process. No-one is above it.

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