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> [Professor Tim Lang \(Infos - Mai 2010\)](#)

## Professor Tim Lang

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TIM LANG  
BA (Hons) Leeds University  
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### Positions

Professor of Food Policy  
Programme leader for doctoral programme in Food Policy.

### Work Biography

Tim Lang has been Professor of Food Policy at City University since November 2002. He was Director of the Centre for Food Policy at Thames Valley University from 1994 to 2002, before it moved to City University. He was Director of Parents for Safe Food, 1990-1994 and before that Director of the London Food Commission, 1984 to 1990. In the 1980s, he was a lecturer at Preston and Manchester Polytechnics and from the mid 1970s a hill farmer in Lancashire.

## Policy involvement

In 2006, he was appointed Natural Resources and Land Use Commissioner on the UK Government's Sustainable Development Commission. He is a regular advisor / consultant to the World Health Organisation at global and European levels. He has been a special advisor to four House of Commons Select Committee inquiries (food standards [twice], globalisation and obesity). In 2006-07, he was an advisor to the Foresight Obesity programme, and since 2005 has been a member of the Royal Institute of International Affairs (Chatham House) 'Food Supply in the 21<sup>st</sup> Century' Working Party and team. He has been a consultant on many occasions for the World Health Organisation, also for the European Commission and Food & Agriculture Organisation. In 2005-06, he chaired the Scottish NHS Executive's Scottish Diet Action Plan Review. He is a Vice President of the Chartered Institute of Environmental Health and a Fellow of the Faculty of Public Health. In 1999-2005 he was Chair of Sustain, the NGO alliance, of which he was a founder member. He has been a Trustee of Friends of the Earth and was Secretary of the Public Health Alliance, predecessor to the UK Public Health Association.

## Research Interests

His core research interests are on trying to develop a public interest analysis centred on human & environmental health, social justice and consumer rights, and analysing the tensions in food policy between competing interests from the state, supply chain and civil society. He has a long interest in exploring issues such as food security, food inequalities and the differentiation between food democracy and food control. He is interested in tensions between national, European and global levels of policy-making.

## Academic Role

He is on Editorial Advisory Boards for 3 international journals: *Journal of Epidemiology and Community Health* (since 1998), *Food Service Technology* (since 2000) and *International Journal of Agricultural Sustainability* (since 2002). He is a member of the WHO's Virtual Network of Experts on the Implementation of the Global Strategy on Diet, Physical Activity and Health since August 2005. He was a member of the Advisory Board of the ESRC / AHRC Cultures of Consumption programme, 2002-2006.

## Staff



Tim Lang [left] has been Professor of Food Policy at City University London since November 2002. He has worked widely across food and public health, as an academic, in the voluntary sector and as a consultant to local, nation and international bodies. He was Director of the London Food Commission, 1984 to 1990 and Director of Parents for Safe Food, 1990-1994. He was Director of the Centre for Food Policy at Thames Valley University from 1994 to 2002, before moving to City. [\[more\]](#).

David Barling [middle] is a Reader in Food Policy at City University. His areas of work are in food policy and political economy. [\[more\]](#).

Martin Caraher [right] is Reader in Food and Health Policy. [\[more\]](#).

## Publications

He is author and co-author of over 120 publications, including 8 books (another in preparation), numerous reports for international bodies and academic journal articles. Since 2002, he has written a monthly column in *The Grocer* as well as occasional pieces for outlets such as *The Times*, *The Guardian*, *THES* and other media.

Publications (since 2001)

## Books:

Lang T, Barling D, Caraher M (2009). *Food Policy*. Oxford: Oxford University Press

Millstone, Erik and Tim Lang, eds. (2003 / 2nd edition 2008) *The Atlas of Food*. London: Earthscan (& New York: Penguin & Paris: Autrement) (winner André Simon Food Book of the Year 2003)

Gabriel, Yiannis, Tim Lang (2006). *The Unmanageable Consumer: Contemporary Consumption and its Fragmentation*. London: Sage (2<sup>nd</sup> edition; 1st edition 1995)

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**Tim Lang** has been Professor of Food Policy at City University since November 2002. He has worked widely across food and public health, as an academic, in the voluntary sector and as a consultant to local, nation and international bodies. He was Director of the London Food Commission, 1984 to 1990 and Director of Parents for Safe Food, 1990-1994. He was Director of the Centre for Food Policy at Thames Valley University from 1994 to 2002, before moving to City University.

Since gaining a PhD in Social Psychology in 1975 from Leeds University, he has specialised in developing food policy analysis and debate in the UK and throughout the world, linking human and environmental health with issues of social justice and culture. He has contributed to the reform of UK food governance, both as a commentator and researcher. In a former life, he was a hill farmer in Lancashire, so has some practical experience of agriculture at the hard end!

Tim has researched widely in food policy, specialising in public & environmental health, trade and inequality. He is author and co-author of over 120 publications, including 8 books, numerous reports for international bodies and academic journal articles.

A major theme of his work has been the promotion of the public interest in food policy. He has strong links with the voluntary sector in which he worked for a decade (1984-94). His principal links are as chair of Sustain, the UK alliance of 100+ NGOs. He has been a Trustee of Friends of the Earth and of the Public Health Alliance, predecessor to the UK Public Health Alliance. He is a Vice-President of the Chartered Institute of Environmental Health.

Tim has been an advisor to some statutory public groups and bodies, ranging from Parliamentary Committees in London and Brussels to international agencies. Since 1996, he has been a regular consultant to the World Health Organisation. He was part of the WHO European Region's core team producing the new food and nutrition policy. With Dr Aileen Robertson of WHO and Martin Caraher at

City University, he developed, piloted and produced a training module on food policy, now developed for global use with WHO Geneva.

From 1999-2000, he was an expert advisor to the French Health Presidency of the European Union which introduced a new nutrition initiative to the EU in December 2000. In 1999, he also completed with an international team a review of the EU proposals to reform food and health procedures and to set up a European Food Safety Authority. In the 1980s he was a food policy advisor to the European Commissioner for the Environment.

He sits on the New Opportunities Fund advisory panel the 5-a-day and School Fruit Schemes and is a member of the UK Government's Dept Environment, Food and Rural Affairs (DEFRA) Organic Action Team. He was also a member of the DEFRA Horizon Scanning exercise (2001-02).

He was a member of the new Food Standards Agency's Task Force on Regulation and Small Business 92000-2001). He was a member of the Social Exclusion Unit's Policy Action Team 13 on Access to Shops (1998-2000) and was a member of two government Nutrition Task Force project teams 1994-96 one on School Meals, the other on Low Income. He has worked on food poverty and retail power for two decades. In 1995-97, he was a member of the independent Commission on Environmental Health which reviewed forward thinking on the state of health for 2020 and called for reform of health governance.

He is on the Editorial Board of the Journal of Epidemiology & Community Health, Global Change and Human Health, Food Technology Journal and the Food Magazine. He is a Fellow of the Faculty of Public Health Medicine, a Fellow of the Royal Society of Arts and a member of the Guild of Food Writers. He has published many academic articles as well as in more popular sources. He appears frequently on UK and international media. He writes widely on food matters, from the state of cooking skills and consumerism to the health and cultural impact of EU food policies.

With Erik Millstone, he is co-wrote and co-edited The Atlas of Food (Earthscan, London, 2003). With Yiannis Gabriel he wrote The Unmanageable Consumer (Sage, London, 1995). He is finalising Food Wars: the global health battle for minds, mouths and markets (Earthscan, 2003) on the impact of globalisation on food, health and culture. He currently writes a column in The Grocer as well as occasional pieces for outlets such as the Times Higher Education Supplement and other media.

In 2001 he was elected a Fellow of the Faculty of Public Health Medicine of the Royal Colleges of Physicians, one of the first group of non-medics ever to be awarded this status. He won a Caroline Walker Award in 2002.

SEE! Food Wars: the global battle for mouths, minds and markets by Tim Lang & Michael Heasman, London: Earthscan October 2004, 362pp, ISBN 185383-7024, £19.99 (UK) (jetzt in BFEL – Bibliothek) P117

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## Cooking

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## **Culture, Consumption and Markets**

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1. A [paper on 'greening' the health debate](#). This is on the interaction of Nature and Health. It is an attempt to look at the connections between health and nature, and how nature can improve health. You will all know the first part (up to page 16) as this summarises the public health situation. It is part 2, pages 16-25 which I think might interest you. This summarises evidence about the value that nature can have for improving or protecting public health. I found this very interesting. I hope you do, too.

2. A paper on the environmental costs of the food supply of one rich country, the UK. This is a paper mainly on the ['Food Miles' effect](#), the environmental aspects of the complexities of modern systems. We attempt to cost the externalized damage of UK food. I am sending you the pdf which has not got the final reference. It was just published in March in the journal: *Food Policy*, vol 30, 1, 1-20.

3. A paper by [Pretty and Hine](#) summarizing the lessons and evidence about sustainable farming and food systems and how/why they can contribute both to environmental challenge and to addressing policy. The document I am sending you gives the weblink to this full report, which is long and detailed. It addresses the issue Colin Tudge raised about the possibility of good ecologically-based farming being able to feed people, the issue Mark Wahlqvist supported. I think this Pretty and Hine summary is really important. Pretty summarized it also in his lovely little book:  
Jules Pretty (2002). *Agri-Culture: Reconnecting People, Land and Nature* 280pp £14.95 ISBN 1-85383-9256

4. The one page sheet from the London Metropolitan university team (Michael Crawford's team) is a summary on the changing composition of poultry meat. It starts with the UK evidence-based policy recommendation to eat more poultry meat back in the 1970s, and shows how changes in the composition of poultry (and other meat) undermines that advice.

Best wishes

tim

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Pretty J N, Ball A S, Lang T, Morison J I L, (2005), 'Farm Costs and Food Miles: An Assessment of the Full Cost of the UK Weekly Food Basket', *Food Policy*, 30, 1, 1-20

[Reducing Food Poverty with Sustainable Agriculture: A Summary of New Evidence](#)

Jules Pretty and Rachel Hine (full report, 136 pages)

February 2001

**Website link:**

<http://www2.essex.ac.uk/ces/ResearchProgrammes/CESOccasionalPapers/SAFErepSUBHEADS.htm>

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[Chapter 4: Empirical Findings of SAFE-World Project \(44kb\)](#)

[Figures 4, 5, 6 \(11kb\)](#)

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[Figure 8 \(6kb\)](#)

[Figures 9a, 9b \(12kb\)](#)

[Figures 10a, 10b, 10c \(9kb\)](#)

[Figure 11 \(5kb\)](#)

[Tables 6, 7 \(12kb\)](#)

[Table 8 \(8kb\)](#)

[Table 9 \(8kb\)](#)

[Chapter 5: Further Empirical Findings and Emergent Issues \(45kb\)](#)

[Chapter 6: Policies for a More Sustainable Agriculture \(29kb\)](#)

[Chapter 7: Concluding Comments \(9kb\)](#)

[References \(37kb\)](#)

[Annex A: Multiple Entry Points for Sustainable Agriculture Transformations \(14kb\)](#)

[Annex B: Some Thoughts on GMOs and Organic Agriculture \(16kb\)](#)

[Annex C: Details of Sustainable Agriculture Improvement in Thirteen Agroecosystems \(36kb\)](#)

[Annex D: Selection of Portraits of 46 Sustainable Projects and Initiatives in Latin America, Africa and Asia \(79kb\)](#)

[Annex E: Copy of Questionnaire Instrument \(18kb\)](#)

**Food Control or Food Democracy?: re-engaging nutrition to civil society, the state and the food supply chain**

Paper for 'The Future of Nutrition Science', Special issue / supplement, *Public Health Nutrition*, September 2005

Tim Lang

## Introduction

An understanding of the future of nutrition requires some clarity about the terrain, players, purpose and options for which nutritional strategy and policy are to be formulated. This paper explores three misconceptions and associated arguments about nutrition, the clarification of which might help clear the ground for a better and more realistic discussion about what nutrition might or might not do in coming years. It concludes with some recommendations.

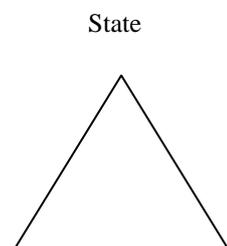
The first misconception is that nutrition is homogeneous, when it is in fact split into two broad but divergent directions. One is biologically reductionist, the other sees nutrition as located in social processes. As a result, nutrition means different things to different people. There is no such body of knowledge as Nutrition; there are Nutritions.

The second misconception is that nutrition's contribution to humanity is best delivered by providing ever more accurate evidence to inform policy. This scientific approach to nutrition has placed unnecessary strain on the social role of nutritionists. It begs evidence that policy does not work in quite that supposedly rationalist manner. Great advances in public health are sometimes made despite evidence rather than because of it. Today, nutritional advance probably requires improvements at a societal and political level not better nutritional evidence alone. Nutrition can participate in this, and help elucidate change options, but cannot deliver them. If nutritional scientists think they can achieve policy influence by piling on the evidence, they are mistaken. They have to choose between Food Control or Food Democracy. In the former, food is viewed as something to be controlled and with which to exert control over people and nature. In the latter, food is viewed as a tool for emancipation, something with which to enhance quality of living. Nutrition and nutritionists have to be clear and more open and discriminating about whom they work and help inform.

The third misconception is that choice has brought improvement and is an unalloyed advance. In fact, there is a plethora of choice and information overload, as powerful forces vie for consumer attention. Consumerism is now part of the problem not part of the solution. The 20<sup>th</sup> century food revolution has altered the terrain on which nutritional battles are fought. In the old policy régime, patrician 'top-down' information – from either nutritional tradition - could deliver change, if presented at the opportune moment (such as wars, or other emergencies when politicians are looking for solutions). In today's complex world, where once more nutrition is a 'hot' subject and where over-consumption and under-consumption co-exist, nutrition now has to compete in a different policy régime. The current policy régime is less expert-led and more consumer-oriented. This new consumerist policy régime sounds democratic but is in fact being framed by supply chain forces which are more powerful than either the state can tackle at the national level or consumers can tackle at the individual level. The consumerist policy régime cannot cope with problems such as obesity. It assumes that voluntarism and individual choice can triumph over degenerative disease, or that technical fixes can be offered in some notional marketplace. That route consigns nutritional science towards the pharmacy or bariatric medicine.

The core argument of this paper is thus that nutrition and nutritionists must choose with which domain their loyalties lie. Nutritional science, no more than any science, does not live in a vacuum, but is framed by its context. It sits in the holy triangle of food policy, fought over by competing forces: the State, Supply Chain and Civil Society (see Figure 1). Forces within each corner of this triangle compete for primacy. Currently, to take the supply chain, retailers hold power. At the State level, there is confusion between the levels of modern multilevel governance: local, national, regional or international. Within civil society, there is similarly some confusion over who speaks for civil society: is it 'ordinary' consumers through polls (but who asks the questions?) or the weekly shopping purchase (the 'consumer votes' theory (Dickinson and Hollander, 1991)) or activists such as NGOs?

**Fig 1. Nutrition as contested space between State, Food Supply Chain and Civil Society**



Into this complex policy terrain, nutrition has many possible routes of engagement; the question is with whom and for what? The paper proposes that, to be meaningful, 21<sup>st</sup> century nutrition will have to help formulate new rules or guidelines for eating, linking nutrition to other consumer demands for information, besides price, to help them choose in relation to other criteria such as process (how has the food been grown, made etc.), environment, social justice, ethics, animal welfare and more. Nutritional information is currently given to consumers either at point of sale, through labeling, or through general dietary advice such as State-approved guidelines. These are too general, and they differ; within Europe, for instance:

- the UK's Food Standards Agency recommends '5-a-day', "Eat a wide variety of fruit and vegetables and aim for at least five portions a day" (Food Standards Agency, 2005)
- The USA says it should be '7 a day' for most adults: four 'servings' of vegetables + three of fruit; (US Department of Agriculture, 2000)
- the Danish Veterinary and Food Administration and 8 other bodies including the Danish Cancer Society recommend '6 a-day': three fruit plus three vegetables, totaling over 600g per day, (Ministry of Family and Consumer Affairs' Veterinary and Food Administration, 2005)
- the Greek Ministry of Health recommends '9-a-day' (three fruit and six vegetables, "including wild greens," a rich source of antioxidants). (Ministry of Health and Welfare Supreme Scientific Health Council, 2002)

Besides the difficulty for consumers of interpreting such guidelines and their use of vague notions such as 'servings', more importantly for policy they fail to join up with other discourses. By focusing narrowly but understandably on nutrition, such guidelines create unnecessary contradictions. How for example can consumers follow common advice to eat fish when the stocks are in serious decline and when even fish-farming is environmentally hazardous? Yet there is almost as much unanimity as to the crisis of over-fishing, (Royal Commission on Environmental Pollution, 2004, Pew Oceans Commission, 2003) or at best the need only to consume certain more plentiful species. The nutrition literature is near unanimous as to fish's benefits, although there are some legitimate concerns about contaminants. (Hites et al., 2004, Jacobs et al., 2004) These are generally ignored by official nutrition bodies or pushed to one side as a relatively lower risk than not consuming the beneficial *n-3* fatty acids. The UK's Food Standards Agency stated: "[a]ll foods can carry some risks. It is a question of balancing benefits and risks. The known benefits of eating oily fish outweigh any possible risks." (Food Standards Agency, 2004) Do not consumers expect both good oily fish *and* pollutant-free fish?

Another example is the recommendation to eat ample fruit and vegetables, without considering how these are grown or whence they arrive in the consumer's mouth. The burden of growing food transportation is now considerable. Rich countries can afford to stop farming, despite having good land and climate, and import more. Also so-called efficiencies of supply chain management mean a remarkable growth in 'food miles', the distance food travels down the supply chain. (Jones, 2002, Paxton, 1994). Food in Britain today travels 65 per cent further by road than it did two decades ago due to centralised storage; a quarter of all lorry traffic is for food. The distance food travels within the food system before it is consumed illustrates the economic problem of externalities. The price consumers pay – the biggest factor in food choice, not nutrition – does not reflect the true price of production. One study has now calculated the financial burden for the UK of such externalized costs. (Pretty et al., 2005) The implications are that it is better to eat produce grown as near to the point of consumption as possible. If there is a choice between eating an organically produced food which has traveled many food miles and an intensively grown but more local one, it is best to choose the latter; the idea, in this two option scenario is to have a product which meets both considerations. Another study, looking at CO<sub>2</sub> emissions (but not costing them), found a more complex story in that localisation is not necessarily the optimum strategy for reducing CO<sub>2</sub> emissions, although distance is a clear factor. (Garnett, 2003) National policy is silent as to how such environmental or cultural considerations are to be linked to nutrition or translated into practice.

## Argument 1: which nutrition?

In recent years, nutritional science has gradually, but not necessarily irrevocably, split. As a result, nutrition means different things to different people and it might be counter-productive to try to corral all nutrition into one perspective. There is no 'real' or one nutritional canon; there are nutritions. Nutritional science from its earliest formulation has pictured itself as a progressive force, a tool for improvement and social good. Over the last two centuries, nutrition researchers have attempted to systematize knowledge which previously was cultural, i.e. relativist and lacking universality; it moved from 'folk' knowledge to 'science'. Today nutrition is highly

fragmented intellectually. It ranges across social nutrition (studying the interface of nutrition and society, for instance, differences between social groups), nutritional epidemiology (plotting the contribution of diet to diseases), biochemistry (exploring the biochemical interaction of nutrients and physiology), sports nutrition (optimising performance), animal nutrition (ditto) and psychophysiology (including the study of attitudes and food choice), and more. Nutrition, like other sciences, pulls apart at the margins. So can we speak meaningfully of nutrition?

Two broad directions or paradigms for nutrition are discernible today. One is biologically reductionist and with an interest in nutrients as key factors in individually determined health, the better understanding of which will enable diet to be tailored according to individual needs. The other is rooted in social reform and a more classical conception of public health, in which amelioration of diet, (ill)health and supply chains have to be introduced on a population-wide rather than individualized basis.(Porter, 1998, Rimlinger, 1971) This public health or social nutrition approach is now rightly being deepened by modern understanding of the environmental infrastructure for health,(McMichael, 2001) generating a new ecological conception of public health in place of ‘classical’ sanitarianism or social engineering as public health.(Lang et al., 2001)

The first direction, which Michael Heasman and I have termed the Life Sciences Integrated paradigm, is currently dominant and more generously funded. This takes nutrition down the ontological mineshaft, beyond biochemistry and into nutrigenomics.(Chadwick, 2004) This is the search for nutrient triggers of genetic pre-potential, placing nutrition as the search for ever more microscopic and refined processes. In the words of two proponents, “dietary intervention based on knowledge of nutritional requirement, nutritional status, and genotype (i.e., “individualized nutrition”) can be used to prevent, mitigate, or cure chronic disease.” (Kaput and Rodriguez, 2004) The goal of nutrition, within this paradigm, is to unlock the pathways by which diet delivers (or fails to deliver) nutrients affecting metabolism and signal transduction, and thence gene expression and either normal or abnormal cell growth; the key insight is that common dietary chemicals can affect gene structure. Unlocking genetic pre-potential will enable tailored dietary advice or nutritional cocktails to be engineered to avoid chronic diseases.

Aiming to discover more sophisticated and ‘fundamental’ building blocks or pathways, this direction in nutrition tries to unravel the complexities by which food helps or hinders physiological (re)action. Sir Frederick Gowland Hopkins’ discovery of vitamins, following his discovery in 1901 that the human body cannot create *tryptophan*, epitomizes the forensic dissection of such mechanisms governing the interaction of food, physiology and biochemistry. The restrained excitement that this engendered is captured by this quotation from Wood and Gowland Hopkins in 1915:

“The human body, though doubtless in many of its aspects something more than a mere machine, resembles the steam-engine in two respects. It calls for a constant supply of fuel, and as a result of doing work, it suffers wear and tear. The body must burn fuel in order that the heat it is always giving off may be continuously replaced; and it must burn still more fuel whenever it does work. From this necessity there is no escape. [...] It is, of course, the food eaten which provides these fundamental needs of the body; and if we are to understand properly the nutrition of mankind, we must bear in mind the two distinct functions of food – its function as fuel and its function as repair material.”(Wood and Gowland Hopkins, 1915)

The ambiguity of the last sentence is important; much hangs on by whom and how this ‘repair’ is to be delivered and defined. Although today conceiving of the body as infinitely more complex than a mere input-output machine, that core mechanical view remains and has been enormously influential; it helped enshrine a view that nutritional science can and should contribute to conceiving food as something to be controlled. This legitimises current investment such as probiotics and functional foods.(Heasman and Mellentin, 2001) These are technical fixes for disease, requiring expert-led knowledge and turning food into personalised medicine. Food production, according to this view, elides into pharmaceuticals.

The other direction for nutrition is currently more marginal, although it too has a distinguished intellectual pedigree. This direction is more concerned with the social aspects of nutrition: who eats, what, when and how, and with what effects. Social Nutrition proposes that nutritional science is rooted in social policy. Nutrition’s insights need to be harnessed to ameliorate the societal determinants of diet-related (ill)health. The solutions for nutrition problems lie less in unlocking biological pathways than in creating social environments which can deliver ‘correct’ balances. Nutritional science can and should contribute to social rather than individualized interventions. Change society, and nutrition will follow.

The clash between these perspectives - personalised versus societal change - was part of the reason for the tension over the 2004 WHO Global Strategy on diet, physical activity and disease.(WHO, 2004) The roots of both approaches are deep. James Lind’s ‘cure’ of scurvy for the British navy by adding citrus fruit to the diet was

not just philanthropic;(Drummond and Wilbraham, 1958) it was driven by the urgent need to improve navy efficiency and to protect colonial expansion and trade routes. Equally, early 20<sup>th</sup> century social reformers such as Seebohm Rowntree researched and argued the case for better food for the working classes who worked in his factories partly on efficiency grounds; having good food in workplace canteens reduced incentives not to return to work after lunchbreaks.(Rowntree, 1921) Throughout Europe in the early 1900s, interest in diet and health partly stemmed from eugenicism, a fear of what might happen if national breeding stocks deteriorated. Diet and social Darwinism have historically been close.

Nutrition is, and often has been, a battleground with some forces seeing and using nutrition as an opportunity for social control and others arguing that it could either constrain or liberate human potential. This tension between social control and democracy – ‘top down’ science versus people-oriented science –still characterises the world of nutrition. W. O. Atwater, the influential US nutritionist whose late 19<sup>th</sup> century thinking framed much early 20<sup>th</sup> century US, and indirectly, European conceptions of the nutrition challenge, was an early critic of the American diet, but he also pursued a mechanistic approach to understanding food as fuel in physical labour. He calculated how much or little nutrient intake was required by different grades of manual workers, according to whether they were engaged in moderate or heavy work.(Atwater, n.d.) He and other researchers produced estimates of the protein, fat and carbohydrate required of workers with light, heavy and moderate work.

Atwater’s work was taken up east of the Atlantic by B Seebohm Rowntree, scion of a giant UK chocolate dynasty (a firm now owned by the world’s largest food company, Swiss-based Nestlé). Rowntree conducted both domestic and industrial surveys in his home town of York based on Atwater’s and similar nutritional calculations of need, throughout the first half of the 20<sup>th</sup> century.(Rowntree, 1902, Rowntree, 1921, Rowntree, 1941, Rowntree, 1913) Rowntree used Atwater’s minimalist approach to nutrition to ensure that in the UK’s stringent social times, no-one could accuse him of over-estimating or over-indulging the needs of the poor. By taking low standards, he argued, the finding that so many in the UK experienced real food poverty, made his findings all the more shocking. Although a liberal philanthropist, Rowntree’s use of nutrition was still that of the ‘top down’ planner.

A century on, the two traditions – life sciences integrating nutrition and social nutrition – offer divergent recipes for the future. One pursues technical change to deliver private compensation for the world’s nutritional ills. The other argues that the world’s nutritional ills cannot be resolved unless societies themselves change. Environmental challenges are concentrating the minds of both.

## Argument 2: the gap between evidence and policy

The second misconception is that nutrition’s contribution to humanity is best delivered by providing ever more accurate evidence to inform policy. This scientific approach to nutrition has placed unnecessary strain on the role of nutritionists. It begs evidence that policy does not work in quite that rationalist manner. The gap between evidence and policy cannot be resolved by piling on ever more evidence, but by being clearer about what the questions are to which society needs answers. This begs the question, of course, as to who and what defines ‘society’.

The theoretical ideal of the relationship between evidence and policy is what we might call a *mutually self-improving relationship*. In this there is a continuous virtuous circle in which: (1) evidence informs policy; (2) policy feeds the search for evidence; (3) there is mutual benefit from repeated feedback; (4) policy is based on best evidence; and (5) data synthesis is best conducted on a systematic basis. One plea for more evidence-based policy in nutrition has argued: “[e]vidence-based nutrition is the application of the best available systematically assembled evidence in setting nutrition policy and practice.”(Brunner et al., 2001)

The evidence-based approach to policy has huge professional appeal to those with scientific training or aspirations. One has argued: “[d]espite some groups using evidence based policy as a fig-leaf, it seems difficult to argue with the idea that scientific research should drive policy.”(Black, 2001) But the role this ascribes to the researcher is of seller awaiting a buyer, “a retail store in which researchers are busy filling shelves of a shop-front with a comprehensive set of all possible relevant studies that a decision-maker might some day drop by to purchase.”(Lomas, 2000) Is this pursuit of evidence-based policy therefore an admirable mirage, a rational appeal, influenced by medical debate, about the inappropriateness of following practices unless they are properly *based on science*, with the Cochrane Collaboration approach as the *gold standard* for evidence into practice? Systematic and rigorous reviews of healthcare interventions, based on peer-reviewed journals (shedding ‘grey’ literature) may be an ideal for surgery, but societies are not surgeries, except for dictators. Nor is the ideal cycle

of ever-improving relationship of research to policy what happens in the real world of nutrition policy. This is for a variety of reasons.

The first is politics; the Government of the day may oppose the evidence, as it does not fit ideology or other commitments. Most countries have such experience. In the UK, a well d-documented case was the burying of the Black Report on Inequalities in Health in 1980, requested by a previous 1974–79 Labour Government. Sir Douglas Black, a distinguished physician, and colleagues summarised the data on the impact of inequalities on public health and made proposals on how to tackle it, including strong recommendations on public food, such as school nutrition. The incoming Conservative Government, which received the report, did not like it, published only 500 restricted copies and refused to act on it. A scandal ensued, but policy remained opposed to the evidence. The dynamics were repeated with another report a few years later. (Townsend et al., 1990) Such politics have been documented for the USA. (Nestle, 2002)

The second factor can be lobbying, where an interest group works actively to stop the implications of evidence being turned into policy. This process may never be in public. In 2002-04, the sugar industry of the USA lobbied hard within the US Government to encourage the USA to weaken or slow the WHO's proposed Global Strategy on Diet, Physical Activity and Health, based on the joint WHO-FAO report 916. (Sugar Association (USA), 2003) In 1982-84, a not dissimilar attempt to deflect the implications of evidence for nutrition education was documented in the UK. A government-approved health education strategy working party was torn apart after it emerged that powerful elements of the processed food industry (sections selling processed, salty, fatty, sugary foods) tried to weaken the report and health education strategy being proposed. (Walker and Cannon, 1983) This lobby in fact back-fired and led to a sharp rise in public awareness, but no change in policy.

Should nutrition scientists therefore give up trying to make policy more evidence-based? No! But there has to be better expectation, as well as realisation of policy-making processes. A number of policy-evidence relationship can be identified:

- Policy in search of evidence.
- Policy without evidence.
- Policy with out-of-date evidence.
- Policy lagging behind evidence.
- Policy with partial evidence.
- Policy denying evidence.
- Evidence in search of a policy.
- Policies all with evidence which all conflict.

Building on this typology, we can propose three preliminary and broad categories of the policy-evidence relationship in food policy (see Tables 1, 2 and 3). These are focussed on the UK / Europe, for illustration.

Even if the rational-scientific ever-improving cycle of evidence and policy did dominate, limits are built in to the policy production cycle. Policy-makers have relatively short time horizons, often driven by electoral cycles. Researchers have longer time horizons, but they too are often dominated by demands for funds, high-status outputs, and the manufacture of reputations. Meanwhile, practitioners – whether parents feeding children, dietitians offering advice or farmers growing crops - are forced to deal with the immediate. In fact, only those with power, have the luxury of surveying all time zones. Today, there is little doubt that the power brokers are the retailers.

Although there are differences between levels of economic development, the global emergence of retail power is marked. (Reardon and Swinnen, 2004, Hu et al., 2004) They are the main (some argue almost sole) gate-keepers between supply and consumption. (Dobson et al., 2003, Dobson et al., 2001) The food sector is characterised by unprecedented concentration; ever fewer companies dominate dynamics. The process is advanced in Europe, but happening world-wide. (Heffernan et al., 1999) Prior to EU enlargement, one 2003 study showed how in the 15 member states, there were 3.2 million farmers feeding 250 million consumers, via 170,000 outlets, from 88,600 processors and manufacturers but this supply and demand was funnelled through only 600 supermarket chains with 110 key buying desks. (Grievink, 2003) This picture occurs in specific commodities too; three companies,

for instance, have over 50% of the Brazilian soya feed trade to Europe, too. (Vorley, 2004) Contracts and specifications are the control mechanism, not state regulations. In fact, a dual system of regulation and governance has emerged: the state's and corporations' sometimes in harmony, sometimes in tensions, sometimes merely operating in different spheres. (Marsden et al., 2000)

To summarise, in the real world of policy, the policy-evidence relationship can be complex and policy-making can be political (some would argue that this is inevitable). But it is possible to unravel both the experience and desirability of clearer relationships between evidence and policy. Nutritional science should be more discriminating, and as is argued below, get better lobbies, more focussed and better organised itself. Policy-making is always in transition. There is never a policy vacuum; the world cannot be frozen pending the discovery of evidence to inform it.

### **Argument 3: good nutrition can be delivered by consumer demand**

The third misconception is over nutrition's relationship to consumerism. Since the early to mid 20<sup>th</sup> century, the period which enshrined the productionist paradigm – for which nutritional evidence was so formative (Boyd Orr, 1943, Smith, 1996) - the structure of the food economy at national and international level has become remarkably different. There have been changes from farm to plate in:

- how food is grown – for example, mass use of agrochemicals, hybrid plant breeding; (Goodman and Redclift, 1991)
- how animals are reared – for example, factory farms, intensive livestock rearing, prophylactic use of pharmaceuticals to increase weight gain; (Clunies-Ross and Hildyard, 1994)
- a shift in scientific focus from chemistry to biology – for example, the emergence of bio-technology as applied to plants, animals and processing; (Goodman et al., 1987, Fowler and Mooney, 1990)
- food sourcing – for example, a shift from local to regional and now global supply points, with a blurring of the notion of seasonality and a tendency to monoculture on the farm belying the biodiversity on the supermarket shelf; (Friedland et al., 1981, Barrett et al., 1999, Dolan and Humphrey, 2000)
- forms of processing – for example, use of extrusion technology, fermentation, wholesale use of cosmetic additives to disguise products and yield consistency; (Millstone, 1986)
- use of technology to shape quality – the goal of mass production to deliver consistency and regularity (uniformity) is now focused on the development of niche products with 'difference'; (Heasman and Mellentin, 2001)
- the workforce – what, where and how labour works; there has been a dramatic shedding of labour on developed world farms but a retention of pools of cheap labour (immigrants) to do the manual tasks such as grading and picking; there is also a strong push to 24-hour working; (Lawrence, 2004, Feder, 1977)
- marketing – for example, a new emphasis on product development, branding and selling; this has accompanied a dazzling display of apparent choice, with thousands of products vying for consumer attention; (Hawkes, 2004, Thrupp, 1995)
- retailers' role – they have emerged as the main gateways to consumers, using contracts and specifications to gate-keep between primary producers and consumers; retailers are the new food powers; (Raven and Lang, 1995)
- distribution logistics – for example, use of airfreight, regional distribution systems, 'trunker' (heavy lorry) networks, satellite tracking; (Hughes, 1994, Trienekens and Zuurbier, 1996)
- methods of supply chain management – for example, centralisation of ordering, application of computer technology, application of batch /niche production to mass lines ('flexible specialisation');
- moulding of consumer tastes and markets – for example, mass marketing of brands, the use of product placement methods, huge investments in advertising and marketing and the targeting of particular consumer types; (Ferguson, 1992)
- level of control over markets – for example, rapid regionalisation and moves towards globalisation, and the emergence of cross-border concentration. (Vorley, 2004)

The dynamics of this restructuring are highly significant for nutrition science because these are the drivers of what food is eaten, how much is paid, the range of nutrients taken, the cultural meaning of food, and the ecological impact of the mode of production, in short the entire shape of nutrition that nutritionist monitor. As a result, nutritionists are like epidemiologists counting the bodies as they fall off the cliff, studiously refraining from engaging with the forces that shepherd the process. Nutrition is consigned endlessly to monitor the implications of actions taken by others, with little regard or a partial regard to nutrition, cherry-picking rationalisation that suit commercial or 'market' realities. The extensive use of trans-fats in bakery products by

the processing industry is an example; nutritional evidence is now clear that what was good for shelf-life, cosmetic appearance, olfactory sensation (taste) and price can be undesirable for health.

The enormity of the 20th century transformation of nutrition's terrain by the adoption of the productionist paradigm, ironically in part due to nutritional evidence calling for policy change, has created a new policy challenge. The old mantras were 'raise output', 'go for quantity', 'lower price', forming productionism's policy 'equation' as follows:

Science + Capital + State Support (finance + policy) → increases production, which if distributed appropriately → health + well-being

Efficiency, managerial control, new technologies and processes, replacement of labour by machinery, and more, had all increased outputs in line with what nutrition had suggested. The result is a more complex, messier world, with contrary trends within the food system: global versus local; hi-tech versus low-tech; simple versus complex diets; ready-made versus 'fresh' foods; individualised versus population approaches to health; and so on. These divergent trends are summarized in Table 4. There is a tendency for the food supply chain to move to the left hand column rather than the right hand one. What might replace the old productionist policy régime is explored elsewhere, with various arguments being proposed. (Tudge, 2004, Lang and Heasman, 2004, Coleman et al., 2004)

A number of features of early to mid 21<sup>st</sup> century are likely to be significant; these certainly include:

- Oil, on which the efficiencies of productionism depend. (International Energy Agency, 2003)
- Water, availability of which is already poor and likely to get patchier. (Clarke and King, 2004)
- Climate change, which is likely to reshape what is grown, where. (Intergovernmental Panel on Climate Change, 2001)

Another issue is rural labour. Who is to grow the food of the future? Over past 50 years the number of actual farmers has declined by 86% in Germany, 85% in France, 85% in Japan, 64% in the USA, 59% in Korea and 59% in the UK. In the USA there were close to seven million farms in the 1930s, but less than 1.8 by the mid-1990s. Today in the USA there are more full-time prisoners locked up in gaol than full-time farmers, less than 1% of the population. (Halweil, 2000) In what will be the greatest movement of people in history, the Chinese government intends to move an estimated 530 million people from country to town in coming decades. Remaining rural labour might become more conventionally efficient, but what about the social dislocation or the environmental impact? (Gulhane, 2004) This urban population increased from 72 million in 1952 to 370 million in 1997, but the plans for 2020 will take that urbanised population to 60%. (Dickie and Kynge, 2003)

## Conclusion

It is a myth that nutrition was ever neutral; on the contrary, this paper argues, nutrition has only made advances when engaged with society. Policy-makers have been weak in responding to evidence from nutrition, but in part this failure has been due to nutrition lacking good champions, coherent organization, political will to lobby alongside and against powerful forces, as appropriate. There have been long-overdue but welcome stirrings around the WHO/FAO Technical Report 916, and the accompanying Global Strategy on Diet, Physical Activity and Health. Rising awareness of the global obesity epidemic has helped 'shock' nutritional scientists into coming out of 'neutrality'. Divergent solutions – drugs, diets, bariatric medicine, better lifestyles – cannot mask the problem, nor the structural contribution made by the food supply chain. The emergence of supermarkets, accessible only by motorized transport actively shapes people's capacity to build exercise into daily life. Obesity, too, has provided evidence of institutional failure, the complexity of multi-level government - local, sub-national, national, regional and global...all at the same time seemingly aiding the inability of nutrition progressives to tackle commercial domination of food culture through advertising. The two leading commercial ad-spend budgets of the world each spend \$1.7 billion a year, vastly more than the entire health education budgets of governments.

Faced with this reality, what can nutrition scientists do? They must get tougher and more active. They need to be better organized. They need to stop being so locked into 'science' and 'evidence' mode. They need to argue for more regulation. They need to learn from the best NGOs and, for all its differences, learn from the experience of tobacco. The evidence piled up for half a century, but it took campaigns to win policy chain. Where is the nutrition 'greenpeace', prepared to go out on a limb, arguing the unpopular case for protecting the seas? When is nutrition going to create a 'Nut-peace'? Or the consensus documents, with lobby to boot, parallel to the policy work of the International Panel on Climate Change?

There is a strong case to be made for nutrition science becoming more open and more partisan, and for being more discriminating about whom it might work and help inform. Nutritionists can choose between Food Control, in Sir William Beveridge's resonant phrase, (Beveridge, 1928) or Food Democracy. (Lang, 1998) Rather than seeing outside demands as 'polluting' pure nutritional science, it might be more appropriate to conceive them as an opportunity to rebuild diversity within and about nutritional research and thinking.

**Table 1. Examples of where evidence leads to policy response**

Type of <i>policy-evidence</i> relationship	Example
Policy with evidence	Loss of European public's trust in the European Commission led to creation of European Food Safety Authority; similar processes in other EU Member States.
Policy without evidence	Welfare benefits are assumed to cover real food costs.
(Weak) policy despite evidence	Alcohol reduction can be met by health education.
A policy with patchy or partial evidence	Fluoridisation.
Policy with out-of-date evidence	The Common Agricultural Policy which assumed (understandably in the 1950s, fresh from World War II and ravages in European farming) that the problem for policy to address was deficiency/under-production. Another example is UK management of shellfish, in contrast to France's régime.
Policy claiming evidence	Health education's belief that it will improve food habits in the face of mass food industry marketing and advertising.

**Table 2 Examples of policy appearing not to be in response to evidence**

Type of <i>non-policy-evidence</i> relationship	Example
Evidence in need of policy	Obesity on which, despite masses of evidence, there has been little policy.
Rhetorical policy despite strong evidence for active policy	Inequalities of income have proven impact on health. Dietary guidelines.
Evidence with little policy (i.e. where there is silence despite evidence)	Salt.
Evidence leading to partial policy	Alcohol policy 'Consume wisely'.
Supposedly strong evidence with pragmatic but low policy response	Fruit and vegetable intake 5-a-day campaign. Should this be far more: 6 or 9-a-day?

**Table 1.3 Evidence in line with policy**

Type of <i>up-to-date</i> policy-evidence relationship	Example
Practice informed by evidence	Diabetes – diet modification.
“ ”	Hazards Analysis Critical Control Point (HACCP) applied in the food supply chain to tackle food safety, leading to reduction of key foodborne pathogens
“ ”	Nutrition labelling can be used effectively to alter behaviour (but on its own, it cannot transform national diets).

**Table 4 Dimensions of the modern food system**

<i>Sector</i>	<i>On the one hand....</i>	<i>On the other hand...</i>
Policy goals	Intensification	Extensification
	Quantity	Quality
	Food control	Food democracy
Farm	Animal-focussed	Plant-focussed
	Large farms	Small farms
	Labour replacement	Labour retention
	Monoculture	biodiversity
	Long-distance food	Local food
Processing	Assembly	cooking
	Factory cooking	Home cooking
	De-skilled / machine-minder	Skilled / artisanal
Culture	Hypermarket	Street market
	Global food	Regional food
	Fast food	Slow food
	Consumerist	Citizen
	Advertising / marketing	Education
Nutrition	Nutrient-lite	Nutrient-rich
	Domination by cheap commodities such as sugar and fat	Nutrient diverse
	Individualized approach to health	Population approach to health
	Nutri-genomics	Social nutrition
Economy	Food prices do not include externalized costs (e.g. health, environment)	Full-cost accounting
	Cheap / low prices	Expensive/high prices
	Industrial / post-industrial	Craft / industrial

**Table 5. Different approaches to food and health policy, by paradigm**

<i>Policy focus</i>	<i>Productionist Paradigm</i>	<i>Life Sciences Integration Paradigm</i>	<i>Ecologically Integrated Paradigm</i>
Relationship to general economy	Trickle down theory; primacy of market solutions; inequality is inevitable	Corporation-led due to need for large private sector science budgets	Population approach via real stakeholder consultation; health as economic determinant; inequalities require societal action
Direction for health policy	Individual risk; reliance on charity; safety is prime concern	Public-private partnerships; personal insurance; safety and nutrition some concern but approached by risk management and hazards control	Social insurance including primary care, welfare and public health services;
Approach to diet, disease and health	Implicit acceptance of societal burden of disease; inability to act on problems of over- and under-nutrition	The right to be unhealthy; a medical problem; individual choice is key driver; demand will affect supply; niche markets	The right to be well; entire food supply geared to deliver health
Food Business	Commodity focus; industrial scale ingredients and processing; costs of ill-health not included in price of goods;	Commodity focus with niches; underpinned by public costs but subject to pressure to shift costs from public to private;	Costs internalised where possible; needs to develop more robust mass production controls; emphasis on 'natural' products and processing;
Environment	Tendency towards monoculture; limited consideration of costs; pressure on resources to produce food; <i>ad hoc</i> adjustment; industrial chemical dependency	Reinforces monocultural tendencies but some rhetorical concern about diversity; gradualist; acceptance of importance; hi-tech industrial approach to problems; tries to reduce industrial chemical dependency	Biodiversity at heart of thinking; works with ecological assumptions; development of robust ecological systems; minimised industrial chemical use
Consumer culture	Individual responsibility; self-protection; consumerism dependent on willingness to pay as consumer;	Access and benefits according to capacity to pay;	Societal responsibility based on a citizenship model; defined rights as citizenship; authentic stakeholder involvement
Role of the State	Minimal involvement; avoid 'nanny state' action; resources are best left to market forces	Balance of public and private sector; rhetoric of minimal state accompanied by strong state action in some sectors; enabling regulation	Sets common framework; provider of resources; corrective lever on the imbalance between individual and social forces

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