

17th January 2017: Taking a Global View



Research gaps

The witnesses examined the relationship between the human diet and environmental and health impacts. After stating the nature and scale of the problem they offered some suggestions for effecting change through technological, systems and policy approaches at the point of production and consumption.

[Dr Michael Obersteiner](#) emphasised that optimising agricultural practice can have a greater environmental impact than dietary changes. For example, a global scenario in which algae was grown with saline water in the desert to feed livestock (combined with a circular economy around manure) would lead to positive indirect land-use change: land is freed up for harvesting biomass, soil amendment and carbon capture sequestration, and water is saved through reduced irrigation. Theoretically you could meet the 1.5° climate change scenario and feed double the current population. Nonetheless, human behaviour regarding diet is also important, particularly for personal health. In this area, information through digitalisation will have a larger impact on consumption patterns than on the optimisation of agriculture. More research is needed regarding precisely what nutritional factors are best for us so this can be compared with environmental impacts, how to convey this information reliably to citizens and how policy can interfere and guide people towards a better diet.

[Dr Marco Springmann](#) explained a dual problem whereby current animal-based diets are unhealthy and there are unsustainable greenhouse gas (GHG) emissions from our food system: factoring in land-use change, global emissions budgets will be exceeded through food production alone by mid-century. Shifting towards plant-based diets would help alleviate both issues and is largely accepted as necessary. How do we do that? Traditionally GHG taxes on food commodities are considered to negatively impact food security, but this is not necessarily the case as changes in consumption may shift unequal global weight distribution, and high emitting food groups (such as red and processed meats) can be targeted. Tax policy must be designed in a health sensitive manner, such as using revenues for fruit and vegetable subsidies or offsetting income losses. However, more research and case studies is needed to inform policy, as well as modelling studies that factor in industry and multinational companies and increase the number of environmental and economic indicators.

[Professor Sumantra Ray](#) pointed out that humanity is currently undergoing a nutrition transition and currently there is a triple burden of malnutrition through diseases of undersupply, oversupply and specific micronutrient deficiencies. These issues tend to be considered separately despite the fact they can all occur at a population (developed/developing), family and individual (through life course) level. There is a massive, and fluctuating, evidence base regarding the potential of diet through nutritional pathways (and agricultural or food production nutrition), but this is not being translated to positive health outcomes. Unable to access or digest this information, individuals revert to default behaviour. Accountable and regulated knowledge brokers, namely healthcare professionals, need to be trained and empowered to aid people in making informed dietary choices. Studies are needed that follow such processes through to the health outcome.

Wicked problems and questions generated by the open discussion:

How can we communicate research in a way that influences individual behaviour? This was the key question highlighted by all the speakers and the ensuing discussion. There are a number of communication filters between research and the individual that can alter or confuse messages about dietary practice: impenetrable policy documents; biased or flawed knowledge brokers, such as the media; the challenge of communicating dynamic evidence-based research; and industry pressures. We know enough about the human diet to ensure healthy and environmentally positive outcomes, but not how to communicate this in a way that influences behaviour. We need better regulation and public health advocacy to combat these problems.

What is the best policy approach to influence change? Taxing food to cause a price increase is one option although this is unpopular with policymakers. Any tax needs to be supplemented by a range of other factors such as advertising to communicate the purpose of the tax and subsidies for healthier and more environmentally



efficient products. Subsidies alone can have unintended consequences, such as increased overall food consumption leading to negative outcomes.

Where is change needed most? Taxing the industry or the point of production can serve a different purpose than taxing the individual or point of consumption. It is potentially more efficient to tax consumption and may have a greater impact; however, it is clear that effecting change in both areas is necessary.

How do you unpick which factors ultimately have the most significant impact on human behaviour? In pre-existing cases there are often a huge range of interventions that have led to change, so trying to isolate one factor is difficult. A holistic, whole systems approach is required. **What other factors affect what we eat?** The science of taste and how this interrelates with behaviour could be important and it, along with other research areas, needs to be incorporated into a genuinely multidisciplinary discussion. Food is culturally important and behaviour will not be changed simply by communicating health or environmental messages.

How do we account for rebound effects? Better dietary practice leads to a reduced mortality rate which can have a negative impact on the environment; subsidising healthy foods allows consumers to buy other products which will have their own environmental impact. Studies need to be mindful of conflicting aims and the dual problem of human health and environment health needs to be considered as one.

Is change always necessary? Sometimes maintaining the status quo is just as challenging as catalyzing change. Areas where there is already a healthy diet with sustainable local agriculture need to be protected from the encroachment of more harmful global practice.

Witness profiles

Dr Michael Obersteiner

Program Director of the Ecosystems Services and Management (ESM) Program, International Institute for Applied Systems Analysis (IIASA).

Michael joined IIASA's Forestry Program in 1993 and has led the Group on Global Land-Use Modeling and Environmental Economics since 2001. His research experience stretches from plant physiology and biophysical modelling in the areas of ecosystems, forestry and agriculture to environmental economics, bioenergy engineering and climate change sciences. During the past decade he has been the principle investigator at IISA of more than 30 international projects as well as coordinating three EU FP6/7 projects. He has been a consultant for national and international organisations, including the EC, WWF and OECD.



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Dr Marco Springmann

James Martin Fellow, Oxford Martin Programme on the Future of Food, Post-doctoral Researcher, Department of Population Health, Oxford University

Marco currently works with researchers from the Nuffield Department of Population Health, the Department of International Development and the Environmental Change Institute to develop an integrated model of environmental sustainability, health and economic development in order to analyse the effects of current and future policy approaches. His interests include the policy analysis and questions related to sustainability, and his doctoral research focused on the distributional impacts of national and global climate policies and on options for integrating the responsibility for consumption-driven greenhouse gas emissions into policy-making.



Professor Sumantra (Shumone) Ray

Founding Chair and Executive Director of the NNEdPro Global Centre for Nutrition and Health – Senior Medical Advisor and Head of the Volunteer Studies and Clinical Services Facility, MRC Elsie Widdowson Laboratory, University of Cambridge

Shumone is a licensed medical doctor and registered nutritionist with special interests in cardiovascular disease prevention and medical nutrition education. His posts also include, amongst many others, UK National Diet and Nutrition Survey lead clinician (Honorary Consultant in Nutrition with Public Health England), University of Cambridge Senior Clinical Tutor, Honorary Senior Clinical Fellow at Addenbrooke's Hospital, Cambridge, Fellow of the Higher Education Academy, a task force member of the British Nutrition Foundation and being an external reviewer for the European Food Safety Authority and WHO.



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