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Food Security and Climate Change Mitigation

Workshop Report

Introduction

On 19 June, ClimateXChange hosted a workshop on food security and climate change mitigation. The event highlighted the key food security issues likely to influence policy development, and explored how these relate to our emissions reduction objectives. The question of how we achieve the right balance between food security and climate change mitigation was identified as a key policy challenge for Scotland, and indeed for societies across the world.

The workshop was attended by representatives from the following teams in the Scottish Government: Climate Change (mitigation); Food and Drink; Environment Social Research; Low Carbon Behaviours; Scientific Advisers (Food and Crops), Economic advisers, Ecological advisers, and representatives from the Food Standards Agency and the James Hutton Institute.

Conclusions

- Solutions for balancing the global needs for both food security and climate change mitigation lie in better land use planning, reducing waste and changing diets.
- Better insight is needed into how best to effect social and behavioural change related to food production and consumption.
- Nutrition security remains key to public health and should be a condition for any policies impacting on food supply and consumption, including climate change mitigation actions.

Presentations

The workshop began with short presentations by four leading experts. These are summarised below[1].

Prof Tim Benton, UK Champion for Global Food Security & Professor of Ecology, University of Leeds

Tim Benton set out the key themes on the future of food supply and demand. One critical socio-economic trend is the growth in the global middle classes, from 1.8bn now to about 5bn by 2030. Added to this is overall population growth and increased urbanisation; demand for food has been estimated to be 60% greater by the middle of the century.

At the same time, there are increasing constraints on supply. Globally, there is virtually no new agricultural land available, and there are increasing demands for land from other economic activities. There are growing constraints on nitrogen fertiliser usage, pesticides and especially water. 50% of people alive today are only here because of nitrogen fertilisers. By 2050, 50% of the world's population will be water poor. Climate change will impact on global production through increased extremes of temperature and greater frequency of extreme weather events. The same weather phenomenon can be very large scale: in a bad year we could see a 20-30% drop in global food production.

[1] Slides from the presentations are available on the ClimateXChange website www.climatexchange.org.uk

There are trade-offs between yield, sustainability and biodiversity and we cannot optimise for all three at once. In this complex system of trade-offs, do we actually know who has the power to effect change? Solutions seem to lie in better land use planning, reducing waste and managing diets. However, the levers for change are not well understood, particularly social and behavioural change.

Prof Pete Smith, Professor of Soils & Global Change and Science Director of ClimateXChange, University of Aberdeen

The 1996 World Food Summit defined food security as: "when all people, at all times, have physical and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life".

To meet rising food demand, we need to produce more food globally. This needs to happen on existing agricultural land if we are to avoid disastrous climate and biodiversity impacts. Agriculture accounts for between 17 and 30% of global GHG emissions and there is significant scope for reductions. Options that co-deliver improved food security and GHG mitigation, such as increased production efficiency, do exist. But demand-side measures such as changed diets and waste reduction must also play a role. Research suggests dietary change could significantly reduce food-related emissions. However, demand-side options are under-researched; there is a pressing need to better understand food behaviours and how these might be influenced.

Prof Richard Tiffin, Director, Centre for Food Security, University of Reading

The projected growth of the urban population in developing countries is the major demand-side driver of global food prices. The average per capita demand for meat is set to rise 28% by 2050 (this figure is 143% for South Asia). We expect to see rises in all agricultural commodity prices by 2050, with some prices increasing dramatically.

Whilst on average the impact on the UK consumer from global commodity price hikes is not significant, this overall picture masks some significant negative impacts on the most vulnerable UK households. The ability of the lowest two deciles of the UK population to eat a healthy diet in a world of higher global food prices is an issue that needs to be addressed.

We should remain open to the chance that our models are underestimating global productivity: there may be more scope for growth than is being predicted.

Many of the issues around food security and climate change centre around the 'Protein Puzzle': how can we ensure everyone gets enough (of the right kind of) protein despite the constraints on expansion of livestock production and pressures on global fisheries?

Prof Paul Haggarty, Head of Lifelong Health, Rowett Institute of Nutrition and Health, University of Aberdeen

The poorest in society have the lowest levels of nutrition. And absolute levels of poverty are rising. There are also key life stages (notably babies in the womb and children's early years) when nutrition is critical and when even very short term food insecurity can have a lifelong impact. Policies that seek to increase sustainability of agricultural production need to take nutritional effects into account. For example, local sourcing of food may not provide an optimum nutritional balance; and eating more oily fish may not in fact improve health if the fish have been fed on cereal-based feed. Solutions may not impact evenly across all income groups and some measures may miss their intended target unless all potential consequences are properly explored.

Population Health could be a better driver for policy than sustainability: consumers seem to respond better to health messaging around food than they do 'green' messaging. A healthy diet (such as the LiveWell diet) hits both health and climate objectives, and costs no more than a current average diet.

Discussion

The following points were raised in the discussion between workshop participants that followed the presentations:

- A key factor driving the global increase in demand for food and the increasing pressures on the food system is urbanisation. City populations have different dietary preferences to rural communities. Notably, there is a trend towards higher meat consumption.
- Behaviour is a critical issue. We need to change our relationship with food. For city-dwellers in developed countries, the food system is built around convenience and low prices. There is a lot of waste built in to this system.
- Food waste avoidance should be a high priority.
- Pricing alone will not change diets. Food consumption has been shown to be remarkably inelastic. And price increases are regressive, impacting on the poorest most and therefore having a potentially significant health impact on already disadvantaged households.
- If we reduce the intensity of UK agriculture, or switch to lower emissions land uses domestically, whilst maintaining our consumption levels, we will simply be exporting emissions overseas. Production in the UK is at the high end of the efficiency scale: our agriculture, and in particular livestock production, is highly efficient relative to many other countries. We need instead to increase the efficiency of agriculture in countries with less efficient agricultural sectors, particularly some developing countries. And, the corollary of this, we can seek to reduce consumption at home whilst directing our carbon-efficient production more towards export.
- Government can do more through procurement to encourage a healthy diet, which in turn will be a lower emissions diet. Local authorities, the NHS, educational institutions etc. should make food one of their corporate objectives.
- Defining the right wider role for the state in this area is challenging. There seems to be a lack of political will to tackle the complex issues around food security and mitigation head on. Perhaps public perceptions need to change first, to create the political space for more ambitious action. But behaviours seem slow to change even in the face of compelling evidence.
- Government is likely to need to increase its focus on food as an issue in the coming years.
- Food security presents complex, multi-faceted challenges. To address these, we need to bring diverse policy areas together and to work better across traditional policy boundaries.

Outcome

The workshop agreed on the need for greater cross-policy collaboration on food security and mitigation issues. Addressing food security and climate change mitigation is a high level policy activity. Different government policy areas should work more closely together to achieve wide reaching, integrated solutions.

There was agreement that the following policy key areas should work more closely together on food security: Food and Drink; Agriculture; Climate Change; Food Standards; Health; and, Behaviours.