Special issue: Teasing out the impacts of climate change on agricultural development

Introduction

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Over the last decade, climate change and its potential to impact on our lives has produced a plethora of articles, books and academic papers. Not least among these have been the detailed and extensive publications of the Intergovernmental Panel on Climate Change (IPCC). In its Fourth Assessment Report (AR4), the IPCC sets out the scientific, technical and socioeconomic information relevant to an understanding of the risks posed by human-induced climate change, and the policy options for addressing them. Although it is useful to study and identify the specific benefits and risks of a changing climate, in practical terms the future of the world we live in will be influenced as much, if not more, by a rich mix of population growth and socioeconomic development, and fundamentally by the need to produce more food with fewer resources. Indeed, these factors are themselves the very reasons why we now have to face a changing climate, which in turn will have its impacts on them.

In 2009, the UK's Chief Scientific Adviser, Professor John Beddington, warned that by 2030 global food shortages, scarce water and insufficient energy resources would unleash public unrest, cross-border conflicts and mass migration as people fled the worst-affected regions of the world and sought refuge in 'safe havens'. This was the so-called 'perfect storm', in which climate change was seen as yet another dark cloud on the horizon. He warned that food reserves were at a 50-year low, but that by 2030 we would need 50% more food and 30% more fresh water. 'There are dramatic problems out there, particularly with water and food, but energy also, and they are all intimately connected,' Beddington said. Other eminent scientists, such as James Lovelock in his book *The Vanishing Face of Gaia: A Final Warning*, have similarly urged for a 'call to arms' to combat climate change and warned of the perils ahead if we do not reduce our carbon emissions and control population growth. When Thomas Malthus talked of the inextricable links between food production and population growth in 1798, few would have thought it possible that his 'Malthusian curse' could again destabilize society in the twenty-first century. Let us hope that climate change will not suffer from 'media malaise' and that the urgency of dealing with these issues will not be sidelined by short-term priorities for economic regeneration.

While we talk a lot about climate change in the developed world, in reality the impacts of climate change will be felt most in the developing world. This is home to millions of the most disadvantaged people who depend on renewable natural resources for their livelihoods. For this reason, for this special issue of *Outlook on Agriculture*, we asked a number of leading specialists to prepare short but informed insights into the impacts of climate change across a range of natural resources in the context of agricultural development, both in the developed and developing worlds, to provide some comparison of issues and priorities. We asked them not to get bogged down in the detail, but to draw out the salient issues as they saw them. The result is the set of integrated papers that follow, which address agriculture and food production, forestry, livestock and the implications for engineering of water security. We hope the contributions will provide a refreshing perspective on the outlook for agriculture and that readers will find them both interesting and informative.

References

IPCC (2007), 'Climate Change 2007: Synthesis report', *Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, Intergovernmental Panel on Climate Change, Geneva.

Lovelock, J. (2009), *The Vanishing Face of Gaia: A Final Warning*, Allen Lane, London.

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