Global environmental change: the contribution of social science research to policy in the UK

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Research into global environmental change in the United Kingdom, has sought to influence public policy. It has also served to refashion the social sciences themselves, forcing them to consider sustainability as a dimension of all social and economic behaviour. This paper describes the way in which the principle of enhanced sustainability might become a point of reference in social science research. It discusses some of the lessons that have been learned from the Global Environmental Change Programme and then considers the relationship between this work and research on the environment undertaken within the natural sciences.

Introduction

At first glance, research on global environmental change in the United Kingdom, has received substantial public funding. In 1993/94, funded research into climate change and the provision of associated data in the United Kingdom cost approximately £203 million (US $300 million). Approximately half this figure is attributable to scientific research (£94.1 million), the vast majority of it in the natural sciences (Smith Systems, 1994). Of the climate-related research expenditure, well over half (£51.5 million) was devoted to the prediction and detection of climate change, together with studies of atmospheric and hydrological processes. Only approximately £12 million was devoted to research on the impacts of climate change. Of the research undertaken on responses to climate change, most took the form of ways of mitigating the full impact of global warming: £24.4 million of it from the Department of Trade and Industry in the United Kingdom.

These figures fail to reflect the extent to which research has been undertaken into the socio-economic consequences and causes of climate change. However, they do help to provide a context for the discussion of the contribution of research to policy. In 1991, the Economic and Social Research Council (ESRC) initiated a 10 year programme which specifically addresses the causes as well as the consequences of global environmental change. The Global Environmental Change (GEC) Programme is not confined to climate change. As the findings and insights of research are disseminated more widely the centrality of the human dimension will come to be recognized (DG XII, 1994).

This paper examines the way in which current research in the social sciences can help to create an understanding of the challenges represented by sustainability and sketches a number of areas in which policy, supported by focused research, might help these challenges to be met.

Principles for research and action

The principles governing the future sustainable development of the planet include the following.

(1) Economic policy instruments need to encourage the sustainability of resource systems and livelihoods. In the northern hemisphere in particular, policies need to recognize the total environmental costs and benefits of current practices over time and spatially distributed 'externalities' need to be internalized (Pearce, 1993).

(2) Natural resources in the Southern hemisphere should not be subject to economic interests in the north. They are often of global value and need to be underwritten on a global scale. What is required is not simply an increase in the resources dedicated to environmental management but, much more importantly, the pursuit of international agreements which build upon and stimulate local action.

(3) As cleaner technologies are developed in the north, their transfer to and use, in the south...
This paper is concerned with the way in which these principles can become the basis for enhanced sustainability. The contribution which research can make to the challenge of sustainability is examined next and, finally, the paper explores the ways in which new research might inform future policy, building upon greater public awareness and a willingness, on the part of governments, to make difficult political decisions.

What has been learned?

The research programme of the Global Environmental Change of the Economic and Social Research Council deals with both the causes and consequences of global changes, including climate change. This programme has sought to emphasize the driving forces behind global change, including technological developments, population increase and shifting patterns of international trade and economic activity. It has also considered some of the impacts of changes in the global environment, such as those on land use, agriculture, water resources and forests. Finally, the GEC programme has focused upon the processes through which global environmental change was brought about, concentrating attention on the role of culture, opinion formation, education and the media.

Earlier investigation in the natural sciences had concentrated on the physical processes through which the environment was changing: deforestation, changing climate, water resources and the degradation of land. This research often highlighted the need for a 'social' component of these processes, which it was assumed would be undertaken by social scientists, such as economists, geographers, political scientists and sociologists. This approach, which placed 'scientific processes' at the forefront and examined 'impacts' and 'response' as secondary phenomena, reflected the approach of the Intergovernmental Panel on Climate Change (IPCC) (1990).

The GEC programme in the United Kingdom took a rather different approach, taking its cues from the social and political dimensions of the Brundtland Commission (1987) and the Earth Summit (1992) in Brazil, as well as the IPCC reports. Global environmental changes were not looked upon as 'essentially' physical or biological processes, but rather as a combination of physical and social processes, the consequences of which were as likely to be relevant to the natural sciences as to the social sciences. The challenge was to see the inter-connectedness of 'natural' and 'social' changes and, building upon this, to observe the human activity which helped to drive physical processes as itself amenable to change. The policy relevance of such a programme of research lay in its ability to map out background knowledge and assumptions and to help identify areas in which

should comply with principles of social equity, on grounds of mutual benefit, rather than short-term market advantage. To provide a 'breathing space' in which global sinks can be properly managed, the countries of the north will need to phase out their dependence on fossil fuels gradually. This will require policy instruments such as a carbon tax or tradeable emission permits.

(4) Increased public participation, linked to the dissemination of information about environmental problems, is indispensable to the achievement of sustainability goals at the local level. Only broadly based collaborative action between government and civil society can overcome the suspicion and ignorance that frequently accompany increased environmental vulnerability. This implies official acknowledgement that uncertainty guides most environmental policy and that precautionary action should be the rule, rather than the exception.

(5) The recognition of the primary importance of global sinks and the need to examine every aspect of personal and social consumption, is only the first step. The encouragement of values consistent with the conservation of sinks and the management of 'externalities', can only affect consumption practices if they are translated into effective policies which succeed in influencing behaviour. There are a number of environmental management techniques which could become incorporated into standard practices, for example life-cycle analysis of goods and services, environmental tax reform and policy measures to encourage the conservation of forests and biodiversity. However, more has to be done than simply match improvements in the quality of life with advances in the standard of living. It is necessary to begin to measure improvements in the standard of living through improvements in the quality of life.

Fig. 1. Professor Michael Redclift delivering this keynote paper at the Global Forum '94 Conference.