



Sustainable Development Research Network
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A New Agenda

for UK Sustainable

Development

Research



Policy Studies Institute



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Dr Malcolm Eames
SDR-Network Coordinator
Tel: (020) 7468 0468 Fax: (020) 7388 0914
Email: eamesm@psi.org.uk www.psi.org.uk

Policy Studies Institute
100 Park Village East, London NW1 3SR

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Achieving sustainable development – economic growth alongside social progress and protection of the environment – will be a formidable task. We have some idea of what it will involve, including an increasing awareness of the environmental limits within which we need to operate. But we still have a very imperfect idea of how to get there.

That underlines the central role that research (and researchers) have in sustainable development. Solving

foreword . . .

problems we can already see – such as delivering low-carbon energy and transport systems.

Helping us to avoid stumbling into new problems, by finding the right balance between innovation and precaution. And designing and refining the tools we shall need: indicators and appraisal; improved reporting systems; new ways of accounting for environmental damage; and many more.

Sustainable development is about integration. The main reason we are in our current mess is that we have been too blinkered in our approach: by focusing our objectives too narrowly, we have caused unexpected (and often expensive) problems elsewhere.

Research that is going to make a full contribution to sustainable development also needs to be set in a broader context. It will often require collaboration between several academic disciplines.

One of the government's contributions to sustainable development research is to fund the Sustainable Development Research Network. This report sets out some findings on priorities, and identifies barriers to the research that is needed. Like all good research it is independent, though produced as a result of extensive discussions. I hope it will lead to a lively debate – and to increased action.

A handwritten signature in blue ink that reads "Michael Meacher".

Michael Meacher
Minister of State (Environment)

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1. Introduction

The overall goal of the Sustainable Development Research (SDR) Network is to contribute to sustainable development in the United Kingdom by facilitating the better use of evidence and research in policy-making. This report aims to contribute to this goal by identifying:

- current knowledge gaps, research opportunities and UK policy needs for cross-cutting research on sustainable development issues;
- key priorities for such research;
- barriers to the promotion and implementation of such research;
- recommendation for funding bodies to overcome these barriers; and
- measures to improve the use of research in sustainable development policy-making and practice.

This report is the product of an extensive and wide-ranging nine-month process involving workshops with both the SDR-Network's Advisory Group (Annex 2) and User Forum (Annex 3), as well as discussions with a number of external organisations and interested individuals.

A consultation draft of this report was issued in December 2001. We are grateful to all those who responded (Annex 4), whether directly to the

SDR-Network Coordinator, or via the *Discussion Forum* on this topic hosted by the government's sustainable development web site. This report also draws upon the papers presented at the SDR-Network's first Annual Sustainable Development Research Conference in December 2001.

The UK Government's Sustainable Development Objectives

The UK government's Strategy for Sustainable Development, *A better quality of life (1999)*, aims to meet four objectives at the same time:

- social progress which recognises the needs of everyone;
- effective protection of the environment;
- prudent use of natural resources; and
- maintenance of high and stable levels of economic growth and employment.

For full details of the UK's strategy and progress towards sustainable development see: www.sustainable-development.gov.uk



2. The SD Research Challenge

Sustainable development is the most fundamental long-term challenge facing the world community. It raises profound problems for public policy-makers, businesses and wider society alike. Research has a vital role to play in helping to overcome these problems, not least by providing the intellectual foundations, analytical tools and empirical evidence upon which to build a more sustainable future. It is this challenge that sustainable development (SD) research seeks to address.

More specifically **the research community can provide the evidence base for policies that promote sustainable development**, through:

- high quality, policy-relevant, **cross-cutting research integrating social, economic and environmental concerns**;
- the **synthesis and evaluation** of existing research to provide the evidence base for policy-makers and practitioners; and
- the design and implementation of **data collection, monitoring and indicator systems**.

It can also contribute to the government's sustainable development objectives by underpinning the **innovation of more sustainable products and processes**.

Interdisciplinary collaboration, bringing natural scientists and engineers together with social scientists, is therefore central to addressing the challenge of SD research.

Given its strong policy orientation, SD research is as much concerned with the integration, redefinition and use of existing knowledge as it is with the discovery of new theoretical precepts.

SD research is not therefore an attempt to establish a new discipline. Nor is it simply a case of creating new research programmes or institutions that feature 'sustainable development' in their titles. Rather, one of its principal aims must be to demonstrate how and where existing research institutions and programmes should take sustainable development issues into account in the development of their current activities and their future plans and priorities. If the global

challenges facing us are truly to be addressed and the government's goal of a better quality of life for all achieved, then sustainable development must become a pervasive cross-cutting theme of the UK's research effort.

Having said that, it is clear that departmental, institutional and disciplinary boundaries all too often militate against the promotion and effective coordination of SD research. Whilst a large number of public bodies (including Research Councils, government departments, non-departmental public bodies and the devolved administrations), businesses and charitable foundations fund research relevant to particular aspects of sustainable development, there are currently few UK programmes supporting interdisciplinary research into 'cross-cutting' sustainability issues.

If these current organisational limitations are to be overcome, appropriate training and professional opportunities must be available to allow both natural and social scientists to develop sustained productive careers in interdisciplinary research. In some cases this will require the training of individuals with genuinely interdisciplinary skills. More often it will mean creating stable institutional environments where multidisciplinary teams can flourish.

This report provides a challenging agenda for funders and researchers alike to develop the institutional frameworks, research programmes and specific projects necessary to better equip the UK on the path to sustainable development.

Furthermore, if the use of SD research is to be improved, there must be recognition that responsibility for its design, dissemination and uptake extends beyond individual researchers or research organisations. Potential research users, including public sector organisations, individual firms, sectoral and trade associations, consultancies, professional bodies and NGOs, must all become more actively involved in defining their research needs and applying the knowledge gained from SD research.

3. Needs, Opportunities and Priorities

The following provides a summary of current knowledge gaps, research opportunities and policy needs for cross-cutting SD research. This summary is based on a review of relevant literature and policy documents, discussions with policy-makers and researchers, and two one-day workshops convened by the SDR-Network to identify knowledge gaps, research opportunities and user needs, in September 2001. The first involved members of the SDR-Network's Advisory Group, and the second its User Forum.

For ease of analysis the material in this section has been organised around four distinct but interrelated themes.

Themes

- Governance and regulation
- Environment and society
- Social and technological innovation
- Business and sectoral strategies

Within each of these themes the following generic issues play a prominent role:

Generic issues

- Appraisal and evaluation tools
- Data and indicators

On the basis of the SDR-Network's consultation a number of the gaps, needs and opportunities discussed have been identified as 'key priorities' for future research. These are highlighted in the text below.

3.1 Governance and regulation

- The use of science in policy-making
- Scaling issues
- Policy integration
- Spatial planning
- Legal frameworks
- Regulation, economic instruments and voluntary action
- Participatory decision-making

Governance and regulatory issues are central to the challenge of creating a more sustainable society.

The use of science in policy-making: the effective use of scientific knowledge, and management of

uncertainty, is vital to understanding current and future impacts of human activities, and hence effective governance for sustainable development. Improved epidemiological surveys and environmental monitoring and surveillance, 'integrated' environmental and socio-economic models, futures studies and scenario techniques, all have an important role to play here, particularly in identifying ecological limits, and setting strategic objectives and frameworks for regulation.

Scaling issues include questions such as how best to reconcile the differing temporal and spatial scales of environmental and political processes. For example, within our increasingly multi-level governance system, what is the appropriate balance between 'top-down' and 'bottom-up' policy processes, and how should the principle of subsidiarity be applied? There is a particular need for research to address the question of how regional scale governance can best contribute to sustainable development given the increasing importance of this tier within the UK.

Policy integration is acknowledged as a cornerstone of sustainable development. But what is the most effective balance between institutional specialisation and integration? For example, is sustainable development best served having separate regulatory bodies responsible for protecting the interests of the environment and consumers, or should such functions be integrated? More broadly, how can competing policy objectives best be reconciled and integrated approaches implemented, and how should policy and institutional integration best be measured, assessed and evaluated?

Spatial planning potentially provides an important framework for integrating environmental, social

and economic considerations. Research questions include: to what extent does the current planning system contribute to environmental injustice? How can ecological limits best be defined and operationalised in the context of spatial planning? What role could the planning system play in improving the integration and management of factors such as energy, transport, waste, biodiversity, land use, employment and social capital? What legal and institutional changes would be required for the planning system to play such a role, and what will be the impact of the current proposals for planning reform in England?

Spatial or 'territorial' planning also has an important contribution to make in managing regional scale changes in the use of land and other environmental resources, such as those resulting from the current changes taking place in UK agriculture, from broader changes in demographic and trade patterns, or from the impacts of global climate change. The regional scale 'integrated' modelling and assessment tools, supported by robust baseline monitoring data, will be essential to this task.

How effective are **legislative frameworks**, such as statutory requirements to promote sustainable development? What are the factors shaping legislative agendas, and where is new legislative action required as opposed to improved implementation and enforcement? What are the legislative barriers to sustainable development in the UK? How will local authorities' new 'power of well-being' be interpreted, and what will be the impact of human rights legislation with respect to environmental and sustainable development issues? Can overseas aid be used as a lever to strengthen legal frameworks that support sustainable development in developing countries? What developments in international law are needed to support sustainable development on a global basis?

What is the most effective balance between **regulation, economic instruments and voluntary action** in promoting sustainable development? How can the effectiveness of regulatory, fiscal and voluntary measures best be evaluated? What factors shape the public acceptability of such

measures, and what is the most appropriate mix of different types of policy instrument under different circumstances?

Since the Rio conference the right of citizens to **participate** in environmental **decision-making** has increasingly been accepted as central to the concept of sustainable development. What does this mean in practice, in terms of access to information and the role of existing democratic processes? What participatory processes are appropriate under different circumstances? What constitutes participation and how should participatory processes be evaluated? How should issues of representation and accountability be addressed? What does the concept of 'citizenship' mean in this context? How should community/expert interactions best be managed, and scientific knowledge mobilised? What weight should be given to conflict resolution and consensus, as opposed to the recognition of diversity, in the design of participatory processes? More fundamentally, does participation actually lead to decisions that are more likely to promote sustainable development?

3.2 Environment and society

- **Community processes**
- **Regeneration and development**
- **Social inclusion**
- **Social perceptions of risk**
- **Environmental justice**
- **Quality of life**
- **Consumption, behaviour and lifestyle**
- **Communication**

The links between **environment** and **social structures and processes** is the least well-developed aspect of both SD research and policy-making. Economic welfare and development are integral to this theme, but these are not the only priorities.

In addition to the questions outlined in Section 3.1 above, there is a need for improved understandings of **community processes**. For

example does local environmental action improve social cohesion? Does participation generate social capital? How do communities respond to changing legal and institutional frameworks? How are voluntary sector organisations responding to the challenges of sustainable development, and under what conditions can the public sector best facilitate the work of NGOs?

What are the environmental and resource impacts of **regeneration and development**? How can the protection of biodiversity and economic development best be reconciled? What does the emerging discourse around 'liveability' mean for the environment. How can viable sustainable communities be fostered and developed in different contexts?

With respect to issues of **social inclusion**, there is a need to identify best practice for community initiatives integrating social, economic and environmental concerns, and to improve understandings of the environmental values and behaviour of different ethnic, cultural and economic groups. In particular, how do different individuals and groups balance economic need against environmental and health risks, and what factors shape **social perceptions of risk**, both to and from the environment?

How can research mapping **environmental injustice** in the UK better inform policy? To what extent are the socially excluded more susceptible to the adverse health impacts of pollution than richer sections of society, and to what extent are they disadvantaged in terms of access to environmental resources? What are the costs and benefits of addressing environmental and health inequalities? To what extent can regulatory and enforcement agencies currently address such concerns? Are legislative and judicial reforms, or new appraisal and evaluation tools, required? What role can risk compensation play? How can environmental policies and instruments be designed to better protect disadvantaged and excluded groups?



Research is also needed to inform UK policies aimed at reducing global poverty and inequality, and to underpin the development of more equitable and accountable international institutions and trading practices. This will include further work mapping the UK's ecological 'footprint' and the environmental (including health), social and economic impacts of 'downstream' industrial activities.

What do we mean by **quality of life**? Is the concept useful? How should it be measured and communicated? What is the relationship between employment, labour productivity and quality of life? What is the relationship between (natural, semi-natural or built) environmental quality and quality of life? How important are intrinsic values, such as appreciation of nature, and material

consumption in people's experience and assessment of their quality of life?

How can the impacts of consumer **behaviour** best be assessed? What are the barriers to more sustainable **lifestyles** and how can such lifestyles best

be promoted? What contribution can consumer-led 'solutions' such as green consumerism, local purchasing and voluntary simplicity make and how should these be evaluated? What roles do factors such as education, public policy, technology, the media and popular culture play, both in shaping existing lifestyles and generating behaviour change? How can environmental and sustainable development issues be **communicated** more effectively?

3.3 Social and technological innovation

- **Socio-technological systems**
- **Innovation processes**
- **Technological risk**
- **Managing macro socio-technological systems**
- **Innovation and productivity**

The transition to a sustainable economy will inevitably require significant innovation in socio-technological systems – systemic changes in the technological processes, artefacts, and associated social attitudes and behaviours that shape our lives. Integrated environmental and socio-economic modelling and scenario techniques again have a role to play in illuminating both the scale and direction of the necessary changes. At the same time the question of the extent to which technological innovation can accommodate resource and ecological constraints must also be seriously addressed.

In addition to scientific and engineering-based R&D to develop cleaner, more sustainable technologies, research is also required to investigate the social, economic and political dimensions of such **innovation processes**. How should innovations in resource productivity (factor 4/10), dematerialisation (from products to services) and materials substitution (to use renewable or less hazardous materials) be evaluated? How can technological change be directed towards the goal of sustainable development, and what role should government play? What are the barriers to the uptake of more sustainable technologies and how can inertia in socio-technological systems best be overcome? Are 'incremental' or 'step' changes in technology required, and if the latter how can step changes in



infrastructure technologies be promoted and financed? There is also a need to develop improved methodological and theoretical frameworks that can help us to understand not only the social dimensions of technological change but also the potential of social innovation, and the conditions and processes that govern it.

One of the principal frameworks for approaching these issues is provided by the discourse of **technological risk**. Specific issues requiring further attention include: novel approaches to balancing risk aversion and innovation such as the use of insurance mechanisms to promote innovation in sustainable technologies; and the implementation of 'precaution' through the concepts of variety, reversibility, vulnerability, adaptability and resilience in the design and management of socio-technological systems. Further consideration should also be given to the development of 'ecological' approaches to precaution and risk, within the context of interdisciplinary research aimed at operationalising the precautionary principle.

More broadly, further work is needed to understand the long-term challenges of **managing macro socio-technological systems**, at the scale of national energy, water and transport infrastructures, and entire cities, semi-urban and rural regional economies. The conceptual and empirical relationship between technological **innovation and productivity** also requires critical attention. For example, what are the theoretical and practical tensions between resource and economic efficiency; the durability of goods and employment; labour productivity and sustainability; and partial versus whole system productivity?

3.4 Business and sectoral strategies

- **Corporate sustainability**
- **Sectoral sustainability**
- **Cross-sectoral issues**

Research is also needed to inform **business and sectoral strategies**. Much of this work will need to be undertaken in close collaboration with industrial and business partners.

With respect to the **corporate sustainability** agenda, further work is needed to develop and illustrate the 'business case' for SD. The effectiveness of existing tools, such as environmental management and auditing systems, supply chain management, environmental and social reporting, etc, also requires rigorous evaluation. Corporate SD champions need effective, instrumental models of organisational learning with which to change behaviour, as well as appropriate performance indicators for different businesses. They also need access to understandable and relevant environmental information. Despite the best efforts of the scientific community, such access remains problematic. Social scientists have an important role to play in developing tools and techniques to improve the transfer of scientific knowledge to business and the wider community.

The need for sector-specific applied research to address problems and provide solutions in existing priority areas, such as energy, waste, transport and the rural economy, is widely established. Less well recognised is the need for research into the current and prospective role of the financial sector, as both driver and inhibitor of sustainable development.

Furthermore, the development of **sectoral sustainability** strategies requires that a number of generic questions be addressed. What models of sectoral 'good practice' exist, and how can such good practice be made the norm? Are current sector organisations capable of delivering change or are alternative institutional structures and legal frameworks required? How can sectoral targets best be negotiated, monitored and enforced?

Cross-sectoral issues include the need to better anticipate, model and evaluate the environmental and social impacts of pervasive technological and socio-political changes, such as the development of ICTs, e-commerce, globalisation, etc. Furthermore, prospective studies are also needed to examine what structural changes, both at the firm and sector level, the transition to a sustainable economy will require, and how these changes should best be achieved.

3.5 Generic issues

● Appraisal and evaluation

● Data and indicators

Integrated **appraisal and evaluation** – be it of decisions, policies, institutional frameworks or technological products and processes – is a common thread running through the four overarching research themes outlined above. As such there is clearly a need not just for research to improve SD appraisal and evaluation techniques but also to identify the institutional factors that either inhibit or facilitate the use of such tools.

Despite recent progress, further work is also needed to develop robust methodologies, 'tools' and best practice guidance for integrated (sustainability) appraisal, applicable across a wide range of institutional contexts and problem settings. Networks are needed to allow researchers and practitioners to share knowledge and experience across organisational, disciplinary and sectoral boundaries.

Improved social learning for sustainability also requires much greater attention to integrated *post hoc* evaluation studies and techniques. These are particularly poorly developed at the meso- and micro-levels, ie the evaluation of the sustainability impacts of specific decisions, policies and programmes.

Both SD appraisal and evaluation require the definition and collection of extensive and diverse sets of **data and indicators**. Whilst the routine collection and compilation of such data and indicators are not in themselves research tasks, there are a number of related topics, often at the interface between the environmental and social sciences, which are in need of further research. These include methods of assuring input data quality; the definition of data and indicator needs (including work on environmental baselines); the interpretation of data and indicator information; and the design of protocols and appropriate information systems. More generally there remains a need for interdisciplinary research to improve the presentation, modelling and use of scientific information in decision-making.

4. Facilitating Effective SD Research and Policy-Making

4.1 SD research policy

Building the world-class interdisciplinary research teams and centres of expertise to tackle the major challenges of sustainable development requires the focused commitment of significant stable long-term funding. Significant resources have recently been made available through initiatives such as the Tyndall Centre for Climate Change Research, the Sustainable Technologies Initiatives, and the EPSRC Infrastructure and Environment Programme. However, it is clear that these conditions have yet to be achieved more broadly with respect to support of cross-cutting SD research in the UK. The need to provide appropriate support for such research should therefore be recognised in the government's 2002 Spending Review.

Funding bodies should review their existing programmes and future plans in light of the research priorities and knowledge needs outlined in this report. Existing interdisciplinary initiatives will need to be complemented by further collaboratively funded problem-oriented research programmes, steered by committees including natural scientists, social scientists and research users.

Greater effort is required to ensure that publicly funded science and engineering R&D programmes contribute effectively to the government's objectives for sustainable development. Such programmes should incorporate strong socio-economic and environmental components as a matter of course. This will help to ensure that the scientific and technological options developed match societal needs and aspirations whilst at the same time benefiting the environment. This is particularly the case for research programmes in areas such as energy, transport, waste, resource use and agricultural production where there is growing awareness of the need for sustainable solutions.

The current rather piecemeal approach to

identifying priorities and funding such research needs to be replaced by a coherent national framework, providing stable, integrated and transparent arrangements for sponsoring cross-cutting research on sustainable development issues.

Such a framework must be flexible enough to foster diversity and innovation if the essential vitality of interdisciplinary research collaboration in this area is to be maintained in the longer term.

The need to improve support for, and remove institutional barriers to, cross-cutting research has been recognised by the UK Research Councils. The creation of the Research Councils UK Strategy Group, as recommended by the government's 2001 Quinquennial Review of the Grant Awarding Research Councils (QQR), has considerable potential to ensure a more 'joined-up' approach in this respect.

The Research Councils UK Strategy Group is intended to enhance the collective leadership and influence of the Research Councils, and is expected to develop a 10–15-year roadmap of opportunities for UK science. NERC, in particular, has signalled its commitment to ensuring sustainable development objectives are considered in shaping this roadmap.



The Research Councils UK Strategy Group should ensure that sustainable development objectives are properly integrated into all of the Councils' activities. The Group should also consider 'ring-fencing' dedicated resources for the support of cross-cutting SD research.

Whilst the establishment of the Research Councils UK Strategy Group has the clear potential to improve the strategic direction of SD research, it will be important to ensure that such gains are not frustrated at an operational level. It will therefore continue to be important to ensure that appraisal and peer review processes are not 'captured' by disciplinary interests.

There needs to be closer collaboration between all government departments and agencies involved in sponsoring SD research and using the results of such research policy formulation and implementation. The proposed UK Research Funders Forum (also recommended by QQR) should therefore be charged with a specific

responsibility for ensuring effective support for SD research.

Responsibility for SD research also encompasses a range of business and non-governmental bodies. The SDR-Network will continue to provide a voice for the SD research community as a whole through its Advisory Group and User Forum.

There remains concern that the Research Assessment Exercise has not served interdisciplinary research well. HEFCE should ensure that future assessments do not act as a barrier to high quality cross-cutting SD research.

4.2 Contributing to evidence-based policy and practice

It is also clear that there is considerable scope to improve the use of existing knowledge. To this end research syntheses and systematic reviews should be commissioned to support policy-making and practices that are oriented towards sustainable development. Such studies should:

- identify the key sustainable development questions related to the scope, delivery and impact of particular policies and practices;
- consider the nature of the social, economic and scientific evidence in relation to that policy;
- identify and assess the evidence base as it informs key policy decisions;
- identify gaps and uncertainties in the evidence base; and
- provide clear and transparent recommendations for policy and practice.

The SDR-Network is working with the ESRC Centre for Evidence Based Policy and Practice to develop clear guidelines and standards for undertaking such reviews, so as to ensure that policy-makers and practitioners can have confidence in their findings.

Particular effort is also required to address the generic problems of integrated (or sustainability) appraisal and evaluation, and data and indicator development. This is an area where initiatives bringing together researchers and practitioners

Indicative Areas for SD Research Reviews

Respondents to the SDR-Network's consultation suggested the following areas where synthesis of existing knowledge should be commissioned to support more sustainable policy and practice:

- Sustainable energy
- Environmental contaminants
- Fiscal instruments
- Integrated transport
- The corporate triple bottom line
- Communication and consumption
- Climate change impacts
- Rural economy and land use
- Regulation and innovation
- Appraisal and indicators

from across organisational, sectoral and disciplinary boundaries are likely to be particularly fruitful.

The overall balance of funding should be examined to ensure that sufficient support is available for data collection, monitoring and indicator development, including the production of accessible web-based resources.

The UK provision of research dissemination and consultancy services should also be reviewed to ensure that both new and existing SD research findings are made widely available and integrated into professional development, training, outreach and advisory services across a range of relevant professions and sectors.

In the longer term this will require addressing the interface with undergraduate education and teaching provision. The integration of sustainable development into existing (disciplinary) undergraduate courses not only has an important role to play in the long-term dissemination of research knowledge but it also provides important opportunities for younger researchers to develop their academic careers through an active involvement in teaching.

4.3 Human resource issues

High quality interdisciplinary research requires researchers with the skills and experience necessary to work effectively in multidisciplinary teams. Developing effective teams requires time and resources, not least to overcome disciplinary 'language' barriers and establish effective communication.

It is also important to recognise that a significant amount of SD research and research-related activities are currently undertaken outside of academia by specialist consultancies and practitioners. Further measures to encourage the movement of people between academia, consultancy, public administration and business should therefore be actively considered.

Greater effort is also required to ensure that appropriate opportunities exist for postgraduates and younger researchers to develop interdisciplinary research careers. In this context the existing ESRC/NERC research studentship competition provides a useful model that could be developed further. However, as NERC has itself recognised, action is needed to provide a recognised career path following on from this scheme, as well as for other promising young researchers working in this area.

5. Recommendations

5.1

The research community and both public and private sector funding bodies should review their existing programmes and future plans in light of the knowledge gaps, research opportunities and policy needs outlined in Section 3 of this report. Where possible these priorities should be taken forward through collaboratively funded research programmes, steered by committees including natural scientists, social scientists and research users.

5.2

Both the research community and funding bodies should pay particular attention to those areas identified as key priorities for future research. These include sustainability appraisal and evaluation; data and indicators; spatial planning; regulation, economic instruments and voluntary action; community processes; environmental justice; quality of life; consumption, behaviour and lifestyle; socio-technological systems and innovation processes; and corporate sustainability.

5.3

Research Councils and government departments that sponsor science and engineering R&D programmes should, as a matter of course, incorporate strong socio-economic and environmental components into their programmes. This is particularly the case for research programmes in areas such as energy, transport, waste, resource use and agricultural production where there is growing awareness of the need for sustainable solutions.

5.4

The Treasury should ensure that the need to provide appropriate support for cross-cutting SD research is recognised in the government's 2002 Spending Review.

5.5

OST and the new Research Councils UK Strategy Group should ensure that sustainable development objectives are properly integrated into all of the Councils' activities.

5.6

OST and the Research Councils UK Strategy Group should instigate measures to remove institutional

barriers to interdisciplinary research in this area. For example, by 'ring-fencing' specific resources for the support of cross-cutting SD research.

5.7

HEFC and the Research Councils should review the provision of research training and career paths for both natural and social scientists, with the objective of improving the provision of appropriately skilled personnel capable of undertaking high quality cross-cutting SD research. Specific measures to encourage the movement of experienced individuals between academia, consultancy, public administration and business should also be actively considered.

5.8

The Research Councils and government departments should examine the overall balance of their expenditure to ensure that sufficient support is available for data collection, monitoring and indicator development, including the production of accessible web-based resources.

5.9

The Research Councils, government departments and industry bodies should commission research syntheses and systematic reviews to improve the use of existing knowledge and support evidence-based policy-making and practices that are oriented towards sustainable development.

5.10

DEFRA should support the development of clear guidelines and standards for SD research synthesis and systematic reviews so as to ensure that policy-makers and practitioners can have confidence in their findings.

5.11

DEFRA and the DTI should consider commissioning a review of the current provision of research dissemination and consultancy services for sustainable development, so as to ensure that relevant research findings are made widely available and integrated into professional development, training, outreach and advisory services.

Annex 1

SDR-Network Coordinating Team

Professor Jim Skea	Policy Studies Institute (Chair)
Professor Paul Ekins	Policy Studies Institute
Dr Malcolm Eames	Policy Studies Institute (SDR-Network Coordinator)
Dr Andy McLeod	Centre for Study of Environmental Change and Sustainability, University of Edinburgh
Kate Corcoran	Centre for Study of Environmental Change and Sustainability, University of Edinburgh
Dr Karen Lucas	Centre for Sustainable Development, University of Westminster

Ex officio members

John Adams	<i>Sustainable Development Unit, DEFRA</i>
Ian Pickard	<i>Sustainable Development Unit, DEFRA</i>

Annex 2

Membership of SDR-Network Advisory Group

Ms Maria Adebowale*	<i>Director, Capacity, South Bank University, London</i>
Prof Dennis Anderson	<i>Director, Centre for Energy Policy & Technology, Imperial College, London</i>
Prof David Banister	<i>The Bartlett School of Planning, Imperial College, London</i>
Dr Frans Berkhout*	<i>Science Policy Research Unit, University of Sussex</i>
Mr Ian Christie	<i>Local Futures Group</i>
Prof Roland Clift*	<i>Director, Centre for Environmental Strategy, University of Surrey</i>
Prof Andy Dobson*	<i>Head of Department of Politics, University of Keele</i>
Dr Keith Goulding*	<i>Institute of Arable Crops Research</i>
Mr Robin Grove-White	<i>Director, Centre for the Study of Environmental Change, Lancaster University</i>
Dr Roy Haines-Young	<i>Department of Geography, University of Nottingham</i>
Dr Peter Hedges*	<i>EPSRC</i>
Dr Mike Hulme	<i>Executive Director, Tyndall Centre for Climate Change Research, University of East Anglia</i>
Dr Alison Jarvis	<i>Joseph Rowntree Foundation</i>
Mr Tim Jenkins	<i>Friends of the Earth</i>
Prof Philip Lowe	<i>Centre for Rural Economy, University of Newcastle</i>
Mr Alex MacGillivray	<i>New Economic Foundation</i>
Prof Terry Marsden*	<i>Head, Department of Environmental Policy and Planning, Cardiff University</i>
Prof John Milne	<i>Deputy Director, Macaulay Land Use Research Institute</i>
Prof Clive Spash	<i>Macaulay Land Use Research Institute</i>
Prof Richard Munton	<i>Environment and Society Research Unit, University College London</i>
Dr Peter North	<i>Local Economy Policy Unit, South Bank University</i>
Mr Derek Osborn	
Mr Joe Ravetz	<i>Centre for Urban and Regional Ecology, University of Manchester</i>
Ms Karen Raymond*	<i>ERM</i>
Dr Neil Summer ton	<i>Director, The Oxford Centre for the Environment, Ethics and Society, Mansfield College</i>
Prof Joyce Tait	<i>Director, Scottish Universities Policy Research and Advice Network, University of Edinburgh</i>
Ms Helen Thorne*	<i>NERC</i>
Prof Kerry Turner	<i>CSERGE, University of East Anglia</i>
Prof Richard Welford	<i>Centre for Corporate Environmental Management, University of Huddersfield</i>
Dr Robert Whittaker*	<i>Environmental Change Institute, University of Oxford</i>
Dr Laurie Michaelis *	<i>Commission on Sustainable Consumption, Mansfield College, University of Oxford</i>

* denotes attended consultative workshop

Dr Alan Apling	<i>Head, Science & Technology Division, DTLR</i>
Mrs Marie Ching*	<i>Sustainable Construction Business Manager, DTI</i>
Mr Chris Church*	<i>ANPED</i>
Mr John Cockaday	<i>Assistant Director, Energy & Natural Environment, Foresight</i>
Ms Jane Fiona Cumming*	<i>Director, Article 13</i>
Ms Helen Doran*	<i>Sustainability Adviser, English Nature</i>
Mr Sam Fankhauser	<i>Senior Economist, EBRD</i>
Mr David Fell	<i>London First</i>
Mr Dan Green	<i>Sustainability Manager, Wessex Water</i>
Mr Christopher Harris*	<i>Head, Environment Unit, CIRIA</i>
Mr Michael Harrison	<i>Chief Scientists Group, DEFRA</i>
Ms Patricia Hayes	<i>Secretary, Sustainable Development Commission</i>
Dr Tony Ikwue*	<i>Director, Regional Unit, Environmental Industries Commission</i>
Mr Mark Jeffcote	<i>Environment Team Leader, Leicester City Council</i>
Mr Peter Jones*	<i>Director, Development and External Relations, Biffa</i>
Mr Stephen Joseph	<i>Transport 2000</i>
Mr Chris Maltbaek*	<i>Divisional Director, Babbie Group</i>
Mr Ian MacArthur	<i>Policy Coordinator, CIEH</i>
Ms Charlotte Marples	<i>Policy Coordinator, Green Alliance</i>
Mr John McGuinness*	<i>Head of Chief Scientist Unit, HSE</i>
Mr Richard McNally*	<i>UK Economics & Global Policy Officer, WWF</i>
Ms Alison Miller	<i>Policy Coordinator, Local Government Association</i>
Mr Mathew Murray*	<i>Research Manager, ECOTEC</i>
Mr David Odling*	<i>Director of Policy, UK Offshore Operators Association</i>
Dr Ian Pallett*	<i>Technical Manager, British Water Manager, Environmental Technology Club</i>
Mr Steve Parry*	<i>Unilever</i>
Ms Peta Pascoe*	<i>Assistant Director, Office of Science & Technology, DTI</i>
Mr Tony Sangwine*	<i>Highways Agency</i>
Dr David Slater*	<i>Oxera</i>
Mr Chris Tuppen	<i>Head, Sustainable Development & Corporate Accounts, BT</i>
Mr William Turner	<i>Environmental Group Head, British Energy</i>
Mr Chris Watts*	<i>Innovation & Good Practice Manager, The Housing Corporation</i>
Ms Andrea White*	<i>RSNC</i>
Dr Diana Wilkins*	<i>DEFRA</i>
Mr Tim Williamson	<i>Policy Officer, NSCA</i>

* denotes attended consultative workshop

The consultation draft of this report, entitled *Towards a New Agenda for UK Sustainable Development Research: Consultation Draft*, was published on 4 December 2001. Respondents were able to provide comments either directly to the SDR-Network Coordinator or via a Discussion Forum on the government's sustainable development web site (www.sustainable-development.gov.uk/forum.htm).

The consultation officially closed on 21 January 2002. However, a significant number of responses were received after this date and where possible these have also been considered. In addition to contributions from the SDR-Network Coordinating Team comments were received from the following.

Organisations

DTI Environment Directorate
Environment Agency
Scottish Environmental Protection Agency (SEPA)
NERC
Countryside Agency
Institute of Arable Crop Research

Individuals

Professor Andrew Dobson, *Open University*
Professor Philip Lowe, *Centre for Rural Economy, University of Newcastle*
Professor Mike Hulme, *Tyndall Centre for Climate Change Research, University of East Anglia*
Peter Jones, *Biffa*
Professor Roland Clift, *Centre for Environmental Strategy, University of Surrey*
Roger Levett, *Levett-Therivel Consultants*
Dr Gordon Walker, *Institute for Environment and Sustainability Research, Staffordshire University*
Mr David Odling, *Director of Policy, UK Offshore Operators Association*
Ece Ozdemiroglu, *Eftec*
Professor John L Harwood, *Cardiff School of Biosciences, University of Cardiff*
Matthew Murray, *Ecotec*

Comments via the *Discussion Forum* on the government's sustainable development web site

Roger Thomas
Dr J G Wolff
Angus Macmillan
Dr. Glynn Skerratt
Jonathan Cowie
Michael Saunby



About the SDR-Network

The Sustainable Development Research (SDR) Network is a UK-wide initiative, coordinated by the Policy Studies Institute (PSI) in London in collaboration with the Centre for Sustainable Development (CfSD) at the University of Westminster, and the Centre for the Study of Environmental Change and Sustainability (CECS) at the University of Edinburgh. The SDR-Network is funded by the government's Sustainable Development Unit at the Department for Environment, Food and Rural Affairs (DEFRA).

The overall goal of the SDR-Network is to contribute to sustainable development in the United Kingdom by facilitating the better use of evidence and research in policy-making.

Its specific aims include:

- monitoring and mapping research relevant to the UK Sustainable Development Strategy;
- fostering a network of organisations with an interest in sustainable development research;
- facilitating the flow of information about current and planned activities; and
- promoting sustainable development research activity by influencing funders and research organisations.

The SDR-Network is particularly concerned to promote research collaboration across disciplinary boundaries. To this end it actively involves natural scientists, engineers and social sciences alike.

Membership of the SDR-Network is free and open to all those with an interest in UK sustainable development research. For further information and details of how to join see:

www.sd-research.org.uk

For information on the UK's progress towards sustainable development visit:

www.sustainable-development.gov.uk

