

Handling scientific uncertainty in European  
environmental decisionmaking

**Report of a Green Alliance seminar**

*Held in conjunction with the European Federation of  
Biotechnology Task Group on Public Perceptions of  
Biotechnology, and the Global Environmental Change  
Programme of the Economic and Social Research Council, UK.*

17 -18 April 2000, London



“green alliance...”

## **Introduction**

This report summarises the findings of a two-day dialogue seminar on the treatment of scientific uncertainty in European decision-making.

The debates over moratoria for import and production of genetically modified food, and over British beef following the BSE crisis, both illustrate the problem of dealing with scientific uncertainty in policy-making at the EU level. This seminar provided a forum for dialogue between groups of stakeholders, including industry, policy-makers, nongovernmental organisations and academics working on these issues.

The European Commission's recently published Communication on the implementation of the precautionary principle sets out how it intends to act when faced with scientific uncertainty, such as in the current revision of the EU chemicals strategy. At the seminar, participants debated the Commission's Communication, as well as the wider issue of scientific uncertainty in EU policy-making.

The first day of the seminar consisted of short presentations giving academic, regulatory, industry and NGO perspectives on this issue, including an address by Michael Meacher, the UK Environment Minister; interspersed with plenary and small-group debate.

On the second day, participants used a range of participatory techniques to explore both consensus and dissent between different sectors and perspectives. Case studies and practical examples were used to draw out the policy challenges involved in handling scientific uncertainty.

This document is a summary, written by Green Alliance, of the presentations and discussion sessions. A further document, *Steps into Uncertainty handling risk and uncertainty in environmental policy-making*, obtainable from Green Alliance, provides a concise report of the issue at both UK and EU level.

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## **Presentations**

### Uncertainty, science and public trust: Introduction

Professor Brian Wynne, Centre for the Study of Environmental Change, University of Lancaster

- Policy institutions have understood the relationship between scientific uncertainty and public confidence almost diametrically wrong. The conventional wisdom that inspires both UK and EU policy is that the public demands zero risk, cannot digest uncertainty and is irrational and misinformed. However, research shows that there is a considerable dislocation of logics characterising scientific perspectives and public reactions. The public are concerned with questions about unintended consequences - this is a different question from 'What are the risks'.
- Science does not recognise, take into account or communicate problems that arise from uncertainty and ignorance. Science does not handle ignorance, it just externalises it. The public sees and is concerned by this narrow focus. It experiences a denial of uncertainty. This is compounded by the fact that it is very difficult to communicate ignorance.
- How can government, and scientists, handle these problems? We cannot go on denying responsibility because of an 'innocent mistake'. If this answer is given, the next, and entirely logical, question is 'So why are we doing it?' A technology laden with uncertainties has to be justified by its purpose - the potential benefit. Yet with GM, for example, people noticed the contradictions between the claims that GM would 'feed the world' and the commercial focus of the 'Roundup Ready' branch of GM. In the circumstances, they were not prepared to accept the claims that there were societal benefits to the technology.
- This emphasises the need to include consideration of social purposes and social benefits - the so-called 'fourth hurdle'. Governments have a political responsibility to intervene in this sort of debate about the direction of technology.

### The challenges of scientific uncertainty in policy-making

Rt Hon Michael Meacher MP, Minister for the Environment, UK

- There is a need to make a clear connection between intellectual analysis of the precautionary principle and firm application of it in key areas. This is necessary both in the international arena, through the World Trade Organisation, and domestically, through issues like GM and chemicals, for both health and environmental issues.
- The Commission's Communication is very welcome, because it emphasises the structured approach to policy-making that is necessary - the need to start with the scientific evaluation and look for gaps and identify the degree of uncertainty at each stage. The test, though, will be how it is implemented, both in domestic, European and international fora.
- The following principles are central to a precautionary approach:
  - There is a need for science-based evidence, gained through the UK's field trials, for example. There will be no commercial cultivation until we are certain that there are no unacceptable environmental consequences. This is similar to the EU position - the original GMO Directive takes a precautionary approach, and revisions of the Directive will require post-market monitoring too. The Biosafety Protocol and the UK chemical strategy are further examples - in the chemicals

strategy, high production volume chemicals will be fast-tracked and subjected to risk management procedures. The response to climate change was possibly the biggest, most inclusive open discussion of scientific evidence, through the Inter-Governmental Panel on climate Change (IPPC).

- Decisions should not be taken behind closed doors - regulators must have full information.
- Public confidence and trust is absolutely central. This is why the UK government removed all commercial interests from UK Advisory Committee on Releases to the Environment (ACRE) ; improved public involvement in individual cases, such as the crop trials; and published full data on farm scale evaluations. Similarly, there will be a requirement for labelling of all GMOs in the revised EU directive, which will allow ethical concerns to be taken into account. In the UK there will also be a series of public meetings for local people near trial sites consisting of questions to an expert panel, including those opposed to the trials. The stakeholder forum established as part of the chemicals strategy is a further step in the right direction. Its role is to transmit public views to government and to set public debate in a focused and structured way.
- In the UK, these issues are being dealt with through the Modernising Government White Paper, which stresses the need to involve others; for evidence-based policy; and to improve the handling of risk.
- The revision of Office of Science and Technology guidelines on the handling of science in policy-making will include need to involve groups and stakeholders. We should be open about the degree of uncertainty, and expose the public to the nature of the problem.

#### **Panel: Perspectives on scientific uncertainty**

Dr Rene von Schomberg, Adviser, Trade DG, European Commission

- Historically politicians in the EU have tried very often either to ignore or abuse the precautionary principle. However, all environmental policies should be based on the Precautionary Principle according to the EU treaty.
- The Commission Communication aims to create an overarching principle that can cover all areas, including food policy and trade.
- There are two main stages in applying the precautionary principle:
- Firstly, there should be a decision made at the political level on whether it should be applied. The precautionary principle allows governments to take action earlier than they otherwise would have done.
- Secondly, if the precautionary principle is applied, the measures that will be taken need to be decided. The Communication has tried to clarify this. It says that measures must be, among others:
  - proportionate to risks and uncertainties involved, linking the level of action to the level of protection (this should not be confused with the political question of what is acceptable risk);
  - measures must be in conjunction with risk assessment - not opposed to risk assessment, but linked to it in an ongoing process.

Behind the rhetoric that pitches 'emotion' against 'sound science', there are substantial differences of view, for example, between the US and the EU. In the US the notion of precaution is seen as an issue of risk assessment with which scientists deal. In Europe the precautionary principle is a management tool with a clear normative element in order to cope with scientific uncertainty and risk.

#### Hans Wolters, Head of Greenpeace European Unit

- The Commission's Communication is welcome - it is good to have an open debate, and good that we have a set of criteria to make it operational.
- However, it is a highly political document that has emerged from a complex negotiating procedure between DGs and politicians. The Communication is ambiguous - it says everything and nothing - and the real test will lie in its implementation.
- Fundamentally, European policy-making has been concerned primarily with the single market. We have now added a social and environmental dimension, but this is lagging behind.
- We need longer time frames in order to see the consequences of our actions. We are running out of nature's capacity to deal with problems. Politicians should take responsibility and look forward to a thirty-year time frame.
- There is a need for industry to take responsibility. They could do much more to look for alternatives, such as alternatives to PVC, rather than focussing efforts on lobbying against the Commission's decision on phthalates.
- Why is industry opposed to liability for GM? If GM is safe, it should not be a problem to take responsibility.

#### Willy de Greef, Head of Regulatory and Governmental Affairs, Novartis Seeds

- Novartis is discussing the precautionary principle because it recognises its importance; it realises that it is already a strong guiding principle in business and sees it as a policy-guiding principle; and because there is a lot of confusion that undermines its value.
- Novartis agrees with the precautionary principle, but only if it is clear how it should apply. There has been a lack of transparency in the process - the Commission worked on the Communication behind closed doors.
- Precautionary measures should be:
  - adequate, and proportional to potential risk;
  - provisional, and subject to scientific and judicial review - they should trigger further scientific research;
  - based on a principle of non-discrimination - avoiding its use for discriminatory reasons (such as the French ban on BSE).

## Possible ways forward for policy-makers

Professor Ortwin Renn, University of Stuttgart

There is a need for new approaches in risk evaluation and management to take into account uncertainty and ambiguity. It is necessary to characterise risks and use the parameters of characterisation as tools for designing appropriate actions. Proposed criteria include:

- Damage potential, i.e. the amount of damage that the hazard can cause.
- Probability of occurrence, i.e. the likelihood that a specific damage will occur.
- Incertitude, i.e. the remaining uncertainties not covered by the assessment of probabilities, including statistical uncertainties, genuine uncertainty, and ignorance.
- Ubiquity which defines the geographic dispersion of potential damages (intergenerational justice).
- Persistence which defines the temporal extension of potential damages (intergenerational justice).
- Irreversibility which describes the impossible restoration of the situation to the state before the damage occurred.
- Delay effects which characterise the time of latency between the initial event and the actual impact of damage.
- Potential of mobilisation - i.e. potential violation of individual, social or cultural interests and values generating social conflicts.

Management strategies for coping with risks should depend upon their characterisation, based on these criteria. There are three broad management strategies:

### Risk Management

- based on scientific assessments;
- little uncertainty;
- preferred option: avoidance (if risk is high);
- second option: physical counter-measures;
- third option: early warning systems (for low probability risks) ;
- fourth option: mitigation and emergency planning;

### Uncertainty Management

- requires improvement of assessment capabilities;
- world-wide network of monitoring and observation;
- precautionary measures such as containment of application, safety margins for physical barriers, building of shelters, and others;
- contingency planning, including organisational provisions for fast disaster response (local and international) ;

#### Ambiguity Management

- avoidance of top-down decision making;
- discursive strategies for finding common understanding;
- individualising risks (such as labelling products);
- assistance to improve institutional or individual management capability and capacity;
- education, information, and participation of local population.

This classification shows that we need three types of management efforts to deal with risks, uncertainty and ambiguity. Rather than focusing only on probabilities and magnitude of damage, as in conventional risk assessment, other parameters should be considered.

#### Gordon Lake, Principal Administrator, European Parliament

- The European Parliament encounters and deals with scientific knowledge through a complex set of institutional arrangements.
- One area of concern is that implementing measures arising from EU Directives and Regulations are often devolved to scientific committees of representatives from the Member States, for adaptation to technical progress, under the so-called 'commitology process'. This creates a problem for the European Parliament as such committees often meet in secret and do not publish agendas and minutes. (Moreover a Parliament which now co-decides much legislation together with the Council feels that it should have a more formal role in monitoring implementation, rather than leaving this entirely to the latter).
- There is a need to police the boundary between the technical and the political - that is, to ensure that the committees are not taking political decisions under the guise of technical decisions. For example, Ciba-Geigy GM maize was introduced into the EU following extensive commitology procedures despite the opposition of the Parliament and a large majority of the Member States. (Whether this represents technical rationality triumphing over political rationality is debatable...).
- There is a clear case, using the 1972 U.S. Federal Advisory Committee Act as a model, for EU scientific advisory committees, to meet in public and to publish agendas, documentation and minutes, to open up decision-making to scrutiny. This would mean that pressure groups, lobbies or concerned individuals could bring to the Parliament's and the public's attention any problematic items which can then be dealt with by appropriate parliamentary procedures.

### **Dialogue session: criteria for successful policy-making under scientific uncertainty**

The dialogue session on Day One involved participants discussing and agreeing on a set of criteria for successful policy-making under scientific uncertainty. Participants discussed these criteria in small, mixed groups, then discussed in plenary before agreeing on the following list of criteria:

#### How to start the process?

- Foresight - be proactive; treat early warnings seriously
- Framing; asking the questions; setting the problem - what has been left out and why?
- Placing issue in wider policy context (e.g. what do we want agriculture to look like and what role could GM play in that?)
- Legal aspects (e.g. requirements for transparency)
- Time - speed, urgency, timeline of process
- Need for cultural and organisational transformation of policy institutions?

#### Stakeholder involvement

- Transparency - visibility of procedures and policy
- Openness - access to process encourages debate and better explanation of reasons, accountability
- Inclusion; interaction - willingness to dialogue, no hidden agendas (a precondition of this is the recognition of the ability of people to engage in complex (risk) issues)
- Iteration
- Style of debate - away from adversarial to bringing discussion of positions and assumptions to the surface
- Interdisciplinary - allowing dissent, minority voices
- Resourcing - capacity of stakeholders to participate
- Clear objectives for stakeholder dialogue; quality of engagement (avoiding stakeholder fatigue)

#### Generation, use of, and access to knowledge and information

- Quality of information
- Production of relevant information and appropriate use of knowledge
- Acknowledging legitimacy of and harnessing different kinds of knowledge, beyond scientific knowledge (e.g. daily life knowledge)
- Breadth; scope (interdisciplinary knowledge) of knowledge

## **Dialogue session: day two**

### Structure

The day began with a plenary discussion about the dialogue process, including reflections on the process which are summarised below.

### Reflections on the process

Professor Robin Grove-White, CSEC, Lancaster University

- The purpose of the seminar, as defined, is to discuss the issue of risk and scientific uncertainty in environmental policy-making. However, an equally important issue may be the experimentation with new kinds of conversations on these issues, which cross boundaries - new sorts of interactions, integrating different sorts of knowledge.
- The seminar brings together different and diverse cultures: expert knowledge about political cultures and practices, NGOs, academics including social scientists, and industry. This in turn raises questions about the role of each in the process.
- The idiom of dialogue facilitation, brought out through the structure of the seminar, is an important factor in the process.
- All these issues are important, and perhaps more important than discussion of possible policy prescriptions.

### Reflections on the process

#### Discussion points

- There is a need to spend more time developing a common understanding of the diagnosis of a problem. Case studies help to illustrate this point.
- The challenge of integrating the environment into decision-making is a good illustration of the problems of different perspectives and types of knowledge. Problems arise in large part due to the lack of connection between different policy areas, which might be accounted for by radically different perspectives and approaches. The need for new dialogue, new conversations and new structures is uppermost.
- The EU is facing major challenges - integration, enlargement, WTO issues, and old policy mechanisms no longer work. The Seattle protests showed that there are no bodies to facilitate the necessary decisions. The quality of process used to deal with these new challenges is very poor. There is more effort made to deal with frontpage news than long-term processes. New ways of including relevant knowledge will not come from day-to-day politicians or policy-makers because they are too wrapped up in every-day matters: new ways will come from this sort of meeting.

## Seminar Conclusions

Conclusions from the two days were brought together through the discussion groups, whose format was drawn up by seminar participants, organisers and facilitators. Participants split into three groups to discuss how best to tackle decision-making in three hypothetical policy-making scenarios characterised by risk and uncertainty. They were asked to consider for each scenario who should be consulted/involved, what structures and processes should be put in place, and how decisions and accountability would be handled.

The three different policy scenarios were: genetic modification, mobile phone use, and a new disease in cattle. The 'carousel' method of group working was used to enable participants to consider each scenario in turn. Each group started by considering one of the issues, noting down their thoughts on 'post-it' notes and flip charts with the help of a facilitator. To do so, they used colour-coded pens and 'post-it' notes, indicating which group had made the comments. They then 'rotated' around to consider the next scenario, building on the work of the previous group, adding their comments in their colour-coded pen. One more rotation was carried out, so that each group had discussed each scenario.

The groups then returned to their original scenario to summarise the discussion of all the groups and pull together key recommendations. These recommendations were used to draw out wider conclusions for environmental policy-making, with some general themes emerging from the discussion groups, which are summarised below.

### Scenario 1: A new disease in cattle

The discussion groups were asked to discuss how they would proceed if they were a panel charged with giving advice to the European Commission on how to deal with this situation:

*A new disease in cattle has been identified. There is some scientific evidence that the disease is like scrapie in sheep, which is thought not to affect humans. However there is no definitive evidence that this disease will behave in the same way as scrapie. If it is transmitted to humans, the consequences are likely to be severe. "*

### Conclusions

- There are three preconditions to any decision-making process:
  - There must be clear knowledge of the political realities - are decisions made at European or national level? Is there proper consideration of subsidiarity or an acknowledgement of the responsibilities of the European Union?
  - Any proper response requires a radically new architecture - a flexible, fluid means of responding that does not provoke anxieties and crises rather than preventing them.
  - There need to be very clear routes into decision-making. The authority of advisory groups or panels, and how they are related to the political structure, must be made clear.

- The decision-making process should have, as its organising principle, a 'stakeholder forum'. This forum would bring together representatives from all interested groups, publics and lay people. It would be a broad group but could break into smaller groups. The Forum would consider and present options, being clear about the assumptions behind these options, to politicians. The politicians would then be responsible for final decisions.
- There was a feeling that it was not right for scientists to be in the driving seat, with stakeholders responding to problems posed by scientists. Instead, stakeholders should frame the problem which the scientists would then be asked to address.
- The precautionary principle would be used through a set of procedures to be followed.
- The process would be ongoing - a rolling process. Monitoring and reversibility would be central. Openness, inclusively and transparency would be essential, so that all actions were justified.

#### Scenario 2: Genetically modified crops

The discussion groups were asked to discuss how they would proceed if they were a panel charged with giving advice to the European Commission on the long-term impacts of GM crops on agriculture in Europe.

#### Conclusions

- Faced with this question, participants decided to reframe the issue. Rather than asking 'what are the long-term impacts of GM crops in agriculture in Europe?' The group thought that a more meaningful question was:  
*"What are the consequences of European rural development policy to date.' Given these, what kind of policy do we want in future, and what role might GM crops play?"*
- This allowed discussion to move from the narrow, possibly biased, question to one that was more open, and which considered the wider perspective.
- It was felt that open questions are more interesting and fair, but harder to answer. There was debate over whether it was feasible to expect meaningful answers to such a wide question. At an administrative and legal level, there would be a need to focus down.
- A rationale would need to be developed for involving different groups. What knowledge could they contribute? Who would decide who could be involved?
- Any advice given would have to be clear about how it was formulated. Who was involved and what assumptions were made.

#### Scenario 3: Mobile phones

The discussion groups were asked to discuss how they would proceed if they were a panel charged with giving advice to the European Commission on how to deal with this situation:

*"There is emerging scientific evidence that mobile phones may be damaging to human health in two ways: a) they may have effects on the brain of users of mobile phones; b) they may have wide-range, low-level effects on those living or working close to mobile phone marts. "*

## Conclusions

- In this example, public knowledge was seen as a very important source of information and experience, given the high level of use of mobile phones. It was felt that public knowledge would be a very useful addition to scientific and medical information.
- The social implications of the mobile phone were discussed. The mobile is fast becoming a part of people's social identity, rather than just another technical device, and this has important implications for regulation.
- It was felt strongly that any attempt to broaden decision-making should not be seen as an anti-science agenda. Other types of decision-making could be used to frame and focus new science more effectively.
- Given that the mobile phone is a consumer good of a universal kind, straight regulation may not be appropriate - it may be better to influence or motivate industry to find solutions.
- Iterative discussions, taking into account previous experience within, across and outside government, would need to be central to policy-making.

## General themes

In addition to the workshop findings, the following overarching themes were drawn from the seminar discussions:

- Scientific uncertainty, as distinct from the narrower concept of risk, needs to be dealt with explicitly and in detail.
- It is extremely difficult to tackle scientific uncertainty without stakeholder and citizen involvement.
- There are reservations, limitations and practical difficulties inherent in any broadening of the decision-making process. How should we incorporate other views, and at what stage? How can we ensure legitimacy? Should these issues be dealt with at local, national or European level?
- Despite these reservations, there is a real need to press ahead with putting better decision-making structures into place.
- Appropriate methodologies do exist - the seminar itself provided a practical example of participative techniques.
- Policy-makers need to act as 'intelligent customers', commissioning and using participative processes.

## **Participants**

### **Academics**

Dr Klaus Ammann, University of Bern  
Professor Robin Grove-White, Centre for the Study of Environmental Change, University of Lancaster  
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### **National Governments**

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Dr Chris Fisher, formerly joint Food Safety and Standards Group, Ministry of Agriculture, Fisheries & Food, UK  
Rt Hon Michael Meacher MP, UK Environment Minister  
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Facilitator

Lindsey Colbourne, Projects in Partnership

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**Handling scientific uncertainty In EU decision- making**

**17 - 18 April 2000, Institute of Materials, London**

**A Green Alliance seminar, held in conjunction with the European Federation of Biotechnology Task Group on Public Perceptions of Biotechnology, and the Economic and Social Research Council, UK**

Day 1

9.45 am **Registration and refreshment**

10.00 am **Welcome and Introduction**

Dr Ian Scoones, Co-Director, ESRC Global Environmental Change Programme Lindsey Colbourne, Director, Projects in Partnership

**Uncertainty, science and public trust: Introduction**

Chair: Julie Hill, Programme Adviser, Green Alliance  
Professor Brian Wynne, Centre for the Study of Environmental Change, University of Lancaster

**The challenges of scientific uncertainty in policy-making**

Rt Hon Michael Meacher MP, Minister for the Environment, UK

**Questions and discussion**

**Key Challenges: Working session I**

Lindsey Colbourne, Director, Projects in Partnership

11.40 am **Panel: Perspectives on scientific uncertainty**

Chair: Professor Robin Grove-White, Centre for the Study of Environmental Change, University of Lancaster

Dr Rene von Schomberg, Adviser, External Relations DG, European Commission Hans Wolters, Head of Greenpeace European Unit Willy de Greef, Head of Regulatory and Governmental Affairs, Novartis Seeds

**Questions and discussion**

12.35 pm **Key Challenges: Working session 11**

Lindsey Colbourne, Director, Projects in Partnership

1.10 pm **Lunch**

2.15 pm **Possible ways forward for policy-makers**

Chair: Professor Robin Grove-White, Centre for the Study of Environmental Change, University of Lancaster  
Gordon Lake, Principal Administrator, European Parliament

Professor Ortwin Renn, University of Stuttgart

**Questions and discussion**

**Workshop session: Guidelines for solutions**

Lindsey Colbourne, Director, Projects in Partnership

- 4.30 pm **Feedback and discussion**  
Feedback from groups, cross discussion and summing up by chair
- 5.30 pm **Close**
- 7.15 pm *Drinks followed by dinner for participants at the Institute of Materials*

Day 2 - Dialogue session

- 10.30 am **Introduction**  
Chair: Julie Hill, Programme Adviser, Green Alliance
- Summary of conclusions from Day 1**  
Presentation of criteria checklist for successful policy-making under uncertainty (collated from the Day 1 workshop session)
- Programme**  
Lindsey Colbourne, Director, Projects in Partnership
- Reflections on the process**  
Professor Robin Grove-White, Centre for the Study of Environmental Change,  
University of Lancaster
- Discussion**  
Professor Robin Grove-White, Centre for the Study of Environmental Change,  
University of Lancaster
- Carousel discussion groups**  
Facilitated by Julie Hill, Pippa Hyam, Lindsey Colbourne on:
- A new disease in cattle
  - Genetically modified crops
  - Mobile phones
- 1.00 pm **Lunch**
- 2.00 pm **Discussion Groups: Conclusions**
- 3.40 pm **Tea and coffee**
- 4.00 pm *Plenary feedback of conclusions and discussion*

5.00 pm **Close**

## About the organisers

### Green Alliance

Green Alliance's mission is to promote sustainable development by ensuring that the environment is at the heart of decision-making. It works with senior people in government, parliament, business and the environmental movement to encourage new ideas, dialogue and constructive solutions. For more information about Green Alliance and its work on risk and scientific uncertainty, visit the web site [www.green-alliance.org.uk](http://www.green-alliance.org.uk) or contact Julie Hill, Rebecca Willis or Beatrice Rose at Green Alliance, 40 Buckingham Palace Road, London SW 1W 0RE  
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### The European Federation of Biotechnology Task Group on Public Perceptions of Biotechnology

The European Federation of Biotechnology Task Group on Public Perceptions of Biotechnology consists of 50 members from all EU and most other European countries drawn from scientific research, industry, government, consumer and environmental organisations, the media and communications. It works to increase public awareness and understanding of biotechnology and the life sciences throughout Europe and to facilitate dialogue between interested parties. For further information please contact: Dr David Bennett  
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### Global Environmental Change Programme

The Global Environmental Change Programme is in its final year. Supported by the Economic and Social Research Council, the Programme has run since 1991 and ended in June 2000. It has supported 150 empirical research projects, Fellowships and PhD studentships across the UK. The GECP still has a web site at [www.gecko.ac.uk](http://www.gecko.ac.uk)

### Economic and Social Research Council

The Economic and Social Research Council (ESRC) promotes and supports research in the social sciences. By advancing knowledge, the ESRC aims to contribute to the UK's economic competitiveness, the effectiveness of public services and the quality of life. For more information about the ESRC, visit the web site [www.esrc.ac.uk](http://www.esrc.ac.uk) or contact External relations Division  
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## Projects in Partnership

Projects in Partnership is a national organisation specialising in creating sustainable solutions through participation and partnership. We work locally, nationally and internationally with business, government, the voluntary and community sectors. Our areas of expertise include consultation, participation, collaborative project development, participatory democracy and partnership working.

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