

PROPOSAL PART C

C1: for the STRATA Project

Thematic Networks:

Strategic Analysis of Specific Political Issues

PROPOSAL TITLE:

Regulatory Strategies and Research Needs to Compose and Specify a European Policy on the Application of the Precautionary Principle

PROPOSAL ACRONYM:

PRECAUPRI

DATE:

June 1, 2000

C2 Content List

C3	Community added value and contribution to EU policies	3
C4	Contribution to Community social objectives	4
C5	Management	5
C6	Description of the consortium	6
C7	Description of the participants	8
	<i>Center of Technology Assessment in Baden-Württemberg (CTA), Germany</i>	<i>8</i>
	<i>Federal Institute of Technology Zurich (ETH), Switzerland</i>	<i>10</i>
	<i>SPRU (Science & Technology Policy Research), University of Sussex, UK</i>	<i>12</i>

C3 Community added value and contribution to EU policies

The subject of the proposal is the application of the precautionary principle that has been the basis for most of the European environmental and health protection legislation and regulation. The precautionary principle has become under attack by several representatives of large companies as well as by major governments such as the US-government in the recent controversies about world trade (such as hormones in beef). The policy makers in the EU are under severe stress: on one hand, the EU has confirmed its commitment to the precautionary principle, on the other hand a consistent, practicable and legally compatible framework for applying the precautionary principle is not in sight. The main criteria for applying this principle have been articulated but the EU lacks a clear concept of how to measure violations of the precautionary principle and how to find the appropriate control strategies in proportion with the degree of violation. A new policy framework is required that honors the philosophy of the precautionary approach, operationalises its application in different risk areas and promises specificity and predictability for all actors involved. As demanded by the EU, this new concept needs to be in line with traditional methods of scientific risk assessments and, at the same time, to include compelling responses to the challenges of uncertainty and ambiguity as part of the management agenda.

Our approach will specify three different types of risk management approaches (risk-based, uncertainty-based and ambiguity-based) and develop appropriate strategies to cope with them. This will be done on the basis of a theoretical and legal analysis and tested in a case study with the use of persistent organic pollutants (POPs). In addition, the approaches will be thoroughly discussed in a series of workshops with stakeholders from all relevant areas.

In terms of EU-policies, our project provides a thorough analysis and a policy-relevant synthesis of the still fragmented knowledge on best practices in risk regulation based on precaution. In addition, it promises to develop a deeper knowledge and a better understanding of the issues of health and environmental protection from a European perspective. Both products will assist the European Union in articulating a distinct policy framework for risk reduction and regulation and in establishing a firm legal position vis-a-vis competing frameworks of other countries, such as the United States of America. Our proposal includes a whole series of workshops with the main stakeholders in risk management. The objective behind these workshops is to understand the concerns and suggestions by different stakeholders and to develop a policy framework that has a high probability of finding approval by all major European political and social forces. These workshops will support the exchange of experiences and mutual learning by bringing together all relevant actors on the subject of risk regulation for protecting human health and the environment in Europe.

C4 Contribution to Community social objectives

It is obvious that risk regulation and control has a direct impact on the social values that the populations of the member countries share. Most prominently, the project will enhance the criterion of improving the quality of life as well as the status of health and safety by providing an effective and efficient proposal for using the precautionary principle in a wise manner. Rather than the vague policy descriptions that major actors in industry and society have found confusing the project will contribute to a quantifiable and predictable concept of precaution that provides both reliability and effectiveness.

It is also obvious that our project will help to improve the environmental quality and to foster sustainable practices in the member countries. The precautionary principle embodies more than any other legal principle the spirit of sustainability. It provides legal tools to restrict potential risk exposure to future generations. It also provides incentives for developing less harmful substitutes and less pervasive waste or emissions.

Lastly, the project will also contribute to the goal of improving the competitiveness of the European industry. In spite of the common misperception that environmental regulation restricts economic growth, most analyses have shown that predictable and consistent provisions to protect human health and the environment create common ground rules for industry to compete. Such provisions are also instrumental in promoting a new process of modernisation and adaptation to social needs. Our project is inspired by the objective to provide industry with reliable, predictable, consistent and flexible rules so that they can plan in advance and adapt the necessary strategies to become competitive players in the global markets.

C5 Management

The project is managed by the Center of Technology Assessment in Baden-Württemberg. This Center is a public foundation devoted to the investigation of technological impacts and the evaluation of these impacts through discourse with affected individuals and groups. The foundation is funded among others by the State Government of Baden-Württemberg. Prof. Ortwin Renn, who chairs the Board of Directors, will be the Project Manager for the entire project.

The proposed management structure is organised as follows:

- The Center will appoint a program administrator for the entire period (half-time).
- The project team will meet every six months to discuss work progress and to assign tasks for each member.
- The principal director of the thematic network activity will provide management plans for all activities and define the benchmarks for each product that will be delivered during the project.
- All organisational work for preparing, conducting, and evaluating the workshops will be performed by the program administrator in close association with the project team
- The Center will also be responsible for keeping the records of the network, to organise the correspondence with the network members and to take the responsibility for disseminating all documents and material.

As described in Workpackage 1, the project is designed to deliver all products on time and to ensure an effective and efficient management style. The workshops will be of central importance to the organising team. Each member will receive all material in advance together with a questionnaire that will assist him or her to focus on the main issues addressed during the workshop. After each workshop the minutes will be sent to each participant and a workshop report will be produced. All participants of all workshops will be informed about the progress of the work and are invited to continuously send comments to the team.

The Center has gained lots of experience in conducting large-scale projects, organising international workshops, and building networks among experts and policy makers from different backgrounds and countries. In particular, the Center is known for its expertise in conducting consensus-seeking activities and dissemination workshops.

C6 Description of the consortium

The consortium is directed by Ortwin Renn from the Center of Technology Assessment. He will be assisted by Andreas Klink and Rainer Carius. In the area of risk analysis and management, the Center has extensive experience in the fields of biotechnology, chemical hazards, waste disposal, and energy issues. Major research projects include a citizen participation project for municipal waste management, organising a discourse on energy and ethics, and a national risk communication program with respect to biotechnology. The project manager, Prof. Ortwin Renn, has been member of the 'German Advisory Council on Global Change' (WBGU) and was one of the leading authors of its 1998 report on managing global risks. During the last years, he has been involved in several European research programs on public perception of risk as well as projects on risk communication and risk participation.

The suggested topic of the project is an integral part of the Center's research activities. The foundation has made risk and regulation one of the main themes of research. The suggested project can benefit from the interdisciplinary experience of the Center and can draw on its vast resources in terms of professional input from all disciplines, library and computer facilities, and access to data banks and information.

Much of the theoretical analysis and its implementation will come from Dr. Andrew Stirling from SPRU (Science & Technology Policy Research) at the University of Sussex. Recently Dr. Stirling and others completed a report on the precautionary principle for the Forward Studies Unit of the EU Commission (Stirling 1999).

The empirical component will be contributed by Prof. Müller-Herold from the Swiss Federal Institute of Technology in Zürich. Prof. Müller Herold is an internationally recognized specialist on chemical risks and has published several articles on risk regulations based on the precautionary approach. The group of Müller-Herold has worked extensively on the concept of temporal and spatial ranges and their use in the assessment of environmental chemicals (see references of Müller-Herold, Nickel, Quartier, Scheringer). They propose a simple assessment model covering atmospheric and oceanic transport, phase-transfer, degradation, together with a suitable concept of ranges. Both, the spatial ranges of emitted substances and of their transformation products can be handled in this approach.

The legal component will be contributed by Dr. Elisabeth Fisher from the University of Southampton. Dr. Fisher is a leading authority on the legal aspects of regulation and has been working on the precautionary principle for many years. She has a long record of publications in the field of risk regulation. Her responsibility will be to draft a new document that reflects the input from the stakeholders and meets the requirements for a legal document.

The consortium has been designed to maximize expertise and efficiency. The four principal investigators represent the natural, legal and social sciences. They all share a high reputation in their respective fields and are accustomed to be part of interdisciplinary research teams. Prof. Renn has co-operated with Dr. Stirling and Prof. Müller-Herold in previous research projects. The team will be effective in reaching its ambitious goals and efficient in making sure that the results are widely disseminated and published. The team members have experience in conducting European projects. The additional European expertise from those countries that are not represented in the research team will be drawn from the participants of the workshops. These will include specialists and stakeholders from all member countries of the European Union.

C7 Description of the participants**Center of Technology Assessment in Baden-Württemberg (CTA), Germany**

The Center of Technology Assessment in Baden-Württemberg is a public foundation devoted to the investigation of technological impacts and the evaluation of these impacts through discourse with affected individuals and groups. The foundation is funded among others by the State Government of Baden-Württemberg. The main objectives of the Center are:

- to conduct interdisciplinary research on the likely consequences of technologies with a particular focus on those impacts that are relevant for Baden-Württemberg;
- to develop a network of TA research institutions in Baden-Württemberg and beyond;
- to organise discourses with all relevant social groups about TA and the research results of the foundation;
- to consult policy and decision makers with respect to technological policies.

In accordance with the objective of interdisciplinary research, the Center is focused on five major themes: Sustainable development, technical infrastructure (energy, traffic, waste), innovation, environmental impacts of technological change, and discursive methods of communication and public involvement. Within each subject area, a team of investigators from the technical, natural, and social sciences pursues projects aimed at assessing and evaluating impacts of specific technologies within the broader subject area such as energy or sustainable development. While the assessment procedure is mainly dominated by scientific processes, evaluation and interpretation of results are subject to an extensive discourse among researchers, politicians, representatives of social groups, and the public at large.

Ortwin Renn is Chair of the Board of Directors at the Center of Technology Assessment in Baden-Württemberg. He also serves as Chair of Environmental Sociology at the University of Stuttgart. From 1992 to 1993 Dr. Renn spent his sabbatical leave at the Swiss Institute of Technology in Zürich, Switzerland. From 1986 to 1992 he had taken the position of an Associate Professor for Environment, Technology, and Society at Clark University in Worcester (Massachusetts). Prior to joining Clark, he directed a research unit for technology assessment at the National Research Center KFA at Jülich (Germany). Dr. Renn received an MA degree in Sociology and Economics (European Diploma) and a doctorate degree in Social Psychology, both from the University of Cologne. Dr. Renn serves on several national and international advisory boards. Among others he is a member of the German Council on Global Change (WBGU), the New York Academy of Sciences, the Collegiate of the European Academy for the Study of Scientific and Technological Development and the Regional Environmental Board of the Protestant Church. For the German State of Baden-Württemberg he serves on the Prime Minister's Future Commission and the Research

Commission of the Environmental Ministry. Dr. Renn is co-editor of the Journal GAIA and of the Kluwer book series on technology and risk. From 1996 to 1997 Renn was President of the Society for Risk Analysis Europe (SRA-E).

Andreas Klinke is a researcher at the Center of Technology Assessment in Baden-Württemberg in the Department of Technology, Society and Environmental Economics. He also serves as associate researcher at the 'German Advisory Council on Global Change'. Klinke received a MA degree in political science and sociology from the University Stuttgart. Currently, he is working on his doctoral thesis on deliberation in international relations. Klinke has worked on several research projects on public participation, conflict management, global change, risk evaluation and management, precautionary principle and international relations. He has worked on the following EU projects: Public perception of Genetic Engineering in Agriculture and Food Production; On Science and Precaution in the Management of Technological Risks; and Transparency and Openness in Scientific Advisory Committees.

Rainer Carius is a senior researcher in the Department for Technology, Society and Environmental Economics at the Center of Technology Assessment in Baden-Württemberg. Carius holds the degree of a Master of Science in Mechanical Engineering, University of Darmstadt and Ecole Central de Lyon and a Master of Science in Management, Troy State University Alabama. He served as head of several research projects concerning regional concepts of sustainable development, shareholder and public participation, standards of environmental quality and risk management. Carius is co-author of two books and has published about 20 articles. He also lectures at the Universities of Applied Sciences in Mannheim and Karlsruhe and serves on different advisory boards on a regional and national level.

Federal Institute of Technology Zurich (ETH), Switzerland

The Federal Institute of Technology Zurich, or - to give the university its German acronym - the ETH, was founded by the Swiss government in 1854 as a polytechnic and opened its doors in Zurich in 1855. Until 1969 it was the only national university in Switzerland. Today it is part of the ETH domain which is made up of the two universities in Zurich and Lausanne (the EPFL) and four national research institutes.

The ETH itself comprises 83 institutes and laboratories, 330 professorships and about 840 lecturers who fulfill teaching obligations and conduct research. A staff of more than 7'500 - with a 25% proportion of women - work in teaching, research and administration. Current statistics of the ETH show 11'700 registered students. Each year about 1'250 receive an ETH diploma and a further 530 complete a doctoral thesis. Current annual expenditure has reached 1 bio. Swiss francs.

The ETH Zurich is divided into departments. Research and education fall within the competence of the 17 departments.

Based on its research activities, the ETH Zurich is able to offer state-of-the-art knowledge in its courses, and adapt the scientific professional qualifications to the needs of people, environment and culture. The teaching and continuing education courses are closely linked to research.

In its mission statement the ETH Zurich commits itself to the following principles: To promote and maintain quality in teaching and research at a high international level; to support a universal and system-oriented approach; to preserve specialist and cultural diversity and academic freedom in teaching and research; to secure an adequate infrastructure and guarantee its renovation; to optimise central scientific services in information and communication systems as well as administrative support covering the needs of teaching and research.

The organisation of the ETH Zurich is run on the lines of a presidential system, in which the president chairs the Executive Board and bears responsibility for the management of the university. The president is supported by the Rector, who is responsible for teaching, the Vice-president of research and economic relations and by the Vice-president of planning and logistics.

The research group "*Ecological Risk Prevention*" headed by Prof. Müller-Herold deals with long-time perspectives of ecological risks ("Risk management strategies - before hominization and after", J. Risk.Res. 3, 19-30, 2000) and with the development of exposure-

based assessment methods for environmental chemicals. In particular it proposed and developed the concept of temporal and spatial ranges as assessment categories for chemicals ("A simple general limiting law for the overall decay of organic compounds with global pollution Potential", *Env.Sci.Technol.* 30, 586-591, 1996; "A closed analytical formula for the characteristic spatial range of persistent organic pollutants", *Ecol. Mod.*, May 2000). The corresponding analysis has been recently extended to secondary transformation products of released primary chemicals. In 1999 the group has delivered a technical report "Endangerment assessment of contaminants and combination of contaminants by analysis of spatial and temporal ranges" for the European Academy Bad Neuenahr-Ahrweiler, as well as a study "On the adaption of range indicators to the global level of analysis" for WBGU, the German Advisory Council on Global Change.

Ulrich Müller-Herold is a member of the Department of Environmental Sciences at the ETH Zurich. Born in 1943 in Montabaur, Germany, he qualified as a Dr. med. in Cologne in 1969, and received a diploma in Chemistry from ETH Zurich in 1973. After further studies in mathematics and theoretical physics he qualified as a lecturer (Privatdozent) in theoretical Chemistry. In 1986 he was appointed professor. From 1987 to 1992 he served as a project manager for the setting up of the ETH Zurich curriculum in the environmental sciences, and from 1991-1993 he directed the environmental sciences case studies. In 1993 he started a research programme on ecological risk prevention, in particular as applied to semivolatile persistent organic pollutants. Since its foundation in 1991 Prof. Müller-Herold is chairman of the board of directors of the journal "GAIA. Ecological Perspectives in Science, Humanities and Economics".

SPRU (Science & Technology Policy Research), University of Sussex, UK

SPRU at the University of Sussex is one of the worlds' leading centres on science and technology policy studies. It aims to carry out world class research and teaching on policy issues relating to scientific research and technical change, and to disseminate its results to as wide an audience as possible. Its work is independent, interdisciplinary and international in scope. It is concerned with the challenges that confront decision-makers in government, industry and international organisations and with the public debates that surround those challenges. Its staff of some 40 researchers come from a variety of academic disciplines and their work covers a wide range of policy issues, most of which crosses disciplinary boundaries. SPRU earned a grade '5' in the UK National Research Assessment Exercise (1996) indicating national and international excellence across its full range of activities.

The SPRU *Environment Programme* was formed in 1992. It aims to make a distinctive contribution to the understanding of environmental problems and their resolution by focusing upon the contribution of science and technology and their role within the regulatory and policy making process. The programme has conducted research in five major fields: energy and environment; the adoption of clean technologies in firms; the environmental policy-making process; the implementation of environmental policy; and risk and uncertainty. This work has been funded by the UK government research councils, UK government departments, the European Commission and industry.

The research conducted on environmental issues at SPRU is interdisciplinary, drawing on a range of perspectives including: economics of regulation; environmental economics, political science, risk and technology assessment. SPRU researchers have served as advisers on many Parliamentary Select Committees and acted as advisers to numerous UK regulatory agencies. At an international level, staff have advised institutions such as the IEA, OECD, European Commission, the EBRD and the World Bank.

Recent work relevant to the proposal includes:

- *Environmental Futures*: a project for the Technology Foresight Panel of the UK DTI which developed qualitative socio-economic futures scenarios, and subsequently applied them to a range of fields including climate impacts assessment.
- *Market based instruments for sustainable development*: an EU Concerted Action Program in which SPRU hosted a workshop on emissions trading and edited the papers for subsequent publication as a book: *Pollution for Sale: emissions trading and joint implementation*.
- *Technology and Environmental Policy*: a Commission project under the Environment & Climate Programme which analyses the post-transposition implementation of several EU environmental directives in various Member States;

- *Science and Precaution in the Management of technological Risk*: a project for the EC Forward Studies Unit, co-ordinated by SPRU, examining ways to reconcile science-based and precautionary imperatives in risk regulation. The results stimulated wide interest, being favourably cited in the Communication on the Precautionary Principle (2000)¹.
- *Rethinking Risk*: a pilot multi-criteria mapping study of a gm crop in agricultural systems in the UK: a project funded by Unilever involving a wide range of industry, government, academic and NGO participants which developed a concrete approach to the implementation of precaution in this hotly contested area

Andy Stirling is a Senior Lecturer and Fellow at SPRU. He has a background in the natural sciences, a Masters in Archaeology and Social Anthropology (first class honours, Edinburgh 1984) and a D.Phil in science and technology policy (Sussex, 1994). His work on the environmental appraisal of energy technologies has been widely published, with a novel technique for the characterisation of technological diversity (as an element of a precautionary strategy) adopted by the British Government in the 1993 White Paper on nuclear power and in subsequent documents. In 1998-9, he co-ordinated the EC project on 'science and precaution' mentioned above. He has also worked with a variety of industry and NGO bodies on related themes, including a major study applying a novel multi-criteria method as an element of a precautionary approach to the appraisal of genetically modified crops. He has served on a number of Government committees, currently being a member of the UK Advisory Committee on Toxic Substances. Among other current work on the theme of precaution, he is contributing to and co-editing a book for the European Agency.

Patrick van Zwanenberg is a research fellow at SPRU. He trained initially in environmental science before taking postgraduate degrees in science and technology policy. He has broad interdisciplinary interests in environmental and public health policy with a particular emphasis on the role of scientific evidence and expertise in policy-making. He has worked on the science and politics of risk assessment, regulatory policy and research policy for several years in the areas of pesticide safety, European agricultural biotechnology and Bovine Spongiform Encephalopathy (BSE). He has worked on several research projects funded by the European Commission including projects entitled 'Public Engagement and Environmental Science and Technology Policy Options' (1996-98, DGXII); and 'Building a common data base on scientific research and public decisions on TSEs in Europe' (1998-00, DG XII). He has recently written a chapter on BSE for a book on the precautionary principle for the European Environment Agency.

Subcontractor:

Elizabeth Fisher BA/LLB (UNSW) DPhil (Oxon) is a lecturer in law at the University of Southampton and fellow-elect, Corpus Christi College, Oxford. Dr Fisher first began

researching the precautionary principle in 1992 as part of a government funded project at the Institute of Environmental Studies, UNSW, Australia. She has continued to research and publish on precaution concentrating on its implications for administrative law. She has also given numerous conference and seminar papers on the topic and given seminars to different groups including judges and environmental groups. Her other research interests lie in the interrelationship between the courts and risk regulatory bodies in UK, US and EC law. Published work includes: Harding & Fisher (eds.) 'Perspectives on the Precautionary Principle' (1999) (320 pages), 'Changing the Mindset: Implementing the Precautionary Principle in Australia', 'Research in Social Problems and Public Policy' (1999), and 'The Precautionary Principle: An Annotated Bibliography' (1993).