

Andrew Jamison

THE ENVIRONMENTAL MOVEMENT  
AND SCIENCE POLICY

STS-arbeidsnotat 19/96

ISSN 0802-3573-135

arbeidsnotat  
working paper

Andrew Jamison:

## **THE ENVIRONMENTAL MOVEMENT AND SCIENCE POLICY<sup>1</sup>**

At some point in the mid-1980s, the environmental movement ceased to exist as a living source of collective identity for a relatively small number of people and became instead a much more diffuse and disembodied source of collective inspiration for society as a whole. What had previously been a wide ranging critique of industrial society and its waste and artificiality and environmental degradation became a much more delimited set of symbols, ideas, slogans and practices that have since been working their way into the the world of science and technology policy. What had earlier been seen by the power elite primarily as a subversive threat to the further expansion of the industrial state has come instead to be seen, by many influential actors in both business and government, as an important contributor to economic recovery and rejuvenation.

From the paradigmatic notions of sustainable development and risk society to the pragmatic techniques of cleaner production and pollution prevention to the new marketing strategies of green consumption and environmental labelling, the political discourse of environmentalism has been reinvented over the past ten years as a policy discourse, which has come to be called ecological modernization. What represented in the 1970s an alternative approach to modern science and technology has come to be reconstituted, from the mid 1980s onward, as a partner in a constructive program of science, technology and economic policy.

It is worth noting that this transformation from movement to institution - and to policy actor - is a recurring theme in the history of science and science policy. In many ways, what has happened to environmentalism, over the past twenty years, resembles the experience of the labor movement in the 19th and early 20th centuries, and, before that, the experience of the protestant reformation of the 16th century. In all of these cases - and there are, I would argue, many more such cases in the history of science - there has been a translation of a social critique into packages of policies and programs, a translation, that is, of politics

---

<sup>1</sup>This paper was presented at the conference on Environment and Power, Trondheim, October 30-31, 1996, organised by Programme on Environment, power and political management, funded by the Norwegian Research Council.

into science and science policy. Modern science emerged, in the 17th century, from a much broader struggle for political equality and religious reform. The so-called project of modernity, at the outset, did not involve merely a new scientific method, or a new mechanical world-view; or a new kind of state support for experimental philosophy in the form of scientific academies. As the reformation, it had been a much more deep-seated challenge to the idols of the past, and to the dominance of ingrained, traditional ways of thought in social and religious life. It was a protest against the Church - that's why they were called protestants - and it was a social movement that articulated and practiced alternative forms of religion, politics and learning. But as the movement became institutionalized, the political and social experiments came to be reduced to scientific experiments and new religious denominations: new institutional spaces or contexts; the political and religious reformation, we might say, was redefined, to a large extent, as a scientific revolution.

In the 19th century, the labor movement also sought a deep-going, fundamental political transformation of society, but it too saw its fundamental critique translated, in the early 20th century, into packages of reforms and a more welfare-oriented capitalism - and even that achievement, in many countries, is now showing its fragility. Once again, however, as in the 17th century, science benefited from this institutionalization of social movement critique; the knowledge interests of the labor movement were transformed into new social science disciplines and social democratic parties. A political challenge was translated into programs of scientific research and state policy; and while new forms of policy and scientific-technical expertise were developed, there was little left of the broader democratization of knowledge production that the labor movement, in its more radical days, had represented.

Something similar, I suggest, has been happening in our time, in relation to environmentalism, and also, for that matter, in relation to feminism. What were in the 1960s and 1970s protest movements of radical opposition have largely been emptied of their radical political content; while simultaneously giving rise to new branches of, and approaches to, science and technology. While the more radical, or oppositional, voices have lost much of their influence, the more pragmatic and scientific voices have been given a range of new opportunities. Of course, this is not to say that there is no longer a radical environmental opposition or a radical women's movement, but I would contend that radicals and reformists have increasingly drifted apart from one another, and in most countries now work in different organizations, with little sense of a common, oppositional movement identity.

Indeed, in many places, we see locally-based activist groups emerging to protest the reformist tendencies of former movement organizations. There has been, in other words, a fragmentation of what was, for a relatively short time, a social movement into a number of disparate bits and pieces. In the 1970s, environmentalism, throughout the industrialized world, stood for an alternative

form, or mode of knowledge production and diffusion, an integrated set of ideas and activities, involving both a fundamental political critique of modern science's dominating attitude to nature, as well as an alternative organizational ideal - a democratic, or participatory ideal - for the development of knowledge. There was also a distinct form of social learning in the environmental movement, and a kind of grass-roots engineering activity that went under the name of appropriate technology. The point is that, as a social movement, environmentalism managed to combine different kinds of interests into a central core identity, what Ron Eyerman and I have termed cognitive praxis. This cognitive praxis includes three dimensions - a cosmological, technical and organizational - which for a time provided a source of collective identity for those who considered themselves a part of the environmental movement.

The cosmology was, to a large extent, the translation of a scientific paradigm into a socio-economic paradigm; in the 1970s, the holistic concepts of systems ecology were transformed into political programs of social ecology - an ecological worldview was to govern social and political interactions. Technology was to be developed under the general perspective that "small is beautiful", and that large scale, environmentally destructive projects were to be opposed and stopped. At the same time, new contexts for education and experimentation and the diffusion of research were created in the form of movement workshops and, in Holland, for example, in the form of science shops, allowing activist groups to gain access to the scientific expertise at the universities.

I have earlier suggested that one of the key processes at work in the 1980s, which served to decompose, or break apart this integrative movement cognitive praxis into a disparate cluster of organizations and individuals, was a process of professionalization. The knowledge interests of the environmental movement were transformed into various kinds of professional expertise, which made it possible to incorporate parts of the movement into the established political culture, and shift at least some of the members of the movement from outsider to insider status. Some of the alternative technical projects proved commercially viable - biological agriculture, wind energy plants, waste recycling. Some of the alternative visions were taken up by professional philosophers and politicians, and the alternative contexts for knowledge production and dissemination either cleaned up their act and developed more sophisticated communication and information strategies or they eventually ran out of steam. A transformation of movement into policy actor took place with far-reaching implications for science, technology, policy-making, and socio-cultural change in general.

There were both internal and external reasons for this professionalization process. In the course of the energy debates of the 1970s, the environmental movement had generated within its own ranks a new range of expert competences in energy planning, energy policy, alternative energy production, and so forth. As the intensity of the public debate over energy futures waned in most of the industrialized countries during the early 1980s, either through

over-exposure or some kind of definitive parliamentary decision - or, as in Norway, the defeat of the movement at Alta - these counter-experts thus found themselves in need of new sponsors to support their work. Some became professional consultants, working either in private consulting firms or in relation to the government, and some found jobs at non-governmental organizations, like Greenpeace, or the older, more established conservation societies. Others carved out niches in the media and the universities, creating new professional identities as environmental journalists, environmental and energy researchers. Still others moved into governmental and intergovernmental agencies, like the World Bank and the European Commission, to develop programs in energy efficiency and sustainable technology development.

What began to be noticeable in the mid-1980s, to a significant degree as a result of these professional outgrowths, or spin-offs, from the environmental movement, was a new kind of environmental policy agenda, the so-called global environmental agenda that focused on problems of biodiversity, climate change, and transborder pollution. These problems were, of course, identified by scientists and engineers as serious and urgent, particularly after the hole in the ozone layer was disclosed over Antarctica. It is, however, worth noting that most of these international environmental problems had been discussed at least since the 1940s by concerned scientists and nature-lovers, and, at the 1972 UN Conference on the Human Environment in Stockholm, the global nature of environmental problems had been stressed by many scientific participants.

What had changed in the meantime was the character of the international political economy. By the mid 1980s, production, in many branches, had become increasingly globalized, with research carried out in one part of the world, development in another, and manufacture in still another. Individual firms were increasingly nodes in transnational corporate networks. Economic life had more and more come to be governed by international patterns of production and diffusion, and this globalization trend was further accentuated by developments in telecommunications and information technology. It became possible, and, in a few short years, common practice, to plan industrial operations on a global basis, and to shift operations from country to country depending on changes in market and financial conditions. There are, of course, many elements to this globalization that are open to dispute, and there is, to say the least, a lively discussion of what all this means. For environmentalism, and environmental science and technology policy, globalization has meant a shift in substantive focus - from the local and national to the global, when it comes to the issues to be dealt with - as well as a shift in location - from national policy-making bodies to intergovernmental and international organs, when it comes to agenda-setting, and, increasingly implementation of research programs, as well. In actual research practice, the new information technologies have meant a great deal, in terms of the kinds of observations that can be simulated, the kinds of models that can be constructed, and the kinds of calculations that can be made. The social

construction of scientific facts has been shifted from a more or less direct interaction with the environment and its component parts, to an ever more abstract and aggregate meta-environment of atmospheric, hydrological and geological processes that cannot be directly observed or, for that matter, studied.

It can be suggested that what has made these new issues particularly interesting for the new cadres of environmental professionals that had, as it were, grown out of the environmental movement, is that their solution requires something more than old fashioned science and technology. They require rather a new kind, or mode of knowledge production that combines various disciplinary perspectives. Most importantly, these new global environmental problems require a new kind of social or political expertise to complement the traditional kinds of scientific-technical expertise that had previously dominated environmental science and technology policy. In particular, there is need for an intermediary expertise between the global and the national, an expertise in the social, or, as it is often called, the human dimensions of global change.

What this expertise often involves is a knowledge of particular methods of accounting, assessment, scenario building, forecasting, foresighting, prediction, and the like that seem to be called for in dealing with these extremely abstract and uncertain global problems. But it is also, at various levels and in various ways, an expertise in societal adjustment, environmental management, "life-cycle" analysis, risk assessment, and, increasingly, it seems, environmental sociology. It is what Ulrich Beck calls reflexive knowledge, a kind of knowledge production that Beck sees as characteristic for the emerging risk society that, one might contend, the environmental movement first identified. Instead of calling it risk society, however, which, in many respects, implies an acceptance of continuous and ever more serious risks in our complex societies, the environmental movement saw the social construction of risks as the central problem to be overcome, the core concern of environmental protest. It was the exploitative mode of development itself that was the problem; an ecological society would be one that lived within nature's limits - in so-called harmony with nature - however difficult it was to define those limits in practicable terms. The ecological society - which in some places, like California, was christened "Ecotopia" - proved to be a vision that was extremely difficult to realize in practice, at least on a general, global scale. Risk society, on the other hand, can be lived with: it can be accepted. But it requires new kinds of expertise - in sustainable technological development, environmental economics and management, and risk assessment - in order to become sustainable.

I have called the new kind of movement that has emerged around the global environmental agenda and ecological modernization for transnational environmentalism, in order to emphasize that the large non-governmental organizations, or NGOs, that are contributing to science and technology policy increasingly transcend national borders and operate much like transnational corporations. They have sophisticated media and communications strategies, and

they often contain experts in the new kinds of knowledge that are becoming ever more important in environmental research and engineering. We can contrast the cognitive praxis of this new transnational environmental movement with the cognitive praxis of the movement of the 1970s.

Type of knowledge interest	1970s	1990s
Cosmological	Systemic holism “limits to growth”	Globalism “Sustainable development”
Technological	Appropriate/ small-scale	“Clean production”
Organizational	Participatory/anti-elitist	Professional/ expert-dominated

*Figure 1. Environmentalist knowledge interests*

I would like to conclude by suggesting how we as social scientists might be able to continue our analysis of these transformations. And I know no better way than by presenting the project that I have just initiated with partners in eight European countries, which we call PESTO - public participation and environmental science and technology policy options.

What we want to investigate is, among other things, what the transformation of the environmental movement into a cluster of networks and institutions has meant for science policy, both in terms of agenda setting, as well as in terms of implementation and institutional restructuring. Science policy, for me, is a social process, by which representatives of the concerned policy domains, or constituencies, negotiate decisions, or non-decisions, of various kinds. In this perspective, the new transnational environmental movement can be said to represent a civic policy domain, and its influence can be evaluated by seeing how its proposals of policy measures, doctrines, and programs are taken into consideration in policy deliberations with the other policy domains - which I term economic, bureaucratic and academic. Science policy making can be thought as a field of cultural tensions, where the different actors try to impose their priorities and policy principles onto the system as a whole. In our research we think of these interactions in terms of a model of cultural tensions.

	Policy domain			
	Bureaucratic	Economic	Academic	Civic
	"science for policy"		"policy for science"	
(Macro) Doctrine	Order	Growth	Enlightenment	Democracy
(Meso) Steering mechanism	Planning	Commercial	Peer review	Assessment
(Micro) Ethos	Formalistic	Entrepreneurial	Scientific	Participatory

*Figure 2. Cultural Tensions in S&T Policy*

It is interesting that, by becoming respectable, the environmental movement - most often renamed as "non-governmental organizations" - has been allowed to take a more active part in policy-making in most European countries. But that participation differs substantially from country to country. In Denmark and the Netherlands, for instance, technology assessment is an officially established activity, and the professional environmentalists are involved in a variety of ways in the new programs of sustainable science and technology. In Sweden, on the other hand, science policy remains largely in the hands of the more traditional types of environmental bureaucrats and scientific/technical experts, and public participation, or NGO involvement, is much more limited and circumscribed. I would contend that policy makers, activists, and social scientists have a lot to learn from cross-national comparative research, but since we are just beginning our research, it is a bit soon to present comparative results. What I can do is briefly present our plans of how we intend to conceptualize and study the influence of the environmental movement in science policy.

PESTO is divided into three main phases, or "work packages," as they say in Brussels:

- \* In the first work package, the project investigates the interface between the public and policy-makers, focusing on issues of representation and legitimation, and on the communication strategies of environmental organizations and relevant authorities.
- \* The second work package will analyze the evolution of new innovative networks in environmental science and technology in the different countries. We will study the connections, or linkages, that are being established between universities and private companies, and the role that the public is allowed to play, or not play, in these emerging networks.



- \* In the third work package, we will explore the transnational exchanges that are taking place in environmental science and technology policy. Here, we will examine how the new policy activities and programmes transcend national borders, especially in Europe.

What we hope to achieve in PESTO is an interactive process of social learning, both among the participants, but also with various participants in the networks that we study. We want to provide an opportunity for reflection and for the sharing of experiences across the European countries. We would also like to carve out a new kind of role for social science in the new discourse of sustainability, a more partisan role, in that we believe that the issue of participation is central to the value of the new environmental science and technology policies. And finally, we want to strengthen the comparative understanding of ecological modernization, by identifying, in a systematic manner, the national differences in policy making, network building and public participation. It is only by systematic comparison that we can distinguish those processes that are general from those that are more culturally specific.