Scientific information and collective action in socio-ecological conflicts

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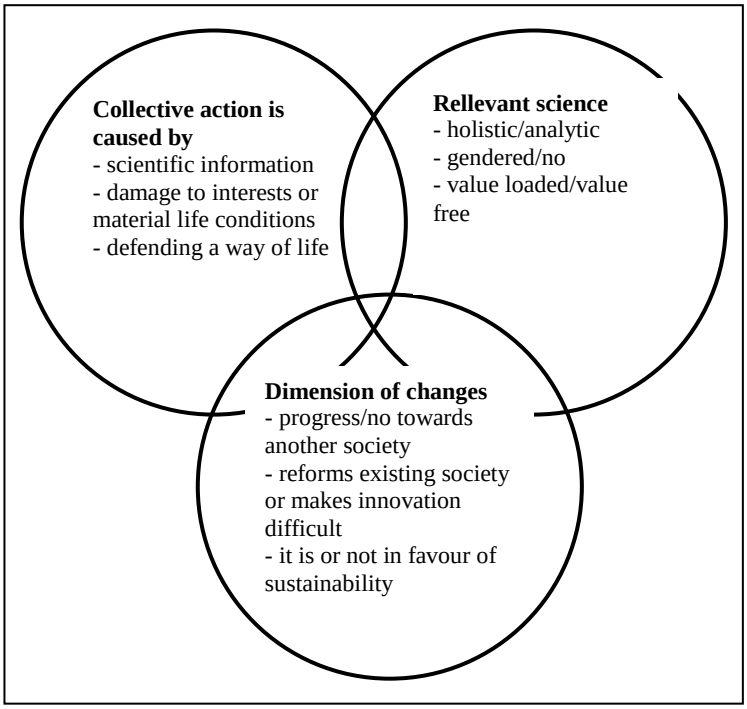
Summary

This paper corresponds to the initial phase of a research project, *Scientific-technical information, public participation and effects of sustainability in socioecological conflicts* (CSO2008-00291/SOCI), which is being carried out as a part of the Spanish National Programme on R&D, as well as the FPI Programme of the Ministry for Science and Innovation (Subprogram FPI-MICINN) financed with charge to the European Social Fund (BES-2006-13445). This research aims to produce new knowledge about social movements or collective actions that are generated from social conflicts built around environmental problems or significantly related to them. More specifically, its purpose is to clarify, through the study of a significant number of cases, different issues that the literature produced so far has raised in this regard. First, the extent to which the dissemination of scientific information is a causal factor in that kind of social conflicts and, more generally, the role played by experts' descriptions of the problems in their origin and development. Secondly, if the different discourses by the experts, frequently connected to different positions in the conflict (developers, governments, citizen groups...), are associated with different visions and developments, regarding both the content of knowledge and the social role of science. In addition, we will try to detect changes produced through the interaction between experts and activists in the pattern of social movements (effects of collective learning, building capacity for proposal, etc.) as well as in the social role of science (expanded knowledge communities, legitimacy of information sources based on traditional or experiential knowledge, and so on.). Finally, we will try to clarify the effects of restructuring and social change resulting from the development of this type of conflict in three areas: the extent to which citizen intervention involves changes toward greater openness and reflexivity in decision-making procedures, the links between collective actions and alternative visions of social organization, and the impacts in terms of environmental sustainability in a context of limits to growth. Carrying out this work, the methodology defined in the course of an earlier phase, developed during 2006 and 2007 under the Spanish National Programme of Social Sciences, Economics and Law, is to be contrasted. More than just a simple continuation of that former phase, the current one will imply a redefinition, expanding its geographical setting to Catalonia, Valencia, the Balearic Islands, the Basque Country and Andalusia in Spain, including additional case studies in France and Ecuador for comparison purposes, maintaining anyway the structure, interdisciplinary and inter-universities, which was previously experienced.

Introduction

This project was proposed as a suite of that carried out in 2006 and 2007/8 with the title *Technical-scientific knowledge, citizen participation and social innovation*. It focused on the interaction between experts and citizens in the process of social innovation in the field of ecological sustainability and the management of natural resources. Its starting point was the observation of a significant number of cases in which social-environmental conflicts produced social innovation through the development of new skills by the local people and the local movements, the more often by interaction with groups of scientists and specialists. The result has often been the rise of significant variations in the characteristics of the social movement as well as in the social role of sciences. In such situations, ordinary people have succeeded in promoting changes towards greater reflexivity and opening in procedures of decision-making. On the other hand, it gives rise to situations of "postnormal science" or expanded knowledge communities. In this context some of the most significant cases in Catalonia, Valencia and the Balearic Islands (Spain) have been explored in depth and a methodology to carry out this type of study has been developed.

Conceptual framework



Currently, the new phase is starting the study of a series of cases in a wider geographical area in Spain, France, and Ecuador. It comes to determine, firstly, to what extent the dissemination of scientific information is a causal factor in the social movements and collective actions that occur in the context of social-environmental conflicts and, more generally, the role that the experts and the arguments they introduce have on the origin, the definition and the development of these conflicts. Secondly, if the confrontation of the different discourses by the "experts" related to different positions in these conflicts

(developers, government agencies, citizens' groups...) is associated with different visions regarding the content of knowledge and the social role of science. In particular, we will attempt to establish to what extent the scientific arguments supporting the environmental movement have certain characteristics that very often have been attributed to them: holism, complexity, criticism of androcentrism, etc ... We will also try to detect if the interaction between researchers and activists produces or not changes in the characteristics of the social movement: collective learning, enhanced capacity of proposal, etc., as well as in the social role of science (expanded knowledge communities, legitimacy of information based on traditional knowledge or experience, etc.)... Finally, we will try to clarify the scope of the effects resulting from the evolution of these conflicts in three areas of social structuration and change: (a) the extent to which the intervention of citizens produces changes towards a greater reflexivity and more openness in the decision-making procedures; (b) the links between the collective action and some visions of a different social and political organization; and (c) the impacts of the conflicts in terms of social or environmental sustainability in a context of limits to growth.

Science, participation and social change: four ways of looking at the issue

A part of the research still to be completed aims to test empirically, by the study of a large number of cases, the belief according to what there is a close link between environmental science and the environmentally friendly actions. More specifically: it expects to contrast with social practices the reality of four scenarios that have been repeatedly considered in this context: (1) the dissemination of scientific information explains the increasing social concern for the environment and, ultimately, the emergence of a « friendly to nature » collective behaviour; (2) the relationship between experts and social movements increases the reflexivity in advanced modernity; (3) the type of science which is usually involved in such movements has some characteristics that distinguish it from that which is invoked by other social and institutional actors and, finally, (4) these movements develop visions of the world pointing to other, alternative forms of social organization.

Science: causal factor or legitimating tool

The environmental concern/commitment seems to be a characteristic cultural trait of the last phase of industrial civilization, the result of a recent change in the list of values we believe appropriate to join. Then the question for the sources of this change and the reasons to express this concern is asked for. There are many theories about it, but all of them may be considered as variants of three basic responses. The first: we have come to know more of what we knew on the fragility of the environment and it explains the fact that the anxiety increases more and more. Due to the production and dissemination of scientific knowledge, as well as the special role of ecology on it, more people become aware every day of the human impact on the natural systems and the need to do something to control and reduce this impact. Dunlap has worked along this line for more than two decades: We believe -he says- that the continuous emergence of new scientific evidence concerning the harmful effects of human activities on environmental quality and the threats on human welfare (and other species) will generate a continued pressure towards a more ecological vision of the world (Dunlap *et al* 2000:439). According to this view, the vision of the world which has been characteristic of

the industrial era, based on the belief in the human capacity to separate from the nature and dominate it, is lately being replaced by a new paradigm which principles are the acceptance of the finitude of the planet and the interdependence between humans and other living beings. This new vision has been described as a new ecological paradigm (nep). In a technical development of the idea, Dunlap developed a scale to measure the presence in present societies of these two key visions of the world or paradigms. The *nep* scale has been applied in many studies in different societies, often detecting a sympathetic public. For those proposing this point of view, the commitment with the environment is explained as an effect of the dissemination of scientific information on the state of the ecosystems, so that the ecological paradigm would be, to so say, a popular version of the ecology as a science. We know more and more and, consequently, our concern increases.

Another point of view, quite widespread, maintains that the concern for the environment is part of the growing interest in a better quality of life: people begin to focus on environmental conservation after perceiving material well-being as safe and well consolidated. From this perspective, the dissemination of environmental ideas and values would be a more or less automatic result of economic progress. This vision of the environmentalism has many academic expressions. The most famous and influential is, probably, the post-materialism thesis: the satisfaction of physiological needs leads to place more emphasis on non-physiological or post-materialist targets (Inglehart, 1991:140). Inglehart and his colleagues have collected a large amount of empirical data which reveal the presence of post-materialist views in different countries, increasing as an effect of generational replacement, when those who grew up in a context of well consolidated wealth become a greater part of the whole population. The origin of the opinion in favour of the protection of the environment then, do would be not in the dissemination of scientific information, but in the possibilities offered by the living conditions in post-industrial societies, combined with the experience of the deterioration in quality of the nearest environment (Inglehart, 1995).

The two above-mentioned approaches coincide on one thing: both maintain that some cultural events (dissemination of scientific reports or the emergence of new values) are the original mediations, through more or less complex ways, for the spread on societies of forms of behaviour which are compatible with the protection of nature. A third approach points to a very different thing: the conditions in which the life of people develops cause actions, or behaviours, that at the end are linked with some ideas or values. People suffering the effects of environmental degradation are more numerous and the negative effects are larger and more frequent. The manifestations of the phenomenon are diverse and they often lead to actions and social movements, which sometimes can express problems without explicitly mention the environment; although, today, it is likely that affected populations include environmental values and beliefs in their discourses. In a nutshell: environmental concern is the case of those who are victims and suffer the effects of the environmental degradation, a kind of experience which tends to be common and frequent, and tends to affect more people every day and to affect them more frequently. Some social groups are, so to speak, more victims than others, which leads them to go faster in developing concern. These considerations are visible, for example, in the environmental justice movement at the United States (Bullard, 1994); and also in what has been called "the spontaneous environmentalism of the poor" (Martinez-Alier, 1994) or in some eco-feminist proposals (Shiva, 1989).

It is not easy, in short, to find the birth of environmental consciousness in one and the same source, to assign it a single cause. According to some analytic proposals, the dissemination of scientific information about the state of the environment is essential to explain social actions defending its conservation; these views are based therefore on the assumption that science has an important role in the movement because collective action depends on how the problems have been defined in scientific terms. In other models, scientific information is not a decisive causal factor, but an incidental element which helps to shape or to legitimise the discourse of the actors. Etc.

Increasing reflexivity?

Another approach to the relationship between science and environmental social movements goes along the idea that, generally, these movements express the *reflexivity* of modern societies. These movements are often presented not as expressing a given socio-economic position in terms of wealth or power, but rather as showing an informed concern about the general scope of human activity. They do not express an interest which is particular, but a general interest (extended even to future generations and to other living beings). They are then interpreted in agreement with the thesis that nature is "socially constructed" as a desirable element of society (in terms of quality of life, leaving behind us a habitable land, etc). Through interventions such as these, which often require the assimilation of information which is relatively remote to everyday experiences, the movements are perceived as characteristic expressions of a "reflexive modernisation". For example, Beck has maintained that reflexive modernization (in the sense of auto-confrontation of the industrial society with itself) is the process leading to the risk society (Beck, 1994: 11) and he has insisted on the fact that environmentalism and feminism are particularly significant in this respect, by touching deeply, among other things, the status and the role of experts. A contrary hypothesis (Schnaiberg and Gould, 2000), upholds that in many cases the cause of conflicts lies in the re-distributional effects of a law or a development (effects on the property of or the access to a resource, on the socially unequal exposure to risks or dangers, etc.)... and the perception of the impact is often very direct and does not require lots of specialized information. In such cases, the cause of action is the defence of a particular interest, with a strong direct component, and it does not matter too much if the conflict can consciously lead to a basic reorientation of things, because it is very difficult (Freudenburg & Pastor 1992) to reduce movements caused by an particular interest (even NIMBY movements) to their explicit immediate contents.

Several scientific cultures, or languages?

A third line of the search for relations between science and environmental social conflicts has explored the notion that the knowledge which is invoked by the different actors (institutional or social) has distinct characteristics, affecting not only to different ideas about the social role of science, but even to certain of its epistemological traits. Many studies maintain that an analytic, deterministic, positivist, anthropocentric, and androcentric bias is often embedded in the scientific discourse of developers and often also of the government; and that social movements, to the contrary, are most often inspired by a view prone to stress

holism, complexity, ecocentrism and/or ecofeminism, and they also try to build up bridges between "secular" or "popular" knowledge and the techno-scientific knowledge of experts.

The previous historical cases concerning the alleged existence of "two reasons" or "two sciences" (bourgeois or proletarian, analytical or dialectical...) show in abundance the many potential perversions of this line of reasoning, and they advise to be extremely cautious to avoid a new version of it in terms of "ecological" and "productivistic" sciences. It seems more reasonable to limit the issue to patiently explore a few somewhat related lines: the relationship between complexity and determinism (Kauffman, 1996; Lewin, 1994), the criticism of the anthropocentric traits in modern science (Merchant, 1988; 1995), the potential impacts of the hidden connection between ecocentrism and reductionism (Morrison, 1999; Duncan, 2006), and so on. A part of our research is addressing the issue in a more sober manner, limited to recording and commenting how the various actors in the social conflict refer to their scientific references, paying attention to the possible presence of the above described features.

Scientific universalism and the politics of social change

For some approaches, mainly from the political science, scientific information on the natural limits and the state of ecosystems, and their influence on movements and collective actions in this area, are often linked to the assumption that these movements have as an inherent aim the aspiration to an alternative, different social order. It is the case in many versions of the doctrine of "new social movements" (Riechmann and Fernández Buey, 1994; Dalton, 1994), in Illich's (1974) thesis about the growing counterproductivity of modern institutions; it is also the case with some recent utopias anticipating a proactive response to a future of de-growth and way-down (Latouche, 2006; Heinberg, 2004; 2006), etc. According to other opinions, the impact of social change which is generated by environmental movements does not go beyond the existing social and political settings, but to some extent it provides a certain revitalization of democracy through the opening of the administrative procedures (Paehlke & Torgerson, 1990), or providing an early stimulus somehow previous to the ecological modernization processes (Mol, 2001), or in other forms. In all these cases, the movements show the limits of the technocratic style for decision-making, and enhance demands for a greater participation of citizens. There is, finally, the fear that these effects were mainly to unreasonably erode the confidence in progress (Nisbet, 1981) or to introduce obstacles to modernisation and distortions in solving urgent development problems.

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