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Reflexivity, Risk and Collective Action Over Waste Management: A Constructive Proposal

Risk Society as an Analytical Framework

In this article, I would like to address a topic relevant to current theories on western modernization and to environmental sociology. My aim is to identify the utility of some influential assumptions about the meaning of current social processes which have been approached as a form of reflexivity which questions a traditional view of western modernization by highlighting its unintended and perverse implications in our complex societies. I focus on central assumptions from the literature on reflexive modernization such as the notions of 'risk society' and 'modernization risks', which have become very influential in the analysis of the relations between society and nature. These notions stem from a more general notion of 'risk' which has recently been gaining increasing recognition among social scientists, and which departs from the traditional approach to this term in economic theory. The former contends that 'human communities exist in exchange relationships with the biospheres' and, when technologies disrupt these relations, 'both communities and environments change' (Kroll-Smith et al., 1997: 2). In the 1980s, among the social scientists who have become aware of the relations between humans and nature the notion of risk came to denote the problems generated by these relations (Strydom, 1999: 71). This fact is grounded on common sense but, as has been pointed out by Kroll-Smith et al. it was not commonly recognized in the past by the prevalent professional criteria (Kroll-Smith et al., 1997: 2, 15).

Any sociological notions used to explain macro-sociological processes of this kind need to be adequately conceptualized and empirically documented in order to become useful, as has been argued about such widely used expressions

as 'social movement' and 'current environmental change' (Melucci, 1989; Laraña, 1999; Prades, 1998). With this in mind, the notions of the risk society and modernization risks are examined here in the light of information gathered in a research study on recent controversies and mobilization surrounding environmental policies in Spain and the UK, which I coordinated over a period of three years with the support of the Research Directorate of the European Commission[i.] The motivation behind this research was the divergence between the evaluation of the effects of domestic waste incinerators by different social groups: namely, environmental organizations, relevant companies in the waste industry and public administrators dealing with waste policies. The goal was to investigate how and why the different discourses on these effects which arose and were employed by two opposing sectors became successful in shaping public perceptions on waste incinerators and had an impact on the development of waste policies.

A theoretical ground for investigating this was an assumption about the nature of social movements which views them as agencies of collective signification and as a powerful means to frame issues in public opinion and, by so doing, exert a considerable influence on the formation and implementation of environmental policies. Therefore, a primary focus for our research was upon the definitional power of environmental movements, the relationship between the environmental controversies they promote and the way in which some issues become collectively defined by mass publics. The assumption about the reflexivity of social movements, which informs constructionist approaches to them, was confirmed and expanded by our findings (Snow and Benford, 1988, 1992; Hunt et al., 1994; Melucci, 1989, 1996; Laraña, 1999).

The contending discourses concerning waste incineration framed this technology in very different terms. It was framed by environmental organizations as a serious threat to the lives of the population, due to the high carcinogenic potential they attribute to waste incineration. On the other hand, the waste industry and public administrators promoted an altogether different definition, presenting the technology as innocuous. Beck's approach to the risk society (Beck, 1992, 1993, 1995; Beck et al., 1997) was initially viewed as relevant to the analysis of this controversy, which had initiated a series of important environmental conflicts in Spain during the last decade. However, the analytic goals of Beck's model are more ambitious, since it attempts to explain the nature of the social and ecological transformation which has taken place over the last century in western societies and he suggests a new typology of social change based on modernization risks. This seems to be a reason why of all the literature produced by European sociologists who have theorized on the modernization processes of western societies and its unintended effects (Giddens 1990, 1994; Lash et al., 1996; Lash and Urry, 1994) Beck's work on this subject is the most popular. In this article, I argue that this ambitious goal interferes with the object of analysis and gives rise to a problem

for the interpretation of the social dynamics which are supposed to play a central role in the emergence of a risk society. This brings us to a common sociological problem: the sociologist's traditional mission to forecast social transformations leads to a neglect of the processes leading to them, in spite of the fact that these are the causal factors of these changes and the means by which they can be explained. This is also a form of reflexivity in sociology, in the sense indicated before (as reflection) on which I focus now.

The unintended effects of techno-scientific development have been approached by Beck as a form of reflexivity that can be observed in the proliferation of threats for living beings, which are conceptualized as modernization risks (Beck, 1992).[1] This notion has been useful for our analysis of the environmental contention on waste policies, in particular Beck's emphasis on the cognitive and epistemological aspects of the processes of risk perception and the central role of a theoretical element referring to their social causes. Beck's analysis of the relationship between modernization risks, the cognitive processes taking place both in the fields of collective action and scientific explanations of their effects is the most interesting part of his work and explains its influence today. The utility of this analysis stems from the fact that it leads the analyst to the proper object of observation in order to understand contention over environmental issues, which constitutes a central issue in complex societies. The aforementioned relations are approached by the risk society theory by emphasizing the role of experts in shaping the collective definitions of these problems and the ways in which social groups challenge their scientific authority. Beck attributes this to the nature of technological risks, which are completely different from the old dangers and catastrophes: (1) they are the outcome of industrial society and of decisions taken in the techno-economic sector; (2) they cannot be defined within space and time categories since they have a global nature and nothing and nobody is safe from the threat they constitute; (3) they break with the rules of attribution and responsibility and render ineffective the existing systems of insurance; (4) many of them are invisible, they cannot be captured by our senses and for this reason it is necessary to resort to science, which at the same time is what has caused them (Beck, 1992, 1993, 1995). This is the reason why they depend on the knowledge and mediation of experts in order to become real (Beck, 1992: 27). However, he claims that the usual scientific means used and experts employed in the evaluation of these risks have the effect of legitimating them by reducing the evaluation to terms of apparent objectivity, in which the natural sciences have a monopoly. This does not only enable us to look into their social, cultural and political dimensions, but also keep them hidden. Nevertheless, the new risks experts emerging in other fields (mainly the social sciences) counteract this effect and play a central role in the emergence of a new *risk consciousness* among the population. This is the basis for his claim that the natural sciences lose their traditional monopoly over the definition

of risks (Beck, 1992; 1993: 209), an idea that is expanded by Giddens's emphasis on the crisis of the authority of the traditional experts (Giddens, 1994).

As I try to show later in the article, these features of modernization risks are consistent with the empirical information we gathered in the aforementioned cases of contention over waste policies. One of the reasons for the interest in Beck's argument is his emphasis on the *socially constructed nature* of the new risks and the situated aspects of scientific evaluation procedures. Instead of playing them down, he highlights the complexity of these procedures, and the role that political and economic interests play in such evaluations and the role of the social context in which risk issues are perceived. This is why these risk evaluations cannot be reduced to mere judgements of fact but require the introduction of a theoretical and normative element, without which they cannot be evaluated: the analysis of their causes has to situate risks within the social context in which they are produced, the industrial system (Beck, 1992: 27).

Beck's description of modernization risks draws from Weber's classic work on the value neutrality of science, which he recognizes and expands on; it is also consistent with influential theories on the social transformation of western societies, which constitute the theoretical context for the risk society model. In the latter, increasing complexity is viewed as the central characteristic of the scientific problems in a post-industrial order, due to the number of variables which scientists and decision-makers have to face and integrate in order to solve these problems or to reach rational decisions (Bell, 1976). The number of these variables has grown radically in comparison with the problems characteristic of the early industrial society. For Beck (1992), these risks are the observable aspects of the reflexive modernization stage in which advanced industrial societies are entering, which is characterized by different problems especially in the relations between society and nature.[2]

This argument, which reflects on the value neutrality of science, is consistent with the features of the contention over waste management we studied and this provides a criterion to analyse the role played by decision-makers and politicians. The contrasts between management styles we found among them in our cases in Spain are related to different views of the role of science, the nature of the problems faced by policy-makers and the role of environmental groups who challenge traditional expert systems. A decision-maker's frame of reference which is consistent with the increasing complexity of current social problems implies recognizing that these factors are part of them, and thus have to be dealt with on the same sociological grounds on which these problems are grounded. My argument is that these different frames on this subject played a central role in the different degree of contention over waste incineration in the Spanish cases. A complex view of these problems is intimately related to the notion that there is a theoretical and normative element without which risks cannot be evaluated, as claimed by Beck

(1992). This has also been a central factor for the emergence of an environmental movement which challenged the established procedures for evaluating incinerating technologies and the expert knowledge being used to measure their emissions.

Beck claims that to determine the effects of modernization risks we must go beyond the principles of specialization that structure scientific work, and arrive at forms of knowledge which can transcend the dichotomies that have structured the development of scientific thought (Beck, 1992). This claim is formulated in a provocative discourse which seems aimed at dramatizing their importance and mobilizing the opposition to certain environmental policies among the publics. This is also congruent with a central goal of Beck's work, which also goes beyond the traditional temptation of sociologists to act as prophets who forecast social changes, and implies that they have a role to play in bringing them about. The most extreme expression of this would be the Marxist dictum on the role of the social scientist, which is not just to describe society but to actively work for its transformation. In this sense, Beck's work seems to attempt to have reflexive effects and he would be acting as the new kind of risk expert to whom he attributes a central role in the emergence of a risk society. However, this conception on the vanguard role of a new kind of 'organic intellectuals' stands in contrast with a recurrent social dynamic in contemporary social movements, which questions this role (Melucci, 1989).

Reflexivity and Modernity

In my view, the value of Beck's analysis lies in highlighting the role of the social context in which risks are evaluated and defined for the publics. The risk society model attempts to provide a set of insights with which to approach the relations between society and nature and the processes of social transformation of industrial society, from forms of simple vs reflexive modernization. This change is viewed as the fundamental breakdown in the evolution of these societies and as the result of a form of reflexivity which puts into question the prevailing models and assumptions of western modernization. However, my argument is that this very broad scope interferes with a primary mission any theory needs to fulfil in order to contribute to our understanding of social facts: namely, to lead the analyst to what he should observe.[3] The main reason for this is that the model of the risk society aims at identifying a new typology of social organization and change grounded on the related notions of 'reflexivity' and 'modernization risks'.[4] This ambitious goal leads Beck's approach to neglect the processes by which risks become collectively defined at the intermediate level of collective mobilizations and social interaction, in which risk perception and environmental consciousness are constructed.

This argument can be extended to several basic assumptions on reflexive modernization formulated by Beck and Giddens independently of the categories they use to name the new type of society (respectively defined as 'risk' or 'post-traditional'). In this article, I draw from Herbert Blumer's work on the concept of industrialization ('as agent of social change'; Blumer, 1991), in order to argue that the provocative ideas of these well-known theoreticians constitute *sensitizing terms* which need to be documented and revised in order to become sociological concepts. Together with the public interest and the political influence that these ideas have achieved in recent times, the socially constructed character of risk perception poses the need to revise and develop them in order to make them useful for a better understanding of these processes they attempt to explain.

My proposal is grounded on the analysis of two complementary meanings of the notion of reflexivity. For Beck, the process of western modernization has become reflexive because it is becoming *its own issue*, the object of a public debate on its social and environmental implications (Beck, 1992). Thus, implicitly, the term 'reflexivity' is used in its two prevalent meanings in the literature focusing on it from a theoretical standpoint: as evidence of the perverse implications of western modernization (reflexivity as *reflection* and recurrence) and in order to emphasize the growing importance of the debate on these processes (reflexivity as *reflexion*). There is an inner relationship between both meanings of the word because in order to promote a debate on the relations between technological developments and patterns of social transformation these subjects ought to be defined and posed again as issues which are problematic because of the impact they have on the biospheres, producing effects which demand further analysis. The action of 'thinking again what has been thought' (Giner et al., 1998) affects the image of those devices or public policies in the changing mirror constituted by current environmental controversies. Thus processes of reflexivity imply a relation between an action of return (reflection) and the debate on it (reflexion). Both forms of reflexivity inform the emergence of many current social movements. However, while a sociological interpretation of these processes needs to focus on the collective actors who bring that action to public reflexion, the latter is taken for granted in the theory of risk society. This leads to a neglect of the role of collective actors promoting reflexivity in complex societies. Thus, the social sources and the *discourse dynamics* of this ongoing public debate on the social and environmental implications of techno-economic development become neglected and tend to be explained by vague assumptions on the inner rationality of the citizens.

Beck and Giddens assert that risk perception not only requires the sensory organs of science but a change in the nature of these organs, which have been traditionally monopolized by the natural scientists. If risk consciousness arises in the population due to the role of new risk experts

belonging to the social sciences, such cultural change is viewed as the product of human rationality and the leading role of these persons, and the role played by social groups is neglected in this explanation. Later in this article, I suggest a different interpretation grounded on the aforementioned notion of reflexivity arising in the field of social movements, in which I have been working for a long time (Laraña, 1994, 1999).

The aforementioned approach to reflexive modernization helps us to situate the facts investigated in a more general perspective that might provide us with some useful interpretative assumptions about current processes of reflexivity by leading the analyst to focus on the relations between the structural changes in complex societies and the emergence of new forms of collective action which increase the level of reflexivity. Giddens's work (1990, 1994) is an example of this potential, as it expands on the theoretical implications of the processes of social change associated with the modernisation risks.[5] He claims that the effect of these processes is to reshape modernity and take it back to its origins (Giddens, 1994: 80). The meaning of these reflexivity processes is the radicalization of modernity, and the crisis of the western model of modernization implies a return to the rational grounds from which modern society emerged. This seems to be the source of Giddens's faith in the capacity of science to return western modernization processes to the 'right path' and to use different kinds of technicians to redirect its mistaken orientations. Such faith in modernity is manifest in the concept referring to the context where reflexive modernization takes place: a *post-traditional society* 'in which tradition has lost most of its power to influence behaviour, and has acquired merely a guiding role' (Giddens, 1994: 93). He expands Beck's (1992) and Melucci's (1996) argument on the inconsistency of our analytical tools when he asserts that the implications of the current social transformation affect the most recognized forms of authority in industrial society, those which used to be in the hands of risk assessment experts as well as professionals in other areas of social life, such as medicine, politics and culture.

The Authority of Experts

This argument illustrates the relations between the epistemological and the social dimensions of current environmental and risk issues. The foundations of the industrial social order have been attributed by the classics to the authority of expers and to the constitutive role of science in this society (Weber, 1944, 1958; Saint-Simon, 1975). Under reflexive modernization, ecological contentions are viewed as a central phenomenon which shakes the walls of the industrial order. For Beck current environmental conflicts represent an attack on the *deus ex machina* of progress, the modern bases of scientific

knowledge, and are a manifestation of the process of reflexivity in science, which he calls 'reflexive scientization' (Beck 1992). For Giddens, these processes imply that the Saint-Simonian view of the future – of an industrial society in which political life would be governed by experts in the application of science (technicians) – becomes devoid of content (Giddens, 1994: 95). That was the vision of society which inspired socialism as well as the western concept of modernity, of which the former is its most radical expression. However, in our complex societies politics cannot be simplified to the issues raised by experts, nor does it hold the legitimacy it used to.

In these approaches, environmental movements are viewed as promoting the expansion of a risk consciousness but the relationship between cause and effect is not clear. I suggest that this is due to the persistent faith of these authors in the rationality of the citizens, which does not lead them to the proper object of observation, the social dynamics implied in processes of risk perception. The problems posed by this view are: (1) that this sociological construct takes the place of the right object of observation; and (2) this implies taking for granted the existence of an inner logic of modernity. However, the latter is just a sociological construct for analysing what is happening in modern societies, which we ought to contrast with social reality. If these reflexive modernization (RM) theories can contribute to our knowledge of the facts taking place in our societies by emphasizing the relations between changes in the social structure and the emergence of new forms of collective action inducing social reflexivity, we should be aware of these problems. My argument has been that they stem from these theories' ambitious goal, from the fact that they operate at the level of abstraction of the grand theories on social change and attempt to identify a historical macro-sociological model that will be applied to different societies. Such orientation has also informed influential models which attempted to spell out the nature of the future society in the present period of uncertainty and insecurity. This has been a recurrent theme in influential work on western modernization, from Bell and Dahrendorf to Beck and Giddens. However, all these attempts leave out of the analyst's focus the role of the collective actor and the group dynamics which are central in these processes of social change. These collective phenomena are situated at an intermediate level of action (between social structure and the individual) on which the study of social movements has focused throughout the last decade. If a central subject for Beck and Giddens is the emergence of a new risk consciousness, the way they explain it is anchored in the same *logic of modernity* (the expansion of human reason) which has been credited by the classics as the source of technical progress. Thus, Giddens claims that a world of 'intensified social reflexivity is characterized by the existence of reflexive individuals that respond to uncertainties' and 'can subvert the economic incentives for which they supposedly mobilized before' (Giddens, 1994: 42). The implicit assumption is that individuals

living in information societies can achieve a new risk consciousness due to their reflexive capacity as human beings. The social interaction in secondary groups, and among different organizations contending to promote their definitions on risk issues, is taken for granted. This seems to be a result of these authors' faith in the indisputable power of human reason and the role played by new experts to enlighten those who are more reluctant to know what is really happening. However, such faith seems to be the last resort for the potential solutions to the current ecological crisis, and the existence of a logic of modernity is being questioned in the processes of contention like the ones we studied.

In our discipline, the notion of 'reflexive scientization' can be traced to the origins of cognitive sociology (Cicourel, 1964, 1973) and also to a less known approach which emerged in Spain during the 1980s and which has created an important school today (Ibañez, 1979, 1985, 1991; Laraña, 1998). This trend towards an epistemological reflexivity was manifested long before the emergence of RM theories on the increasing problematization of scientific knowledge and on the methods used to obtain it – a task that was considered to be a central factor for the development of such knowledge (Cicourel, 1964). For Beck, this trend shows that modernization theories are under thorough revision, not only in the social but also natural sciences. The contribution of the so-called 'soft sciences' to this process proves that this term, and the duality hard/soft sciences on which it stands, were inadequate, as well as the subordinated position that social sciences hold when working with important issues involving social organization, such as those affecting modernization risks. As Solé points out, the development of education, the spread of knowledge among all classes and social groups, and the expansion of science in advanced societies has led to a criticism of science (Solé, 1997: 125). The idea that science itself becomes reflexive is based on the consciousness of its limits and the questioning of others that science used to impose on itself. On one hand, science is becoming increasingly necessary, on the other, it has become less than sufficient and must re-examine its fundamental tenets and limitations on its methods of reasoning. (Beck, 1992; Solé, 1997). In accordance with this, Melucci (1994) has pointed out that the distance between the operative knowledge of the experts, which control society's instrumental codes, and the higher forms of knowledge that allow us to find a meaning to existence, which he calls wisdom, is ever growing. This contributes to the debilitation of expert authority and increases the lack of confidence towards their definition of risk issues.

This problem of trust was a central aspect in the discursive dynamics of the processes of risk perception, which we have investigated in two ways: the lack of trust which scientists and lay citizens have in politicians runs parallel to that felt by those participating in these mobilizations towards the risk definitions provided by experts. In the cases we investigated in Spain, the

problem of trust was grounded on, and amplified by, two manifestations of the crisis in traditional forms of authority in modern societies: namely political and scientific. This is consistent with Giddens's aforementioned critique of the Saint-Simonian view of an industrial order ruled by technicians. Both types of crisis are interrelated since for that classic author political authority was legitimate due to the central role of objective knowledge in the organization of a society governed by technicians. Instead of using the dramatic term 'crisis', the expressions 'lack of confidence' or 'lack of trust' give a better reflection of the situation of experts in the cases investigated in Spain, and more so in the UK where traditional forms of this scientific authority remained unchallenged, as indicated later.

While the erosion of the principle of scientific authority represented by traditional risk experts played a central role in the mobilizations against waste incinerators in Spain this was not so in the UK, and this is related to the differences among the types of contention over waste incinerators in both countries. As Rootes (2000) points out, in the UK these campaigns attracted only moderate interest from national environmental movement organizations, probably due to strategic reasons. Unlike Greenpeace Spain, who made the opposition to waste incineration one of its main campaigns in the 1990s, as did Friends of the Earth in the UK, Greenpeace decided not to enter the campaign against municipal waste incinerators in Britain. Our colleagues in this research give several reasons for this distinction,[6] the main one being the higher degree of confidence of the British activists in the Environmental Protection Agency (EPA), which can be considered as the main scientific authority on this subject. In Spain, the EPA was only cited by those promoting waste incinerators, since this agency did not support the diagnostic frame on which the environmentalist discourse was grounded, which correlated waste incineration and cancer. In the UK, the trust in the EPA as the ultimate regulatory authority is attributed to public opinion and could explain Greenpeace's reasons for not supporting the campaigns (Rootes, 2000). These differences seem related to the different intensity of the contention over waste incineration in these two countries. In contrast with what happened in some of the Spanish cases (Madrid, Majorca and Biscay), 'in England the modest campaigning efforts failed to diffuse public anxieties about incineration, and have so far failed to breach the generally high levels of public trust and confidence in the regulatory authority' (Rootes, 2000).

In the literature on social movements, the lack of trust in political authority has been approached as a part of a larger phenomenon of crisis in the credibility of the political channels of advanced industrial societies and as a central factor for the emergence of social movements (Melucci, 1989; Johnston et al., 1994; Flacks, 1994; Laraña, 1999). This is a central aspect for the resonance of the environmentalist frame on waste policies and also a point on which social movement theory and the analysis of the discourses

promoting different definitions of incinerators converge and shed light on one another. The resonance of the environmentalist definition of these technologies as an extremely serious threat to the population found a social field already fertilized by the lack of trust in the politicians who promoted a different frame. Environmental groups were viewed by potential adherents and publics as the alternative to this situation of lack of credibility.

Our findings suggest that, to analyse the discursive dynamics of these processes of risk perception and cultural change, a useful strategy for the analyst is to focus on the frame alignment processes achieved by the environmental organizations in these controversies, as well as on those promoted by public agencies and private firms. By frame alignment, I refer to the processes of persuasion which become successful in defining for the publics the effects of waste incineration in the terms of the contending discourses (as a life threat vs innocuous technologies). A frame of reference is a notion originally coined by Goffman, and which has been fruitfully adapted to the study of social movements over the last decade. It is 'an interpretative schemata which simplifies and condenses the "world out there" by selectively punctuating and encoding objects, situations, events, experiences, and sequences of action within one's present or past environment' (Snow and Benford, 1992: 137). Collective action frames not only highlight particular aspects of reality, but also function as 'modes of attribution and articulation' of meanings to the issues. According to this view, for the frames promoted by the movements' organizations to achieve their objectives, they need to fulfil three complementary framing tasks: (1) to focus their attention on a particular situation considered as problematic and attribute the responsibility for this situation to given people or facts (the creation of a diagnostic frame); (2) to articulate solutions for solving this problem (prognostic framing); and (3) to motivate their potential followers to act in favour of these suggestions and to promise that they will do something in order to achieve these solutions (motivational framing) (Snow and Benford, 1988, 1992; Hunt et al., 1994).

The *diagnostic framing* of waste incineration as a source of carcinogenic emissions was made by environmentalist organizations in Spain during the mid-1990s, thus fulfilling the first framing task any social movement organization has to fulfil in order to mobilize potential adherents and to achieve a definitional potential in the publics. The latter term is used in plural due to the cognitive pluralism characteristic of our complex societies, which does not support the idea of a homogeneous public opinion but the existence of a plurality of groups with different views on the same issues. In the contention over waste management in Spain, the existence of different publics was reinforced by the different kinds of organizations framing this issue in different ways.

To expand my argument on the utility of combining the analysis of collective action frames and discourse for the interpretation of environmental

conflicts as the ones discussed earlier, I now focus on some concepts coined by Snow and Benford (1988) to analyse the social conditions which propel the definitional power of social movements. This approach implies that the capacity of the environmentalist groups and the economic and political organizations to influence public opinion depends on the quality of the work of persuasion they do in order to align potential followers with the collective definitions of the issues at stake. This persuasion is not simply exerted by environmental organizations, nor is it a consequence of these organizations' resources and political opportunities, which have been the central focus of resource mobilization theory and political process approach in order to explain the emergence of a social movement (McCarthy and Zald, 1987). This argument is grounded on the information we have collected while investigating our cases in Spain, in which neither of the two factors can in themselves explain the reflexivity potential of the organizations competing to define the consequences of waste incineration. To explain such potential, we need to analyse the role of certain symbolic elements that contribute to the resonance of their frames of these environmental problems and to examine the relations between some futures of these organizations and the sociocultural context wherein they act.

To analyse the discursive dynamics of these processes of risk perception – or the *resonance* of competing frames – Snow and Benford (1988) proposed three concepts ('infrastructural constraints of framing activities') which address the role of the cultural conditions of the context where movements emerge, and which are viewed as central for their persuasion potential. Defined as 'empirical credibility', 'experiential commensurability' and 'narrative fidelity', the correspondence between the processes of frame creation with at least one of them is considered a necessary condition to mobilize consensus (Klandermans, 1994) among their followers. And, vice versa, we can explain the differences in the mobilization potential of a frame in terms of its connection with these conditions. The empirical credibility of a frame refers 'to the way in which it fits with the events taking place in the outside world', thus to the individual's capacity to verify its validity (Snow and Benford, 1988: 208). The concept of experiential commensurability refers to the way in which a frame coincides with, or diverges from, the experience of its potential adherents, to the harmony with the way in which these situations have been or are experienced by them.

As we are dealing with risks characterized by being difficult to be directly perceived through the senses (Beck, 1992), this may strengthen the definitional power of the environmentalist groups, by rendering problematic the experiential commensurability of the frames defining their effects. Often, the validity of a collective definition of a new modernization risk cannot be contrasted with people's personal experience, and the way in which it fits with events becomes difficult to establish when faced with the diversity of

contending definitions of the scope of these risks. In our fieldwork, this aspect was emphasized by a high-ranking employee in one of the incineration plants studied, a person with the usual characteristics of risk experts due to his profession as an engineer and his experience in waste management. In order to illustrate the contending discourses on this issue, and a recurrent idea in the one promoting waste incineration, a fragment of the interview appears here, in which this person is talking about the procedure followed for the neutralization of the ash and slag from incineration.[7] The interest of this fragment also lies in the fact that the ash is waste generated by technologies who are presented by the aforementioned techno-scientific discourse as the tools to make disappear any kind of waste. In contrast, for the environmentalists this fact shows two things: (1) incineration only contributes to postponing not solving the problem of waste, which is just transported elsewhere, and to reducing the volume of waste; (2) but these technologies produce many more risks, which remain concentrated for a long time, as this slag is highly toxic. The interviewee admits this, but he refers to the situation of ignorance about the long-term toxic effects of this ash as an argument against environmentalist campaigns on incinerators, which he compares with the ones that were conducted against nuclear plants. The same argument was employed by environmentalists about dioxins (compounds of chloride molecules) that the environmentalists frame as the carcinogenic product of waste incineration.

> Ashes, even under cement, we don't know what will happen to them in a hundred years. And waste from nuclear stations, it's the same. Dioxins cannot be seen or touched, and if they give you cancer in the long run, you won't notice it now. You'll notice in ten years. Then, of course, there's this uncertainty factor in people towards intangible things that, on top of that, when you notice, it'll be too late. It's no wonder, I mean, it's the perfect campaign. (Ent-9, C424)

However, this argument – on the definitional power of environmental organizations with regards to matters that affect people's health and cannot be perceived with the senses – may also be applied to entrepreneurial and political organizations, which also influence public perception. This is what Beck (1992, 1996) highlights in order to explain the crucial role of counter-experts who publicly define those hazards. The argument addresses the assumption of the *invisibility* of modernization risks, which is a central feature of them according to Beck. In a more relativistic sense, this has been conceptualized as the 'ambiguity of harm', a distinctive aspect of technological disasters which differentiates them from natural ones (Freudenburg, 1997). My point is to highlight the analogy in this element of invisibility, which is a recurrent element in the discourses on risk and was portrayed as central for the persuasion potential of environmental campaigns against waste incineration by this high-ranking company official. If dioxins are invisible and have long-term effects, they can also be the subject of a counter-environmentalist campaign designed to frame the risk they imply as innocuous

for the population, as happened in the aforementioned cases of contention. The uncertainty factor operates both ways, and this is a reason why there is a need to approach these mobilizations in an expanded symbolic way, which encompasses commercial and political organizations, as indicated earlier in this article.

This also illustrates my argument on the socially constructed character of risk issues and my previous proposal to apply the same concepts used to analyse the alignment processes with collective action frames, as an adequate methodology, consistent with this subject. This proposal carries an implicit principle of scepticism towards the objectivity of traditional procedures for the evaluation of modernization risks, which also informs reflexive modernization theories and stems from Weber's work – as the birthplace of this 'sceptical paradigm' (Melucci, 1989).

The difficulty of characterizing the rival discourses over waste incineration with the traditional polar categories that differentiate them as 'objective' and 'subjective', 'rational' or 'irrational', or with the terms traditionally applied to political positions as 'left' and' right', is another feature of this contention which has been analysed in the literature on RM and on social movements (Giddens, 1994; Turner, 1994; Laraña, 1999). This difficulty does not seem to correlate with the formal education of those who accept a given definition of risks, a structural factor which can even present a positive relation with it according to Beck (1992). This also illustrates the socially constructed nature of environmental contentions over risk issues and parallels a well-known problem of the classic models in the study of contemporary social movements in western societies (Turner, 1994; Melucci, 1989, 1996).[8] Among the shared characteristics of these collective phenomena, the first one we highlighted was that they do not bear a clear relation to structural roles of the participants and the tendency that their social base cannot be approached in structural terms, less so in terms of a class structure (Johnston et al., 1994).

The aforementioned arguments stem from empirical and theoretical research on this topic. This also suggests another assumption on the implications of such contentions over risk issues, according to which environmental groups are central collective actors in the emergence of a more sustainable waste policy because they promote reflexivity in the twofold meaning of the term indicated earlier: these movements raise the issues and promote the controversies which are likely to lead to the aforementioned changes. This implies that social movements themselves are becoming a central discursive dynamic in complex societies due to their *reflexive nature*, that is their capacity to give rise to a controversy over a state of affairs whose normative sense was taken for granted before the emergence of the movement (Gusfield, 1994), as argued in the next section. This reflexive potential of social movements is also manifest in their capacity to delegitimize political authorities and their discourses about risks, counteracting the legitimating role attributed to traditional risks

experts (Beck, 1992), and to provide alternative definitions of environmental issues. Movement organizations do this by problematizing certain situations, assigning responsibility for them (creating diagnostic frames which resonate among publics already sensitized by both types of authority crisis), and framing their solution as a collective responsibility.

This argument needs to be qualified in two ways. First, social movements are but one source of reflexivity in complex societies, the mass media, the counter-experts and the political parties also being central agencies in this sense. This conceptualization of social movements as agencies of collective signification is also justified by the strong impact of these movements on the mass media. On the other hand, the struggle for the public definition of technological risks is an assumption of the theory of the risk society which not only applies to the cases in which the contention against incineration arose in Spain (in Madrid, Majorca and Biscay) but also supports the afore-mentioned conceptualization on the dynamics of social reflexivity. Since public and private organizations also *mobilized* themselves in the cases investigated, in order to counteract the environmentalists' definitional power and propel their own on the effects of waste incineration, the symbolic struggle takes place under the form of a series of framing and reframing processes by which these groups promote alternative definitions of the effects of waste policies. This is a reason why these activities of persuasion become a central subject of analysis, and this shows another way in which the analysis of collective action meets that of public perception of risk issues.

If one of the conclusions drawn by Beck is that the controversy regarding this type of risk becomes the platform for the many social processes, policies and movements that are gaining importance in the prevention, minimization and control of these hazards, the problem is the lack of attention to these collective phenomena. For Beck, environmental movements break the traditional limits between politics and 'subpolitics', a term he coined to conceptualize the forms of action not channelled through political parties. In a similar way, Giddens asserts that these collective actions represent the emergence of a new type of politics, life politics, focused on 'how life should be lived when what used to be natural or traditional requires making choices or decisions' (Giddens, 1994: 90).[9] However, while the social processes enacted by such movements are supposed to be the focus of the analyst, the latter remains fixed to the broad macro-structural processes of social transformation. This problem of focus is relevant to the extent that it is in the intermediate levels of mobilization in which the environmental consciousness is constructed. The latter does not emerge as a pure social construction by acting groups, independently of the structural trends and the social conditions that affect people's everyday lives. Those conditions seem to be increasingly influenced by technological hazards and their related illness, a fact which has been documented in the literature on the relations between

society and nature (Kroll-Smith et al., 1997; Freudenburg, 1997; Beck, 1992, 1995). Nevertheless, my point is that the 'agentic role' of current environmental change needs to be approached from a perspective of the relations between social structure and collective action which shape the public perceptions of such change, and this is a point for which the theories of RM mentioned pose a central problem. If the analyst only focuses on the macro-structural processes of social transformation, she or he misses the context in which the consciousness on the technological risks arises and the symbolic processes of social construction mediating their public perception. Due to the central role of these processes in contemporary societies, such neglect does not allow these theories to accomplish their primary function, to lead the analyst towards what she or he should observe. The object of observation is not another macro-typology of organization and change in western societies, but the social groups that can propel or impede its emergence.

Reflexivity as Action and Process

As indicated before, our research focused on the actions and collective definitions promoted by social groups who were in favour of or against the widely used policy of waste incineration, and the contrast between their definitions of an issue that was viewed as a purely scientific matter before the mobilization against incinerators, and this was the point of departure for our approach to the object of our study in the terms described earlier. Since our study stems from the analysis of collective action and focuses on the collective actors who take part in the creation and frame alignment processes in relation to these risks, it may contribute to the documentation and expansion of the aforementioned theories, by contextualizing them in the intermediate level of action in which these controversies takes place. What we have been dealing with are mechanisms which are essential to the creation of reflexivity in complex societies: either from scientific fields and experts or from debates and discussions that are usually promoted by social movements.[10] Both fields involve either experts or people debating and contributing to collective definitions of the issues associated with technological innovation. In contrast with the traditional patterns of evaluation on this subject, this debate has produced knowledge about the complex character of technological change in its dual dimension of problem solving and producing.[11]

In this direction, I have indicated that research on social movements over the last decade accounts for a different notion of reflexivity, which has been more useful to analyse our cases of contention over risk issues. This is the aforementioned constructionist conception of the reflexivity of social movements, as symbolic messages and agencies of collective signification that

spread new ideas in society, new frames of meanings and patterns of inter-
personal relations, an aspect which has been conceptualized as defining these
collective phenomena (Snow and Benford, 1988; Melucci, 1989, 1994, 1996;
Gusfield, 1994; Laraña, 1999). Gusfield (1994) stated this clearly: the reflex-
ivity of movements lies in their capacity to create controversy around a state
of things whose legitimization and normative sense were taken for granted
before the emergence of the movement. The reflexive character of social
movements is a consequence of their being 'something on which society is
mirrored and which triggers its capacity to think about and be aware of what
it is' (Gusfield, 1994: 64). The existence of a social movement 'is in itself a
way of perceiving reality (framing), as it turns an aspect previously accepted
as normative into a controversy' (Gusfield, 1994: 68). Drawing on this litera-
ture, I have suggested that this element of reflexivity constitutes another cri-
terion for recognizing the creation of a movement which ought to be included
in this concept (Laraña, 1999).

   While the RM theories treated earlier tend to overemphasize the role of
structural factors in the emergence of a risk consciousness, the approach I
suggest develops in a different direction in order to bridge the gap between
structure and action grounded on the meaning of the term 'social reflexivity'
exposed earlier. This notion operates at an intermediate or meso level of
reality, from the study of the social groups that mobilize against certain poli-
cies and political decisions framed in terms of risks. This notion focuses on
the role of these groups in promoting an environmental consciousness by
framing the issues at stake, not on the role of new experts or on the rational
capacities of human beings, as well as on the definitional power of public and
private organizations which promote these environmental policies.[12] The
main reason for the usefulness of this notion of reflexivity is its capacity to
lead the analyst to the object of observation and to contextualize certain
sociocultural and epistemological processes which are central to our under-
standing of the relations between society and nature.

Alternative Forms of Knowledge

These RM theories have already been subjected to a constructive criticism,
which parallels the one presented earlier. This criticism highlights the ten-
dency to neglect the cultural aspects of the processes of risk perception and
the role played by alternative popular forms of knowledge which are basic in
the emergence of environmental movements (Szerzenski et al., 1996; Wynne,
1996). As Wynne has pointed out, this RM approach shades our perception
of the nature of the environmental phenomenon: 'we do not know whether
it constitutes a social movement or a historical tendency' characterized by a
progressive consciousness of a set of physical and environmental threats

generated by them (Wynne, 1996: 44). This is a reason why these theories tend to simplify the relations between social structure and collective action in these theories, and to take out of their cultural context the forms of knowledge and interaction in which risk awareness arises. This abstraction from the micro-level of action leads them to locate the source of this consciousness in the 'strength of things', in the self-evident nature of modernization risks on people's lives. This may pose three problems of interpretation: (1) to neglect the nature of process in which new ideologies are constructed; (2) 'taking for granted that individuals can think about society outside the context of culture, institutions and practices of society' (Solé, 1997: 126); and (3) to neglect the central role played by private and public organizations and social movements in the promotion of risk consciousness.

Our fieldwork in cases of contention over environmental policies indicates that collective definitions of risks are not spread in function of their objective character or imposed by a 'strength of things' which is highlighted by new experts, who act as counter-experts in the struggle for risk evaluation. Instead, the resonance of the counter-experts' alternative definitions on technological risks is the result of social and cultural processes which have a direct impact on what happens in each case and on the environmental policies implicated. The latter is a local dimension of current environmental contention which enables us to understand the differences among these cases. The symbolic interaction and definitional processes taking place within the organizations in favour and against these technologies have special relevance, as do the relations of the former with other institutions like the mass media and the state organisms that play a central role in the public framing of these risks. In order to understand the definitional power of the public, economic and environmental organizations in such controversies, the analyst needs to know about these symbolic and social processes, in which are constructed those forms of knowledge presented as alternatives to those promoted by the traditional risks' experts. As indicated by RM theories, these forms of knowledge were characterized by a lack of trust in the latter and by the role of a different kind of expertise in the cases studied in Spain. These forms became the basis for a broad environmentalist frame against waste incineration, which acquired a considerable resonance in public opinion and has been the cognitive ground of these mobilizations in Spain.

This was illustrated by the case of a group called 'Doctors against Incineration' that emerged in Majorca in 1993, soon after the approval of a new waste management plan for the island which advocated incineration as the main policy. At first sight, this group constituted an example of counter-experts, a useful term referring to the increasing problematization of experts' knowledge by the type of new risk experts on which these RM theorists base their explanation of the emergence of an RM stage in our societies (Hajer, 1996; Wynne, 1996). These persons accomplished that role by writing a

widely diffused manifesto establishing a causal relation between waste incin-eration and the emergence of serious illnesses in the population. By doing this, the group became a central legitimating reference for other environ-mental groups that have been mobilizing against waste incineration in Spain over the last ten years. The relationship between the public identity of these counter-experts and the nature of this contention was crucial to the under-standing of their definitional power and the role they played in and outside the island. The members of this group held a traditional kind of authority as experts, grounded on their capacity to apply science to the solving of prob-lems of a kind that are directly related to this controversy: curing or pre-venting illness.

In reference to Giddens's (1994) argument on the erosion of scientific authority, doctors are an example of the type of authority on which the Saint-Simonian view of the new industrial order is grounded, in which no conflicts arise and which 'is structured as an orchestra or as a ship' (Bell, 1976). This metaphor refers to that vision of a future social order founded on the forms of legitimate power – obeying the doctor is a spontaneous act which does not imply coercion but the will to get well – which are grounded on 'objective knowledge' (Saint-Simon, 1975). The Saint-Simonian vision of such forms of legitimate authority attributes to them the label of 'technicians', namely to what Beck portrays as the traditional risk experts. The Majorca doctors were a group which was constituted by health professionals, who are not the usual experts in the evaluation of modernization risks, and who used informal pro-cedures for the acquisition of knowledge about these waste treatment poli-cies, which are very different from the ones followed by conventional risk experts. This is another reason why they are an example of counter-experts according to Beck's (1992) theory.

Therefore, at first sight, this case could be seen as documenting the afore-mentioned assumption of the leading role of new experts in current environ-mental mobilizations since these doctors became a legitimating reference for other mobilizations against incineration. However, this case may also stand in contrast with Giddens's (1994) argument about the end of the technocratic Saint-Simonian vision of the future society, which is one reason for Beck's emphasis of the role of counter-experts. The power of these doctors to define the risks of waste incineration came from their professional authority as doctors, and part of the strength of their definition of the effects of inciner-ators was due to their authority to make diagnoses about people's health. This is consistent with the vision of Saint-Simon as medicine is one of the earliest forms of objective knowledge which is applied to solving specific problems.

My point is that this contradiction is clarified if we focus our attention on the means (of action) through which the publics knew this diagnosis. The leaders of the group exercised their formal authority through two unusual procedures: (1) writing the aforementioned manifesto on the new waste

management plan for these islands, a piece which was published in Majorca's newspapers and became widely diffused in the Balearic islands and among environmentalist groups in Spain; (2) collecting a large scientific database in favour of their diagnosis of incineration as dangerous for human health, which has been central in the opposition of environmental movements to waste incineration in other cases in Spain; and (3) diffusing this diagnosis through public forums and the media.[13] Apart from identifying waste incineration as a cause of environmental problems as a consequence of the emission of dioxins, in the manifesto these effects were defined as a threat to people's lives. In asking other doctors to sign the document, the manifesto appealed to doctors' normative code and to their mission of saving lives, as well as to their professional responsibility. This principle of responsibility was illustrated by the personal commitment of its promoters, who headed the manifesto's signatures and spread it among their colleagues, and this seems to be a characteristic commitment of counter-experts.

However, the voice of these would have had no chance to resonate in public opinion if they had not been linked to environmentalist organizations such as the Platform Against the Incinerator, Greenpeace and Grupo Ornitológico Balear (GOB).[14] These social movement organizations provided the channels through which their diagnosis could resonate in public opinion and recruit new adherents to the struggle against these technologies. My argument is that the aforementioned social movement organizations provided *agency* and were the ground for these doctors' definitional power on this issue, not the reflexive capacity of the Balearic citizens nor the authority and persuasion of new experts. This is how the diagnosis of these doctors became a diagnostic frame which had a strong influence on these and other mobilizations against incineration in Spain.

My point is that the reason why the traditional scientific authority of these doctors had an impact on public opinion did not only lie in their social position as doctors but in a different one, as *epistemological leaders* of the movement against incineration in Spain. The doctors' public identity was the result of their professional status, of a doctor's public image as an expert in saving lives and preventing illness, and of their participation in the mobilizations against the Majorca incinerator. Moreover, the doctors' public identity was coined by a small group of activist doctors who wrote the manifesto and who had personal biographies linked to environmentalist organizations in the past, such as Adenat, Greenpeace and the GOB. Their condition as epistemological leaders of these mobilizations was not merely the result of their links with the organizations which formed the Platform Against the Incinerator, but also of their experiences in long-standing activist cultures (McAdam, 1994). The latter provided the motivational frame for this group of activist doctors, which first resonated among the 260 health professionals who supported the manifesto and then among the citizens who mobilized against this incinerator.

A similar analysis applies to another case of contention over the same issue in Madrid, with which this article ends because both cases illustrate my proposal to use the term 'reflexivity' in a different sense to the one employed by the RM theories. In the decline of the persistent mobilizations led by the Platform Against the Madrid's incinerator during the 1990s, there were other factors of discontinuity which further document my previous analysis. I am referring to a judicial sentence from a court which rejected a legal action for the precautionary closure of the Madrid incinerator at the beginning of 1997, presented by the public prosecutor for the environment of Madrid. This sentence was based on technical reports establishing the innocuous character of the emissions of this incinerator. The experts who made these reports were designated by the court and this was the main reason for the decline of the mobilization actions against the Madrid waste incinerator, the lack of interest of the media and the dissolution of the Platform who had organized the former actions of 1993 and 1996. This fact also seems to stand in contrast with the mentiRM theory since it illustrates the power that traditional experts still enjoy.

This notwithstanding, there is a parallelism between this case and the one in Majorca, although they at opposite ends of the pole: respectively decline vs mobilization. Both cases show the importance of the definitions of risk formulated by professionals to whom authority on risk issues has been attributed but who act as counter-experts because they do not have the formal scientific qualifications of the usual risks experts. Those required to report on the Madrid incinerator did have these qualifications and belonged to the field of the natural sciences which has exercised the monopoly over risk evaluation, but the nature of the institution promoting their report and making it public played a central role in this controversy. This institution was a court of justice and this had a central impact on the frame alignment processes of this issue. This juridical character of the channel promoting a collective definition of a technology that was 'under the line of fire of public opinion' documents, albeit in an opposite sense, Beck's argument (1992).on the importance of the normative elements in the evaluation of modernization risks

A normative element was also present in the Majorca doctors' request to their colleagues to sign the manifesto on the new waste plan by invoking their mission of saving lives. In both cases, the expert condition was widened to include professionals in the fields of health and the law, who in the past had remained uninvolved in these controversies. In Madrid, the change in the disciplinary limits conventionally assigned to risk experts produced the opposite effects to the Majorca case. While this change is a central assumption of the RM theory, its implications for environmental conflicts were different, and this illustrates my claim for the need for a more detailed analysis of the framing processes which play a central role in cases of contention over risk issues, such as the ones we investigated.

Notes

1 Beck claims that in an advanced modernization stage, the social production of wealth is systematically linked to the social production of new kinds of risks which are generated by techno-scientific development. From nuclear fission to the storing of nuclear waste, climate change and food contamination, these dangers constitute a self-destructive threat to the whole planet. These risks not only stem from the nuclear threat but also from the effects of chemicals contained in many goods we currently consume (Beck, 1992: 21).

2 The central problems now is not making nature useful for humankind, or emancipating humankind from the constructions of nature, but those generated by the techno-economic development.

3 This argument on the role of theory was exposed by Aaron Cicourel in a workshop on the research project held in Madrid in April 1999.

3 For Beck the current environmental crises affect the pillars of industrial society, from its stratification system to the very structure of the relations among the three main social realms (techno-economic, political and cultural).

4 He contends that these implications consist of questioning the western model of modernization, a process affecting not only the countries where it has developed but also the world as a whole.

5 Another reason for this is that

   . . . local waste authorities, mindful of public anxieties about incinerators and sceptical about their economics, have until now been very reluctant to approve new incinerators with the result that, although many such proposals are in the planning pipeline, very few have actually been built. . . . Moreover, the planning process in England tends to shift the issues of contention away from risks associated with incinerator emissions and toward more mundane issues of land-use planning and traffic. (Rootes, 2000)

6 These are ash and slag that are not destroyed in the ovens and when filtered are kept from going in the air. In Majorca they are turned into cement used for road construction.

7 In our introductory chapter to a book on this subject, we reviewed the European and North American traditions in social movement scholarship and posed two central questions about what has been called *new social movements*:

   . . . why they posed such a challenge to traditional theories and what was it about the traditional theories that proved to be inadequate? From the NSM [new social movement] approach, the answer to the first centered on the link between structural change characteristic of the post-industrial society and movements that emphasize

> identity in the context of a wide variety of grievances and forms of organization embedded in the every day life of participants. (Johnston et al., 1994: 3)

8 These politics are centred on issues of 'identity and choice, whose collective actors are not political parties, never operating in these new action fields, but rather environmental and feminist movements' (Johnston et al., 1994: 91).

9 This was suggested to me by Klaus Eder in a workshop we held in Madrid (April 1999) on the first results of this research.

10 By such dual focus, this investigation attempts to contribute to the analysis of the relations between structure and action, between the big processes of social change and the forms of collective action that emerge in the contexts in which collective definitions of risk issues emerge. Without this, we cannot understand the role played by the crises in continuities that have been shaping the economic and ecological transition of the past 200 years.

11 Since these organizations also got mobilized in order to frame as innocuous the effects of waste incineration.

12 The group members presented their diagnosis in a public debate held in the professional doctors' association of these islands and defended it in lectures and debates around the peninsula.

13 The two have been closely linked, some GOB. activists are also members of Greenpeace, and the present leader of Greenpeace is originally from Majorca.

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