

Source strategies and the mediatization of climate change

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Introduction

Climate change is a phenomenon which, however hypothetical it may be, is characteristic of the global nature of environmental problems. At its most general, it is also a phenomenon characteristic of a threatened society, since this phenomenon is not directly observable and is only accessible, in all probability, via an immense scientific, technical and institutional network.

For public opinion and the sociopolitical system, climate change risk is thus only conceivable and recognizable if deliberate action is taken in order to inform the public and the decision-makers. We will focus here primarily on the agents who can ensure mediation to the general public, namely journalists, and we will examine their relationship with their two principal sources of information, namely scientists and experts on the one hand, and environmental associations on the other hand.

From a theoretical point of view, this analysis clearly centres on the perspective established by Schlesinger (1992) for whom media sociology must abandon its exclusive orientation towards processing information and the content of messages, in short its media-centric orientation, in order to open itself up in an analysis of the field of information. This analysis emphasizes the strategies of actors towards the media and agents who may serve as journalists' sources. We believe this perspective has priority in questions of the global environment because, in fact, it deals with questions on which, a priori, readers or consumers have no information of their own; also such questions or public events are mainly, if not

exclusively, produced for public opinion in order to direct its perceptions and actions.

We believe that our analysis is able to clarify the following questions. Firstly, people may wonder under what conditions the media uncover a particular problem and deal with it in a mediatic manner: are these conditions accessible to journalists or other actors? Are we dealing with conditions particular to the media or do they refer more broadly to the sociopolitical context? This question inevitably leads us to the behaviour of source-actors, scientists in particular: why and how do they intervene in this mediatization? Are they competitors or partners working in association? Finally, we will ask what may be the impact of a media sociology once it has become widely diffused and when certain of its topics are well known in expert circles.

Methodology

This analysis relies on comparing the process of mediatization in three neighbouring countries of the European Community: Belgium, France and Germany. In 1992, a group of scientists, journalists and heads of environmental protection associations were questioned. The interviews centred on their mutual relationships and on the political and mediatic treatment of the question. This comparison is enlightening because we are dealing with three very different situations from several points of view. Germany is a pioneer in climate research whereas France, although having reputed researchers in certain domains, lags slightly behind; as for Belgium, it is too small to develop an actual research programme but several research centres have been well integrated into the international network. Belgium and Germany have strong environmental associations which are active in political life, and recognized environmental associations that deal with climate change. However, France has a weaker environmentalist movement, particularly directed towards questions of planning and nature, with a very poor presence among international associations. Thus, we must consider three different contexts, both from the points of view of the scientific as well as of the political fields.

But how do these different contexts model the mediatic treatment of the question? What mechanisms take account of these differences and are these mechanisms linked to actors' explicit strategies?

Empirical findings

We will limit ourselves here to the main empirical findings of our research by first examining the role of scientific experts in the process of publicizing climate change.

Scientific experts and climate change

The main questions posed to the experts interviewed were clear and simple: what do you think should be said to public opinion about the greenhouse effect? What do you think should be done about this risk — that is to say what measures would you suggest? Three very different models of media representation emerge from their replies.

Spontaneous sociologies of opinion and of the media. The first model — mainly found among French experts — is defined as a *theatrical model*: overall it is a model of media disqualification, in which the media are considered incompetent to transmit correct information about the greenhouse effect. It may be summarized by the following characteristics:

- media information is subject to the effect of fashion, even that of the masses;
- the media are incapable of transmitting complex information about a problem which requires profound research;
- the media are dominated by the irrational: what takes precedence is the event, the mediatic reputation of the personalities to whom one is speaking;
- public demands are childish, they are concerned with emotion, with setting up conflict scenarios between opposing parties rather than with thorough research.

In contrast, in Germany, despite individual differences, another model prevails which may be termed a *public communication model*:

- the media form a structured space: we distinguish here media which are more concerned about the environment than others, and above all we distinguish, for example, newspapers that serve as points of reference (at the level providing reliable information) and those that may bring about opinion changes;
- irrationality is a normal component of mediatic information that can only communicate simple and comprehensive things to the general public;
- public concern — the emotional factor — is considered normal and justified because attacks on the environment are serious and affect ordinary people.

A third model may be described as an *intermediary model*. It characterizes the media as follows:

- the media are blamed less for dramatizing the question than for introducing confusion: they combine the climate issue with that of demography, the Third World and other environmental problems;

- as for the public, its appetite is aroused: reacting emotionally, the public asks for simple and quick solutions, it wants to move faster than science, and that produces uncontrolled effects, mainly certain experts' spectacular interventions without control by other scientists.

It is remarkable that in these three models we in fact encounter the same communication difficulties via the media, particularly the emotional factor. This is therefore a common image that underlies these three models, one that falls within the domain of what may be termed a spontaneous media sociology. What seems to be crucial is whether ultimately a positive or, on the contrary, a negative vision of the media is taken. And the real difference lies in the implicit status that is given to public opinion in the political handling of the greenhouse effect.

For scientists in Germany, and often also in Belgium, public opinion constitutes a compulsory route, whereas most French scientists instead consider the risks and dangers of giving a public airing to the question of the greenhouse effect.

For most German scientists, the crucial locus of discussion is the political scene because as political decisions that can require mass pressure are essential, it is such pressure that ensures that efficient laws are introduced. From this angle, the media play an important role and scientific experts must adopt an active approach towards public opinion because they are responsible for the quality of the public debate: considering that politicians' credibility is often poor, it is up to scientists to 'mark out the debate' and to indicate the real risks and responsibilities to take. The 'public communication' model is thus a model that places the political debate and political decisions at the centre of the question.

In contrast, the 'theatrical' model disqualifies not only the media, but also political debate: it relies in fact on a perception according to which political debate is useless because politicians are incapable of making decisions fraught with consequences because they might weigh heavily upon lifestyles and consumption levels. It is thus a pessimistic model of public action. Furthermore, in this representation, science is essential because solutions will emerge from research and from scientific thought. Finally, scientists have more to lose than gain in a mediatization or a politicization of the question: they risk their credibility because the media transform hypotheses into 'catastrophic scenarios', into readymade solutions and schemes that will discredit researchers and divide them.

Finally, in the third model, we insist above all on the necessary separation of the public scene (media and politics) from the scientific scene: the media and politics take on the discussion of political choices and values, whereas scientists define risks and counter-measures. Above all scientists must retain mastery of what is communicable and thus avoid the suggestion or adoption of decisions which would cause additional risks. We

emphasize here the risks of a hasty political decision while uncertainty still weighs heavily on the rhythm and impact of climate change and thus on what preventive measures should be taken.

Therefore these three models are not only different ways of conceiving the media, but also ways of thinking about public debate on the question of the greenhouse effect and scientists' roles in this. In fact the public communication model, above all the one found in Germany, implies a definition of the problem that considers climate change as ineluctable if measures are not taken, that considers the social effects of climate change (in particular for the Third World, with repercussions on developing countries) to be such that only prevention is a reasonable strategy. Supporters of the theatrical model also consider that climate change will occur, but they predict that it is inevitable because they do not believe that preventive measures are politically feasible; they also believe that more serious upheavals than climate change are underway (mainly a demographic explosion) and that only scientific research will be able to provide long-term solutions. Finally, the intermediary model relies on reasoning that favours uncertainty: considering climate change as still relatively unforeseeable, mainly in its consequences, it highlights the economic and social risks of weighty decisions in a context of poor knowledge. Thus, it advances the necessity for a political debate but seeks to preserve the search for a climate of engaged discussion on these decisions. Consequently, in this interpretation, on the basis of a consensus of experts one would be faced with different perceptions of the risk of climatic change.

But this interpretation shows that the evaluation of risk takes place according to the evaluation of associated risks: risks linked to other 'catastrophic' developments or risks caused by political decisions to prevent the greenhouse effect, or even secondary risks resulting from climatic change, for example such as migratory movements from the Third World to developed countries. In other words, and this is our fundamental hypothesis, *it is by means of diverse expectations concerning the social world that the evaluation of risk takes place.*

The scientific and mediatic fields. The relationships between a specialized scientific domain and the media are the product of the structuring of the scientific field as well as that of the journalistic field.

A certain number of general structural factors inevitably intervene. Thus, the German press is diversified, with multiple regional daily papers and regional television stations, whereas the French press is more centralized with a few large intellectual daily papers and a more popular regional press. On the other hand French intellectuals, above all scientists, intervene less in the press and the public debate than in Germany, mainly because journalists have been defined historically as opposed to intellectuals.

As regards our climate change question, it is necessary to add that on the scientific side, this domain of research is not as organized in France as in Germany: while over several years Germany has developed a climate research programme and constructed a network of research centres, France — and Belgium even more so — is characterized instead by the existence of various research centres, occasionally competitive, and which, at the time of the survey, did not co-operate closely nor distribute tasks. The scientific field's degree of organization conditions access to the media: if it is poor, it is not only more difficult to identify competent researchers, but the latter also do not have a commonly held opinion; and there is real self-censorship inside the scientific environment of a researcher who, to appeal to the media, must inevitably set aside his specialized competence in order to give a general overview of the problem, specify the risks, even indicate the measures to be taken.

The case of Germany indicates, on the contrary, that strong organization of the field enables a network and a common framework of opinion to be established, allowing the media to identify relevant speakers. Furthermore it has become necessary, at least in the main German research centre in Hamburg, to appoint a young researcher to ensure smooth relationships with the press and associations. It is less a question of public relations in this case than of installing an authorized contact to whom journalists and activists may apply, have their articles checked, and inform themselves of the bearing of any scientific or political event connected with the greenhouse effect.

Moreover it is evident that the German press has numerous journalists specializing in the environment and that television has a specific service and offers regular broadcasts in this domain whereas no television station, not even the public networks in France or in Belgium, has yet succeeded in creating a regular magazine programme on environmental problems. These problems are occasionally mentioned in broadcasts dedicated to nature, tourism, consumption or sometimes political events.

Thus there is striking conformity between the spontaneous media sociology shared by French scientists and the relationships between their research field and the press, as there is between the 'public communication model' that is shared by German researchers and the organized nature of their actions towards journalists. The implicit model that researchers have of the media and of communication, if it is indeed produced by this set of relations, has every chance of reinforcing them: this is well illustrated in France where researchers keep out of the way of the media, refuse to enter certain debates and leave the way clear for popularizers (such as Haroun Tazieff or Jacques Cousteau).

Nevertheless, the case of Belgium, where the scientific field is not very organized, less so even than in France, and where the general media give even less attention to this question, indicates that there are other means of

communicating with the public. The Belgian researchers questioned tended to accept the 'public communication' model more than the 'theatrical' model so prevalent in France. If they do not have an organized strategy towards the media, it is because they rely much more on the support they themselves provide, most often by personal commitment, to associations that develop strategies towards public opinion and the press.

Comparing these three cases thus enables the following hypothesis to be formulated: the representation that scientists have of the media may be partly explained by the state of objective relationships of their scientific field and that of the press; but this representation, which tends to reinforce this state of things since it induces strategies on the part of scientists, must also be understood by reference to the model that scientists hold of the public domain.

The structuring of the debate in the political field. It is not only the relationship between journalists and the media which differentiates these three countries: it is also the manner in which experts are used in public consultation. In a nutshell, it can be said that in Germany an expert public discussion on climate change has been organized through a Bundestag committee, whereas in France two relatively confidential reports, one from the Academy of Sciences, the other from an interdepartmental group of senior officials, have been the basis of scientific and political evaluation. Finally, in Belgium, the political debate has taken place between representatives of large interest groups (employers, trade unions, farmers, ecological organizations) and has above all concerned Belgium's immediate political commitments, in practice excluding scientific expertise from the discussion.

In conclusion, it is thus possible to broaden our hypothesis by assuming that scientists' relationships to the media in fact fit in like a prop on a stage or in a public arena. The representations that scientists have of the media derive from the structural state of relationships between scientists and journalists; by inducing behaviour which is sometimes that of withdrawal, sometimes that of commitment, such representations confirm and reinforce the configuration of relationships from which they originate. They are neither true nor false, they simply reflect a reality on which they act as 'self-fulfilling prophecies'. Thus we may wonder what are the factors producing change, how a move occurs from one configuration to another. And it seems to us that this is where environmental associations intervene.

The function and strategies of associations

Some researchers have already discussed the role of associations as experts. And the case of climate change is typical since certain associations, and in particular Greenpeace, have played a significant role in

formulating the problem: Greenpeace has published a scientific report on the question that researchers (who knew about it) considered a serious piece of work. Greenpeace's expert on this issue is a well-known former scientist.

Yet we believe that this is not the associations' main role, even if they do play a genuinely expert role. Inevitably associations also play an important role in the diffusion of information on climate change. Yet, even in Germany, it is rather press initiatives (mainly by *Der Spiegel*) which have genuinely popularized the question. Associations in fact have their own press and publics but for them to broaden their audience on a question they almost always require access to the media, and this is normally achieved by organizing more or less spectacular events (counter-expert conferences, boycotts, demonstrations, etc.) which may arouse journalists' interest. Nevertheless, the associations' role seems to us, from our interviews, to be much deeper and more subtle than that of experts, because they intervene as mediators between public opinion and scientific expertise.

Providing a credibility test. The first, if not the most visible, of the associations' functions focuses on the credibility of the diagnosis suggested by scientists. In this way they answer the lay person's implicit question, which is knowing what value experts' discourse may have, and who may judge the intrinsic value of research.

Associations may test the credibility of researchers in several ways.

- On the one hand, they may organize second (expert) conferences by mobilizing differing opinions among scientists and presenting these to the public and thus the media. Such conferences are typically organized alongside certain international summits.
- On the other hand, they seek to reveal researchers' implicit commitments in the formulation of their diagnosis: via events such as conferences, via interviews or by giving space to researchers in their own press, they show that certain scientists are deliberately engaged in the environmentalist cause and that this gives their views added value; on the other hand, they may also, but less publicly, reveal certain researchers' commitments, for example their closeness to certain pressure groups, for instance the nuclear industry.
- Associations intervene ultimately as protagonists in the communication of science to the public. In the press, science is often presented via popular columns which show little concern for the impact of the techniques described, or even via events and discoveries which are blown out of all proportion. The associations' role is thus to provide additional information for the environmental debate, or even to relativize information by appealing to other scientists to take a stand on a

given issue. In the same way, they also serve as a communication link between scientific disciplines.

Associations may also influence this evaluation of the credibility of researchers by acting as intermediaries between the press and the world of research: often associations take advantage of more spheres of expertise than most journalists and often it is the leaders of such groups who indicate to journalists who the relevant speakers are.

The role of risk interpretation. The second function of associations is widely shared with the media, and it is this which often arouses most criticism and reservations on the part of scientists. We call it risk interpretation because for associations it deals with providing substance to scientific diagnoses which are most often expressed in the arid form of figures, curves and diagrams.

It is true that for journalists, the simplest and most spectacular interpretation consists of representations of catastrophe (as, for instance, by man-made images such as Cologne Cathedral under water). The associations' work on the contrary seeks to define the largest number of possible consequences that may have some significance for the different publics which it addresses:

- thus reference may be made to a hot, dry summer and to problems of water supply that are well known in a given region to make it understood that a few degrees rise in temperature would not be a minor problem;
- where naturalists are the target, the interpretation provided might bring out the impact of changes upon fauna and flora;
- economic changes might also be mentioned, showing the political risks that changes and movements in agricultural production would cause.

Thus much more explicitly than scientists, and by often relying on researchers' findings, associations operate a type of futurology, occasionally a little catastrophist because the message presupposes an appeal to the emotions and to the preoccupations and daily experiences of ordinary people.

But the role of translation does not stop there because associations also engage in information strategies by exposing the resistance of those who do not want preventive policies: thus they expose economic lobbies by presenting them as a conservative gerontocracy, just as they present preventive policies as technical innovations rather than as technical regressions.

A mobilizing and imaginative role. Finally, undoubtedly the most important and specific role of associations consists of mobilizing supporters,

whole populations, even the authorities concerning specific and concrete objectives. We are not talking here only of petitions addressed to decision-makers, or public demonstrations which are direct strategies aimed at influencing decisions. Above all, we are concerned with initiatives which endeavour to combine technological changes and lifestyles.

Thus, German ecological organizations have developed a series of concrete plans which seek to show that individuals' daily lives may be improved while preserving the environment by using new techniques, new ways of managing resources: this is the meaning of creating 'local development centres' concerned with suggesting new ways of dealing effectively with housing, public transport and gardening. It is in the same spirit that a Belgian ecological organization has launched a campaign promoting fluo-compact lamps encouraging energy economy.

One of the characteristics of these ecological practices is to try to associate consumers and citizens at the local level: most of these programmes are offered to local organizations in order that they might support or implement the same recommendations and offer an example and an experience. Certain German ecological organizations have gone further by offering towns the chance to participate in projects which would aim both at encouraging resource economy and at supporting development projects for the inhabitants of Latin American forests.

Even if the mediatic dimension is generally not very visible, the main function of such local action seems to constitute credibility tests for alternative technology and ways of life. These experiences render such changes of consumption styles imaginable and plausible.

Furthermore these actions rely on and allow associations to develop their own expertise which is not actual scientific expertise, but technical and administrative expertise. One example is the comprehensive analysis, carried out by a Belgian organization, of all the surface treatment techniques of metals and their classification according to cost and polluting impact: such a tool enables suggestions to be made to industries about alternatives to the techniques they are using. It can finally be said that ecological associations intervene here as agents of innovation or of diffusion of new technology.

Ecological associations, whose scientific legitimacy is poor, therefore intervene in the expert process in a dual manner:

- on the one hand they intervene in public perception of the risk by mobilization of the public to introduce the climate question onto the political agenda;
- on the other hand they intervene by stimulating changes in technologies and ways of life, thus contributing to rendering prevention strategies plausible.

Countervailing control of scientific and political information

Having identified the roles and strategies of the two major actors who act as sources for mediatization of climate change, we may ask ourselves about the relationships between these two sources and the media themselves.

Firstly, one may characterize the interplay of relationships between these three actors as an interplay of competition and complementarity. As far as climate change is concerned, it is evident that scientists are the main information source and that journalists grant most credibility to this source when facts and predictions are to be presented. In controversial situations, journalists, by professional tradition, are anxious to present opposing arguments, which inevitably places them in potential conflict with certain scientists who reject such controversy and maintain that the scientific world is much more unanimous about the theory of climate change than journalists would hold. Concerned about balance, journalists tend to grant equivalent weight to both approaches. Thus it is evident that the degree of structuring of the scientific field (as in Germany) and of scientists' commitment to public debate is an important factor in stabilizing public opinion. In France, on the contrary, journalists tend to see themselves as intermediaries, people who are more political than scientific, because they are known and because public opinion clearly distinguishes the nature of the commitment of people like Cousteau or Tazieff, who are clearly identified as environmental defenders. Thus we may conclude that the weight of the media and of journalists is relatively proportional to the weak commitment of scientists in publicizing environmental issues.

Secondly, the interplay is equally ambiguous between associations and scientists: in Germany as in Belgium, scientists rely more or less explicitly on the media, even if a certain suspicion comes over regarding their politicization of the debate: disagreement clearly lies in the fact that associations put forward more or less radical suggestions for action and decision that scientists do not want to take up and which they pass on to political decision-makers. This is even further accentuated in France where scientists insist on the danger of hasty decisions. But they all acknowledge that associations play a pedagogic role.

Finally, there is competition and complementarity between media and associations. Complementarity because associations are often intermediaries between scientists and journalists (acting as primary sources), but competition because associations are capable of creating media events and also of managing information networks which are relevant to them.

Our hypothesis is that this relationship of complementarity and competition is inherent to the logic of relationships between the political, scientific and journalistic fields, but they can take on different configurations depending on the context.

In the German context where the scientific field is highly structured, where the debate on climate change is public, where associations and environmental journalists are very professional, we can observe that relationships between actors are the object of relatively systematic cross-cutting controls over information. These countervailing controls are multiple: one scientist is specifically assigned by a research institute to handle relationships with the media and the associations which allows researchers to exercise permanent control over the presentation of scientific facts. Conversely, however, the political weight of associations and their capacity to suggest concrete measures (for example, energy economy or solidarity with the Third World) allow the political debate to be framed and warnings coming from the scientists to be inserted into an already defined political sphere.

In the Belgian context, where the scientific field is less structured and environmental journalists less recognized, relationships between the three worlds are looser, not as regular and mainly animated by the activism of certain scientists and journalists who feel themselves close to environmental associations: these tend to occupy the foreground together with a few reputed scientists. Mutual control of information is not widely practised and the debate is confined to more limited circles than in Germany.

In France, finally, the scientific field is also little organized, environmental journalists not very professional and environmental associations intervene only a little in this question which is outside their usual field of action. As a result the media handle this question in a more intermittent manner, largely at the mercy of political events and trust in a few people considered to be significant for public opinion, believing, moreover, that climate change is not really a public issue. There is in fact, in this configuration, very little mutual control and very few concrete relationships between actors who generally ignore one another. Scientists only tend to intervene in the press occasionally and above all in the shape of popular scientific texts; associations do not know which experts to trust, and journalists are more prone to handle the question as purely political. There is in fact a disconnection between the three fields and three actors, and the press seems ultimately to be more autonomous to handle the question to the extent that other actors are powerless or unwilling to intervene in the public debate.

These three different configurations of the relationship between scientists, associations and journalists indicate that public handling of a question like climate change presupposes not only strategies on the part of certain actors who may be information sources, but also a network of relations between these actors, a network which organizes competition and complementarity.

What are the essential elements which emerge from these networks of relations which at the same time frame and make possible the work of the media?

1. They define actors' definition of their identities. Each actor seeks to define his identity, that is to say both his specific field of intervention (scientific data to some, proposals and mobilization to others) as well as the reasons and bases for this: scientists are recognized both as independent but also as committed or responsible, associations as defenders of environmentalist or Third World positions but also having the competence to propose concrete action. And the media transmit these different identities.

2. Construction of a common framework of reference. The definition of actors' respective identities itself contributes to defining a frame of reference in which the issue makes sense and becomes the object of consensus: in this way in Germany emphasis is placed by all actors on the importance of the problem both for relationships with the Third World and also as an energy consumption problem. This framework is very important in defining journalists' legitimate tasks: in Germany this may entail a role of public mobilization as in a solidarity campaign with the Red Cross, and therefore involve collaboration with associations; on the contrary, in France, the problem is still defined as a highly politicized quarrel or controversy among scientists.

3. Countervailing control of public information. Finally, these networks of relations effectively ensure alternative control of information, which subjects journalistic work to control by different sources. In this process, information supplied by the media appears as the collective product of a network which is not official but is relatively transparent to the actors themselves.

Discussion

Many media analyses that have focused on how media treat particular environmental questions have generally led to identifying the use of specific media language. By media language we mean the forms in which the issues are presented: typically, the media treat problems as conflicts between opposed parties (Duclos, 1989; Peltu, 1985). The role of the media must be interpreted in the context of how public opinion is formed.¹ This constitutes an arena of competition between actors who claim to say what is and what should be.

1. When it comes to climate change, the facts completely escape common experience for it is only by communication that the issue is given meaning (as opposed to a daily occurrence such as a road accident, which ordinary experience has several ways of interpreting). The taking account of these facts (or hypotheses²) by public opinion presupposes an interpretative context, one that may designate the risks and the victims, in short, the social context which gives these facts meaning.

Consequently, public presentation of these facts, in the press or in public communication, inevitably implies something other than a simple scientific popularization. It assumes a framing of the facts in relation to a series of socioeconomic, ethical or other parameters. The key question is thus *who* frames.

This process of 'framing' facts is interactive, but the form of interaction varies from one context to another and grants the media a more or less important place in relation to other actors. It is possible thus to conclude that the public construction of the environment is only a purely mediatic process (that is to say one where journalists interpret scientific facts in their own language) if other actors intervene a little or not at all.

2. But media sociology, because known to some extent³ in intellectual circles, may be reinterpreted⁴ by actors in the particular context of a problem. A sociology that analyses the media by bringing to the forefront the handling of environmental problems, in effect criticizes the inadequacies of journalistic work. This type of analysis undoubtedly has real theoretical value and relies on empirical data. However, as it centres mainly upon journalists and content, it undoubtedly tends to overvalue journalists' weight in the construction of news by ignoring the role of other actors or even accepting that the absence of other actors (scientists or associations) in itself constitutes a problem. These analyses thus risk reinforcing, at least in certain contexts, experts' spontaneous criticism of the press. For us what is important is that this spontaneous or scholarly media sociology comes to justify scientists' withdrawal of commitment from the public scene. And this withdrawal, typically noted among French experts, is pernicious because it acts as a self-fulfilling prophecy by leaving the media arena free of any control by scientists over public communication.

Accordingly, we would argue that media analysis should in future be developed on the basis of two postulates. The first is that true media analysis is that of the public arena, which includes public opinion but involves more than that, that is to say, it is the arena of different social positions on a problem. The second postulate is that this public arena must be analysed as an arena of competition between information producers and contexts of interpreting facts and events. There is no limiting case where the press alone constructs a problem because it always has recourse to several sources, points of reference and personalities who may legitimize its messages; nor is there a limiting case where actors could construct a problem without mediatization, because even powerful associations are driven to broaden their audience by access to the media. Most real situations are located between these two extremes and imply an analysis of the interactive process between sources.

3. The role of public opinion and of the press constitutes another dimension of the construction of environmental problems that we have

hardly touched upon here. We might suppose that in our societies the role of the press and journalists is not only to communicate information (coming from experts or authorities and directed towards the public) but also to 'represent' the public interest, that is to say to ask experts and the authorities questions that the public is asking. This press role has hardly been explored or studied. It makes us consider the press as a spokesperson for the public or various publics. It gives the journalist the role of testing out the validity of frameworks of interpretation suggested by sources within the public. In the field that we have considered, this role is above all filled by associations: these develop actions which seek to suggest theoretical and practical responses to the greenhouse effect. In the process of constructing the problem, such action has a fundamental role, even for scientists: they enable possible or acceptable measures or more generally public 'sensibility' to be anticipated. They thus allow public decisions and the support that these decisions could obtain to be envisaged. In the press the feedback role of opinion is often reduced to opinion polling, whereas associations attempt in practice to realize concrete experiences which render change plausible and conceivable.

Synthesis and conclusions

The comparative analysis of the process of constructing an environmental problem in three national contexts has enabled it to be shown that in the case of climate change this process is an interactive one which, in very different configurations, obliges scientific experts, associations and journalists to intervene. It is clear that other actors (especially industrialists) could also have been studied and that the real process is undoubtedly more complex. Nonetheless, the study illustrates that news construction is not linear, moving from scientific facts to public opinion. The construction of news involves the commitment of actors — mainly experts — and the development of a framework of reference.

The role of the press, and this is the essential contribution of this research, is in fact a relative role. By granting priority to the analysis of source strategies, we reveal the real limits of media power. If the press has its own language, as do science or politics, the construction of the problem only seems to succeed on condition that relations between actors are established, each playing his role, and each exercising a certain control over communication. For media sociology, this conclusion is not without importance: it shifts the attention of the researcher from the media themselves to their specific role in the process of publicity. Finally attention needs to be drawn to the fact that a media sociology is not socially innocent: any sociology that overstates the role of the media may, for example, be reinterpreted by certain actors who devalue them which,

ironically, tends to reinforce the importance of the media but above all, maybe, tends to prevent a real process of public communication.

Notes

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1. Public opinion, as measured by surveys, derives from the public's responses to the provision of information and to the positions taken by different actors who have access to the media, and to other sources of opinion formation. In this competitive interplay, information providers are at the same time a source and producers of frameworks of reference (or of interpretations via normative and cognitive frameworks). On the notion of public opinion, cf. Bourdieu (1980).

2. We may think that from the point of view of the media or journalists the distinction between facts and hypotheses resulting from a predictive model is probably not pertinent: the reader identifies scientific data as facts, whether it is a question of verifiable results or of less firmly supported data.

3. We have reason to believe, but no empirical proof that, for example in France, several scientists questioned had read the analysis that Duclos made of the media (Duclos, 1989) and that in Germany certain people had read other works, mainly Peltu (1985).

4. In the proposed theoretical perspective, competition between sources implies that each actor has an idea of the role of the media, and it mainly implies that scientific experts (as intellectual producers) consider media power to be too important, or more precisely journalists' power over the media to be too important. This explains why most scientists insist on the fact that the media should inform people better, and should popularize science better instead of dramatizing a few scientific facts.

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