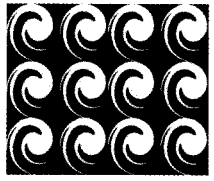
LUSO-AMERICAN
FOUNDATION

MAKING THE PASSAGE THROUGH THE 21ST CENTURY

Water as a Catalyst for Change



LUSO-AMERICAN FOUNDATION
NATIONAL LABORATORY OF CIVIL ENGINEERING
COLORADO STATE UNIVERSITY
INTERNATIONAL HYDROLOGICAL PROGRAMME, UNESCO

Edited by
Charles Buchanan
Paula Vicente
Evan Vlachos

Proceedings of the Conference held at the
National Laboratory of Civil Engineering, LNEC
Lisbon, Portugal

January 16-18, 2006

PUBLISHED BY
Luso-American Foundation

DESIGN
B2, Atelier de Design

EDITORS
Charles Buchanan
Paula Vicente
Evan Vlachos

PRINTED BY
Textype

FIRST PRINTING
1500 copies

Lisbon, July 2009

ISBN
978-972-8654-41-2

LEGAL DEPOSIT
298 048/09

Table of Contents

Proceedings of the conference

CIVIC ACTION AND *MEDIA* IN THE WATER ISSUES

Luisa Schmidt
Institute of Social Sciences (ISC), University of Lisbon

Few environmental issues raise as much public interest as water. It is a vital resource to the whole of society, but in a critical situation as a result of pollution and global climate change. Human actions have seriously affected water and it can only be regenerated by human actions together with technology and, even more importantly, a new culture of water use and management.

This involves several issues that are common to other environmental ones. Chief among them are education, information, translation of scientific knowledge into public awareness and participation. We start this paper by mentioning the main international documents which frame the whole issue of public access to information on environmental matters, especially water issues. Then we focus on data from European inquiries about how public participation happens. Given that the media play a crucial role in this context by reflecting the views of both the public and opinion-makers, the main section of this paper deals with the media's different functions as intermediaries between the public and the political, and between economic and scientific powers. In the final part, we return to the problem of water and briefly mention how public information and participation in decision-making has been handled in Portugal.

1. Information, participation, rights and practices.

There has been increasing emphasis on the importance of public participation in sustainable development. Principle 10 of the

Rio Declaration (1992) states that "each individual shall have appropriate access to information" and "opportunity to participate in decision-making".

It is taking time to apply this principle, which makes it all the more necessary. The processes of raising social awareness and involving participative citizenship require deeper knowledge of scientific and environmental matters – and that, in turn, requires better education and information. Without information, none of the proposed measures gets a response; no one can participate if they are not informed. Information acts as the daily fare of public participation; it is also effective as an entrée to whet people's appetite for more information as recent surveys confirm (Almeida et al, 2000 and 2004).

In the European context, many legal instruments require public information and participation. An analysis of the EU action programs shows a shift from the stage where technical-scientific evaluation of a situation was enough to another where public opinion is increasingly valued, especially since the EU 5th Environmental Action Programme, even in more complex and controversial issues that involve risk evaluation (De Marchi, 2001; Gonçalves, 2003).

As regards water specifically, the Framework Directive (2000/60/EC) explicitly mandates the adoption of mechanisms for people's information and participation: "It is necessary to provide proper information of planned measures and to report on progress with their implementation with a view to the involvement of the general public before final decisions of the necessary measures are adopted".

Directive 2003/35/EC, which extends the requirement of environmental impact assessment to plans and programmes, further establishes the obligation for Member States to "ensure that the public is given early and effective

opportunities to participate in the preparation and modification or review of the plans or programs".

The Aarhus Convention, already signed and ratified by 39 countries including Portugal (in 2003), also mentions access to justice in environmental matters (CNADS, 2003) in addition to public information and participation. This convention requires annual reports on the situation in every signatory country – a way to force issues of civic participation into the public agenda.[1]

Through these and other directives, as well as the development of new information technologies (e-government, e-planning, etc.), Europe has long been pursuing a programme to modernize democratic life. It has therefore stimulated concrete measures to unblock bureaucracy, ensure transparency in administrative action, allow citizens access to information and to take part in public decisions that directly affect them.

There is, however, a nuance if not a gulf between reality and the legal framework, especially in countries where democracy is more recent and less effective.

Data from recent European enquiries illustrate the situation. Public trust in key democratic institutions, such as parliament, politics and the legal system, is highest in northern European countries and lowest in some of the former Warsaw Pact ones (Poland, Czech Republic, Slovenia) as well as in Portugal, where trust has actually been decreasing (figure 1). There was a great deal of scepticism to begin with but it has only increased in recent years.

In this instance, Portugal, with its 0,9%, is much closer to Hungary or Slovenia (1,1% and 2,4%) than to Scandinavian Countries, where more than a quarter of the population are members of an NGO (figure 2).

Court cases involving environmental crimes can pra-ctically be counted with the fingers of one hand. The number of fines

[1] In this respect, see the first Situation Report on the Portuguese case (IA, 2004), as well as the report of the National Council for the Environment and Sustainable Development (CNADS, 2004).

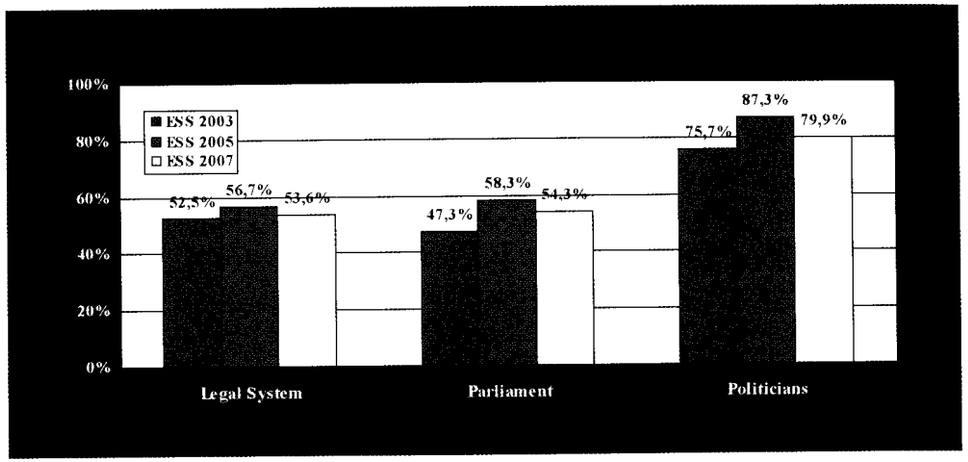


Figure 1 Evolution of distrust in Portugal between 2001 and 2007
Source European Social Survey I (2002/2003), II (2005), and III (2007)

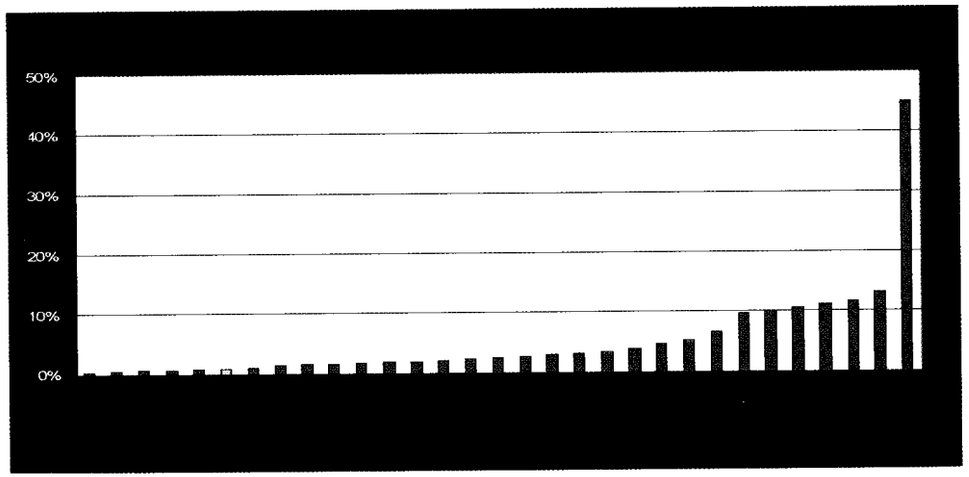


Figure 2 Activism in associations for protection of environment in different European Countries
Source European Values Study (2000)

may have gone up, but there are many ways of getting around them. Very few cases actually get to court.

As regards public participation, there are noticeable differences in Europe. In countries that have recently emerged from dictatorships, such as East European ones, people tend to be much less civically organized (Schmidt et al 2006). However, although Portugal's democratic revolution occurred over thirty years ago in 1974, its indicators of long-term participative behaviour put it well at the bottom of the list. Portugal has association rates far below the European average, either in general or specifically in environmental activism (figure 3).

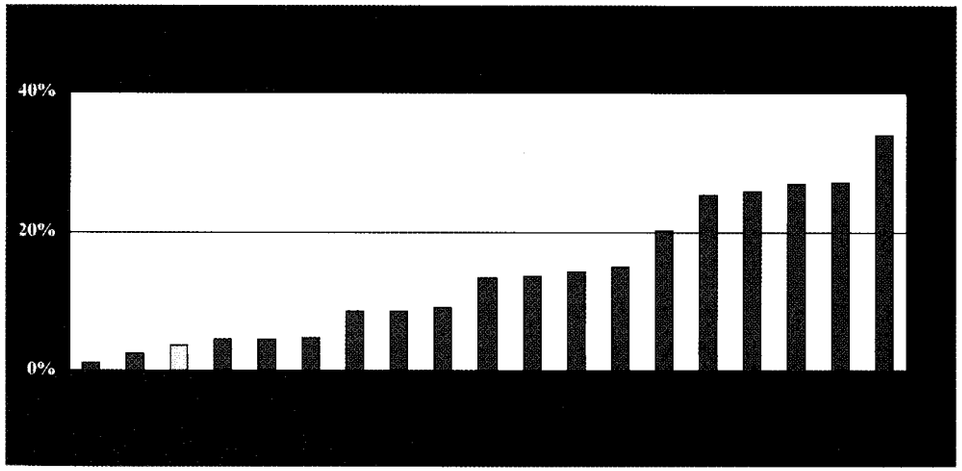


Figure 3 Worked in an organization/association (non political) in the last 12 months
Source European Social Survey III (2007)

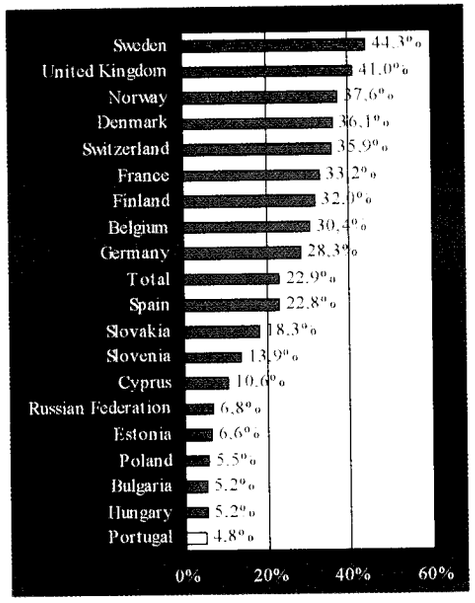


Figure 4 Signed petition in the last 12 months
Source European Social Survey III (2007)

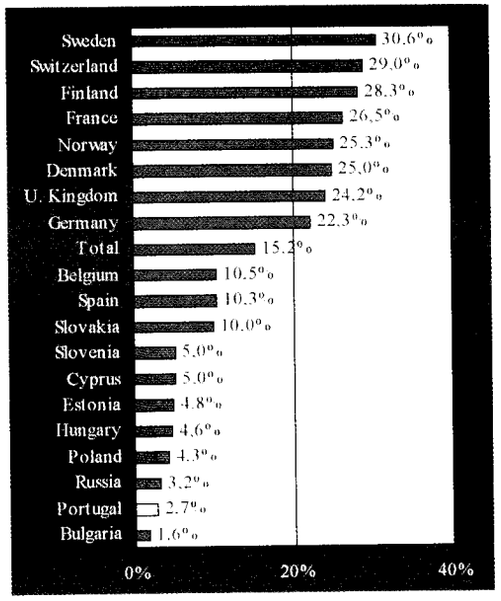


Figure 5 Boycotted certain products in the last 12 months for ethical reasons
Source European Social Survey III (2007)

Portugal's indicators are low even in short-term, low-effort participation, such as joining a demonstration, signing a petition of boycotting a product for ethical reasons (figures 4 e 5).

The Portuguese are almost the last to boycott a product and the last to sign a petition or join a demonstration. At the national scale, data from successive *Observa* inquiries have revealed profound inertia even when faced by increasing problems. Environmental worries have increased, but public participation rates remain the same.

This apathy could be the result of certain features, some of them going back many years, such as literacy levels, or then the sense of "distance from power" and a fear of expressing disagreement with decisions made by public entities and feeling distrust towards a power seen as autocratic (Villaverde Cabral, 2001).

All this permeates different social sectors and has outlived the dictatorship well into democracy and up to the present day, making it even more difficult to understand Portugal's civic inertia.

As far as the environment is concerned, one of the key features here is one whose effect is the easiest to understand: lack of information, especially in complex issues with a strong scientific component. In the 2004 *Observa* inquiry, about 60% of the population describe themselves as little informed, or not informed at all, about environmental issues (Nave et al, 2004).

In every Eurobarometer about a scientific issue, Portugal appears among the least informed countries. A good example is biotechnology. The Portuguese emerge, in a group of questions, not just as people who know less, but also as those with less interest in knowing more about it. It seems reasonable to ponder about what they have seen, read or heard about biotechnology, or any other environmental issue, to date (EB, 2005).

The media, especially television, are one of the main sources of information about the environment in all European countries and are a primary source of environmental information. In 2005, a European survey showed that the vast majority of citizens depend on television, followed by radio and newspapers, for keeping up with environmental issues (figure 6).

These figures vary little from country to country, though there is a marked preference for the printed press in Nordic countries, whereas television reaches the highest levels of popularity in Portugal. This is related not just to literacy levels, but also to a lack of alternatives. However, a third of young people still at school prefer the Internet.

About half the citizens in the 25 EU countries feel reasonably well informed about environmental issues, Denmark, Slovenia and Finland (with rates of 70 percent) show the highest rates, and Slovakia, Lithuania and Portugal (where 65 percent feel not very well informed) the lowest (figure 7).

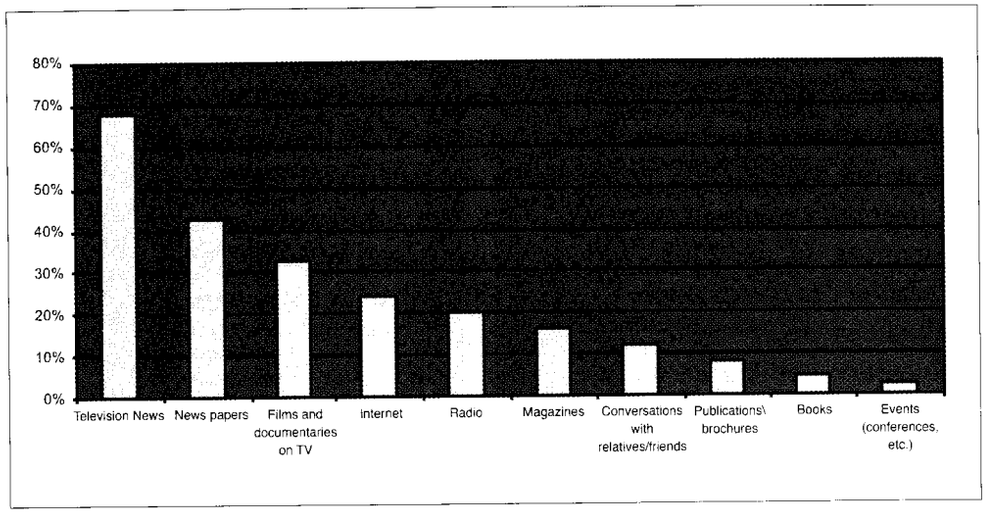


Figure 6 Main sources of information about environment (EU 25)
Source Eurobarometer 224 (2005)

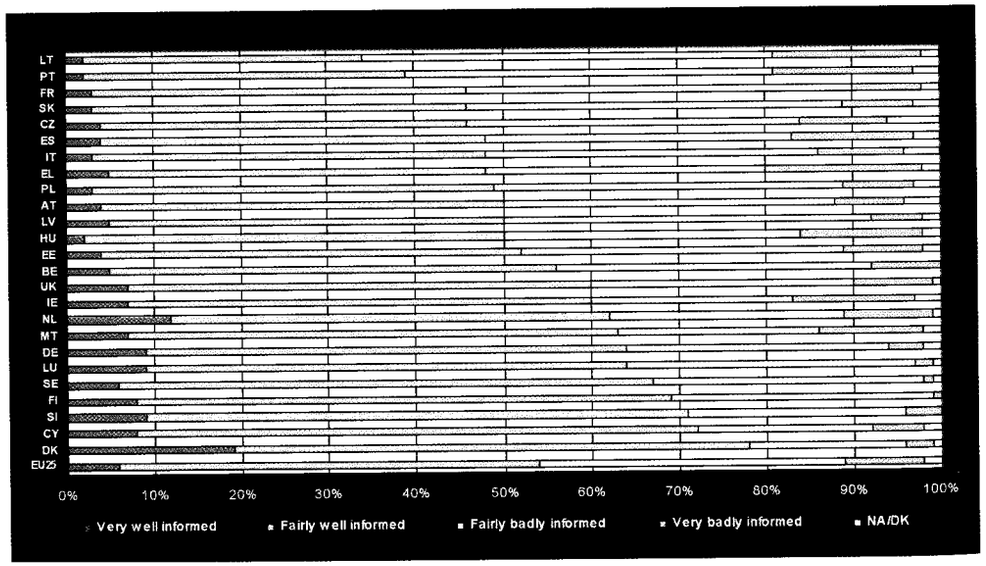


Figure 7 How informed do you feel about environmental issues?
Source Eurobarometer 295 (2007)

In fact, when Europeans are asked if they feel well or badly informed in different areas, they consider themselves better informed about sports, and less informed about pollution issues though even less about science (see Eurobarometer 55.2, 2001).

Nevertheless, that people want more information is clear at both European and Portuguese levels. When asked about subjects on which they would like to receive more information, they show greater curiosity (greater information desire) about environmental problems, which means that they recognise the need to know more about matters that affect their daily lives.

2. Mass media – between citizens and powers

The need for information is naturally the most acute whenever an environmental crisis bursts into the public eye. However, the media's role is no less important when risks are potentially very serious but difficult to visualize.

That is what happens with nuclear radiation and dioxin emissions. It is almost always the case when dealing with a global problem – the hole in the ozone layer, the greenhouse effect and bio-diversity. These are areas of environmental "experience" completely dependent on the media in order to become known. Since they elude sensory perception completely, all common knowledge has to be processed and organized through the media (Beck, 2006).

These processes of reception and transmission of scientific information have been the subject of research carried out from four different main perspectives (Schmidt, 2008):

1) The influence of the media on the setting of public and political agendas, emphasizing their ability to impose scientific issues on those agendas;

2) The role of the media in inculcating scientific culture in different audiences – in this case a common environmental culture;
3) The power of the media as relative in the sense that it attributes a decisive role to socio-cultural contexts for the way messages are received – audiences are not considered to be passive receivers of information, but react in different ways according to their culture, history and their own agenda of concerns;
4) The interaction between the different agents that produce the media message upstream in the communication process – particularly the "sources" of information used by journalists, in which scientists play an important role.

2.1. The influence of the media

The active role played by the media as agents for promoting awareness of environmental problems begins with the setting and launching of different themes. In almost every country where this was studied, it was found that the history of public concern about the environment coincides almost exactly with the history of its dissemination in the media.

This is the agenda setting effect, according to which the mass media first make an issue known, and then gradually promote it, thus functioning as a springboard for turning environmental problems into priorities of concern for the public, which in turn leads to the necessary concern on the part of politicians and the consequent implementation of policy.

Various studies have found a positive correlation between coverage in the media and public opinion polls, proving that the extent of public interest shown for environmental issues varies in direct relation to the volume of their coverage in the media.

Ader, a sociologist, examines the relationship between the media agenda, the public agenda and also the real, objective conditions of environmental pollution between 1970 and 1990 in the US, and shows that public worry about pollution has increased because of greater coverage rather than objective facts. Despite the general fall in pollution levels recorded over the last 20 years, the growing emphasis on the issue has increased general concern with it (Ader, 1995).

The public "needs the media to tell them how important an environmental issue is" and the media "much more than mirroring public priorities, actually influence them" (Ader, 1995, pp 300-310), sometimes covering problems of doubtful gravity and forgetting others that are more serious.

The setting of agendas as a result of environmental problems covered by the media has been studied in several countries in a number of studies, the last of which devoted to the issue of climate change (Mazur, 1998, Taylor, 2002, Schwarze, 2003).[2]

In the Portuguese case, there is a lack of comprehensive studies, but when we match poll results over the years with news coverage on public television – which held a monopoly until 1992 – we notice that media coverage and public awareness of the environment grow simultaneously. It might be a rough measurement, but it still indicates a clear connection (figure 8).

The same occurs in the case of water river. There has been a sharp increase in the number of news items on river pollution since the 90s. Inquiries conducted at the same time show a corresponding increase in public concern.

We can thus say that although the media does not exactly determine how people think about a problem, they certainly make them think about, and fear, problems they choose to highlight. In this sense, the media function as the "starting engine" of public concern, helping the environmental issue to become public by capturing people's attention and making the issue of common interest.

[2] For a summary of these studies since they began in the 70s, see Schmidt 2003, pp. 65-75, and Schmidt 2008

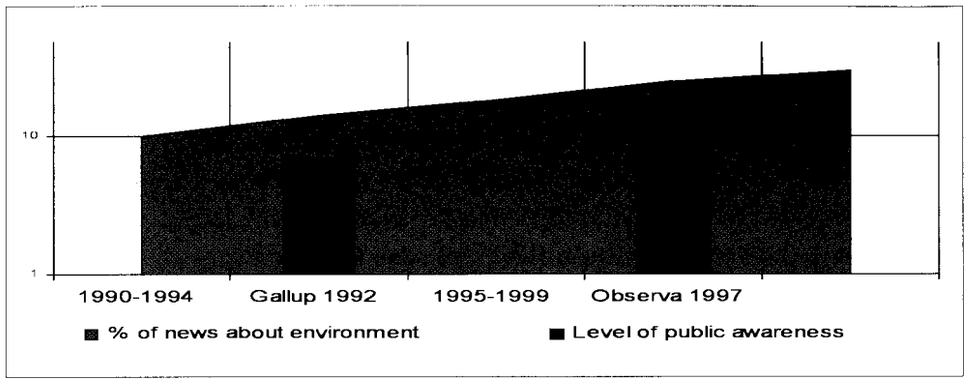


Figure 8 Media Coverage and Public Awareness
Source Schmidt (2003), Schmidt et al (2000)

As for political effects, as a rule they will be much greater if media attention on an issue is sustained for more than just a brief time, and also, of course, if it is on television.

A clever politician who is environmentally-minded will learn how to use the media to put pressure on colleagues. For instance, my regular column on environmental issues, which is published in Portugal's largest national weekly (Expresso), as been already used by politicians as a means to influence government colleagues.

2.2. Building a common environmental culture

The media not only stimulate concern, but also encourage their audiences to increase their understanding and knowledge of these issues. By regulating the frequency with which environmental values are transmitted, the media, particularly television, help create and inculcate aspects of an environmental culture with common characteristics, thus generating common lines of thinking and reserves of "shared meanings" between different members of a society, and even between various societies (Hall et al, 1993).

Some environmental representations have become recognizable to the various "armchair ecologist" audiences of the Western world. For example, most people would have no image of the panda or even developed any feeling for the animal, if television had not built it up as a cult animal for international environmentalism (complete with a black patch in his eye that looks more like a falling tear). The same applies to whales and dolphins. Cousteau also contributed to the official recognition of the marvellous world of coral and underwater world with his series on the ocean depths. This is obviously just a case of a lowest common denominator of environmental representations. Another major symbol of this kind of empathy is the charismatic aquatic bird covered with crude oil.

This image was so powerful that it was used in 1991 to represent the devastation of the First Gulf War. As it happens, it was a misrepresentation, since the photograph was taken elsewhere.

Whatever the case, environmental catastrophes disseminated in the media are great catalysts for raising awareness among the public. This is the educational effect of catastrophes.

The Chernobyl disaster in 1986 did more to raise awareness about ecological interdependence than hundreds of political speeches or scientific analysis (Mormont and Dasnoy, 1993). This awareness is "globalized" and heightened by television, particularly because of the idea of dramatic intrigues that it promotes and the fears and concerns about the risks that it embeds in people's minds.

Catastrophes are well-suited to news formats that require "high impact sound bites". Another aspect is the way they zoom in on different institutions, showing the way they work. This is the so-called behind-the-scenes effect. In other words, oil spills as well as nuclear catastrophes and all environmental disasters in general reveal shortcomings in the system that are normally kept hidden: the safety or lack of safety of industry and

its activities, its control or lack thereof by the authorities, the types of products manufactured, their implications and risks.

For instance in Portugal, the great fires of 2003 forced us to become aware of our institutional chaos, and the many interests that feed on it, to such a point that the government ordered a forest fire defence plan. Its main conclusion pointed to the need to restructure completely the sector's administrative management.

In a study made of the Brent Spar case – the attempt by Shell to sink a platform of oil waste in the sea in 1995 – one of the factors shown to have caused the poor image of this oil company, and the failure of the position it had taken, was precisely its secretive, bureaucratic attitude, with obscure procedures that aroused suspicion, eventually destroying public confidence (Anderson, 1997).

Shell subsequently changed its attitude, encouraging a policy of transparency and bombarding editorial offices with videos and invitations for open visits to their different platforms.

Chernobyl was also an example of a tragedy whose dissemination in the media acted as an "open window" into the Soviet infrastructure. The authors of studies of this subject said it even played a role in speeding up Glasnost – for, according to them, what was seen through the "window" opened by the accident was a great bureaucratic imbroglio, something quite different from the Gorbachev initial proclamations about the openness of the regime (Patterson, 1993).

In 2006, to mark the passing of twenty years after Chernobyl, (Público, 26.04.2006) Gorbachev wrote an article in which he confirmed the importance of the catastrophe as a catalyst for change and openness, an undeniable historical landmark (he said there is history "before and after Chernobyl").

However, the intense mediatisation of catastrophes may have other, less positive consequences. According to the Cultivation Analysis theory (Gerbner et al 1994), some studies show that such

regular dissemination intensifies the feeling of insecurity in daily life. This, in turn, may frighten people into a sort of frozen paralysis (what is called "narcotic fear") or an absolute boycott of any proposed policy (the so-called "hysteria of environmental alarmism"). The best antidote to reactions of this kind, which can be manipulated, is good, consistent and permanent information.

A side effect of mediatisation is the formation of stereotypes, emphasising certain aspects of social reality while obscuring others, and creating images of this reality "through which the public is able to structure its visions of the world, and of people" (Hall, 1997). The environmental activist is often a victim of this. In Portugal, for example, the stereotyped, ridiculed version of the activist was a frequent feature on television for years. They were shown as eggheads, lunatics, sandal-wearing fanatics. This image has changed on the screen, but it remains in many people's minds, and doesn't help the environmental movement social recognition.

The cultural construction of stereotypes and ideas is even more powerful in fiction and advertising, a fact countries with important film industries like the US are well aware of, and traditionally use in a masterly way.

Studies of the problem of nuclear energy have shown how, during the period after the Second World War (in the aftermath of Hiroshima and Nagasaki) when the image of nuclear energy had to be rehabilitated, the Pentagon became a film sponsor. Between 1945-1962, about 45% of films about the war were apologies for the nuclear industry. Using the crisis in Hollywood caused by the sudden popularity of television, the military not only financed films and allowed access to military technology for filming, but also influenced and encouraged film scripts to pass on a benign message about nuclear energy. A variety of films and documentaries produced at that time defended and praised the nuclear industry.

The strategy only changed in the 60s, after John Kennedy revealed a civil defence plan against nuclear radiation that wasn't under control of the military. In 1964, the famous film "Dr Strangelove" made a first mention of the terrible consequences of nuclear devastation regardless of their use (Shain, 1989, p. 192).

Equally well known are the powerful lobbies of the tobacco industry and their efforts to associate smoking with sex appeal – Humphrey Bogart comes to mind – or smoking with composure and adroitness. In a widely-distributed poster in the 50s, a loving mother smokes a cigarette in order to change her baby's nappy more calmly and competently...

As for television, lobbies are still hard at work, but stereotypes now generally go in the opposite direction. Murphy Brown recycles, Alf worries about the greenhouse effect (Dauber, 1992). However, media effects are not automatic. They are heavily dependant on local cultures, as we shall see next.

2.3. Different contexts, different media influences

The importance accorded by different public opinion groups to the different mediatised environmental problems depends on the historical-cultural context in which problems occur. Such context is essential for explaining the "high or low profile" of an environmental issue – to what extent it may be publicly promoted. Less serious issues may generate greater public outcry than other, more serious ones. Or the same problems will in some cases attract great public interest and in others pass almost unnoticed. In the 60s, when oil spills were already a big issue in other industrialized countries, nobody cared about them in Portugal. Crude would stick to our feet when we went to the beach, but we thought of it as natural – some sort of algae (Schmidt, 2003).

There was nowhere near the same level of alarm even much later when an oil spill off the port of Leixões, near Porto, released

so much crude that up to this day we have a place in the ranking of the fourteen largest oil spills (it was about three times more oil than the highly mediatised Exxon Valdez oil spill in the US).

The accident took place in Portugal in 1975 during the revolutionary period when civic and political priorities marked the public agenda and environmental issues took second place. There was little public concern, compared to the public outcry over the Amoco Cadiz three years later in Bretagne (France). The existing culture in Portugal at the time, including any scientific knowledge of the subject, was much less profound.

When the Leixões oil spill occurred, only the economic damage was highlighted. Serious oil spills in Portugal later in the 90s got the same reaction (Marão in Sines, 1989, and Aragon in Porto Santo, 1990). News stories tended to play down the events, and even scientists, when challenged by journalists, acknowledged their lack of information. There was mostly concern about the possible damage to the tourism industry, with politicians eager to guarantee that the beaches were clean and safe. Almost nothing was said about the ecological impact of those spills, thereby maintaining a profound, reproduced lack of knowledge (Schmidt, 2003).

Sometimes old cultural features come into play. A series of alarmist articles on acid rain caused different effects in different countries. In Germany and Sweden, the population got mobilised, while in England it remained basically indifferent. One relevant factor, of course, was the high social and cultural importance of the forest in the first two countries though not in England (Peltu, 1985).

Likewise, a campaign against leaded petrol immediately sparked off public reaction in London, where smog was still fresh in people's minds.

In Portugal, the best example is a recent – and still ongoing story involving toxic waste. For a long time, illegal deposits of

industrial residue have spread across the country and poisoned water resources for the simple reason that there is nowhere to put them. In 1991, the then centre-right government decided to build an incinerator in Sines, an old industrial complex south of Lisbon. They tried to build it in outmost secrecy, but the public found out and reacted drastically with demonstrations, press conferences and huge media coverage. Even film actors, such as Jeremy Irons, who was shooting a film nearby, added his voice to the protest movement. As a result of such pressure, the government gave in and the project was shelved.

In 1994, a new attempt to build an incinerator, this time in the north, again generated popular outrage, but this time an agreement was almost reached. But in 1995 the government fell and it all came to nothing.

The new socialist government decided that instead of incineration, we would have co-incineration in the cement factories. To prevent further protest, an independent scientific commission was asked to study the issue. It supported the government's choice, and suggested two specific factories, one of them in the heart of a natural park.

Once again, there was outrage. Between 1999 and 2002, José Sócrates, at the time Minister for Environment did all he could to carry the project forward. But the opposition was widespread and too strong. Even the scientific commission was attacked, and co-incineration became a large weapon in the arsenal of political rhetoric.

In 2002, the centre-right came to power again and opted for another solution, one that would not involve any kind of incineration. But even that has still not been implemented.[3] And in 2005, after another change of government, the socialists, resuscitated co-incineration.[4] Meanwhile, a large part of industrial waste continues to dacay without any kind of treatment, and it is either exported or (more commonly) stored, thereby some of it keeps on polluting our soil and water.

[3] In 2003, the Environment Ministry presented a new plan for Hazardous Industrial Residues (HIR) which prescribed the construction of CIRVER – two integrated centres for recycling, valorisation and elimination of HIR – and promised to have everything operational in 2005. Only one of those centres was finally built and started in 2008.

[4] The government decision, taken in July 2006, to go ahead with co-incineration in Arrábida and Souselas without a new environmental impact assessment, starts a polemic of the NGOs, the Green Party, local authorities and the local population.

Ironically, "noisy" dioxins from the co-incineration that so alarm people stand out in contrast with "silent" dioxins from urban waste incineration. We have two urban incinerators built almost at the same time and which almost no one notices or/and any public contests.

More seriously, dioxin emissions are still released from hospital waste every day in a central area of Lisbon with total impunity, and provoke no reaction from the public or even from doctors or researchers.[5] In this case, a single hospital unit in the country (Júlio de Matos Hospital) gathers all hospital waste to incinerate. After another environmental impact assessment following a serious, unexplained explosion in March 2006, it was decided (in July 2006) to keep the operation going with some technical improvements, and that people should be periodically examined.

In short, going back to the case of industrial hazardous waste, there is an apparent element of irrationality with roots in old social problems. That element, which caused the reaction to co-incineration, involves deep levels of resentment:

- first, a long-standing ill-feeling, which could be called "anti-industrialist," towards the large old and powerful industries, which were seen to behave arrogantly towards the local population and always cause pollution;
- second, the initial secrecy surrounding processes for the treatment of hazardous industrial waste, when an attempt was made to decide everything without consulting the public thereby provoking great distrust and the consequent reaction from local people;
- third, the old distrust of state government, which is historically justified, but makes it impossible for people to trust any of its assurances since the state is perceived as promiscuous with its economic power and technically incompetent;

[5] In 1998, the Strategic Plan for Hospital Residues had determined the closing of all hospital incinerators in the country, due to the bad conditions in which they operated and the resultant pollutant emissions (mainly dioxins). Only the most modern – in Hospital Júlio de Matos – would remain, but temporarily, since the Plan called for the building of a central specific and adequate to the incineration of hospital residues. However, as so often in Portugal, temporary seems to have become definitive, since the most recent decisions point to keeping that unit in a central area of Lisbon, so as to receive hospital residues from the entire country.

- last but not least, the way technical-environmental issues become political issues in the worst sense. The voice and opinion of scientists were unable to be heard as they came into the process when it was already politically contaminated beyond repair.

2.4. Preferred sources – public administration, scientists and environmentalists

The media are not alone when they prepare their stories. Upstream in the news-manufacturing process, other agents influence the agenda. For environmental issues, besides scientists, there are three main groups: leaders and experts from public administration, environmental associations, and activists, including charismatic personalities. Companies are also increasingly organized in this respect, though journalists tend to prefer non-profit sources.

These groups do not all have equal access to the media, or the same ability to "harass" them. Only some are able to be "first deciders" in the construction of news, determining first-hand the news angle to a problem, and influencing subsequent developments.

Reporters and editors are structurally more dependent on official sources of information, since they guarantee regular news, thus underwriting media routines. Press releases and press conferences are just a few ways to do that (Hall et al, 1993).

A survey of British journalists specialised in the environment shows they use official sources more than any other (51%), followed by environmental activists (25%). Business and industry garnered only 1% (Dumanovski, 1994).

It is no different in Portugal. In four decades of television broadcasting, political actors have had the most influence, have occupied most space and frequently appeared in the news about the environment. Here as in other areas, journalism shows its usual preference for the easy way (figure 9).

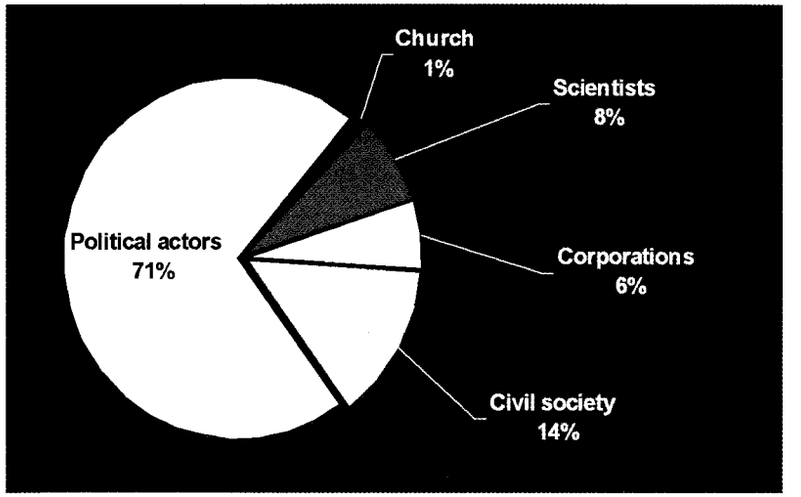


Figure 9 News protagonists on public Portuguese TV (1957-2000)
Source Schmidt (2003)

This does not necessarily entail credibility. Another survey of British environment journalists in 1995 showed that the sources seen as most credible were from academia and the least credible from the business world, though these are increasingly called upon to provide the "other side" of the story.

In the case of the Chernobyl disaster, many scientists accused the media of reporting the accident without really explaining the effects of radiation on health and the environment. Studies of news coverage concluded that the media allowed themselves to be manipulated by the US government, which created a special administrative committee for this purpose (Patterson, 1989). Soviet silence and the complexity of the subject certainly limited reporting, but the Reagan government made the most of the opportunity to impose its own version of the facts and reinforce the myth of the technical and ethical superiority of Americans over Russians, emphasising the extreme lack of safety in nuclear plants – as long as they were Russian.

Americans appeared as the real experts on Chernobyl and nuclear energy in general. American television, normally distrustful of the official line, ended up believing the official sources. It became "a victim of its own atomic anxiety", falling into simplistic and stereotyped views of the Soviet culture and people (Patterson, 1989).

The result was that the American nuclear industry greatly benefited from Chernobyl. Nuclear dangers, by their association with the Soviet regime, were symbolically circumscribed to the landscape of the former Eastern block, and a kind of artificial frontier was created between the two worlds: a decaying East with its nuclear risk, and a West that was modern and safe, with absolute control over its nuclear technology.

Eastern Europe, then undergoing Perestroika, was seen as an environmental counter-landscape – polluted, deteriorated and risky. Public opinion in the West was "environmentally grateful" for its own world. Audio-visual work on the risks of nuclear energy petered out in the US. It should come as no surprise that Hollywood never made a fictional film inspired by the Chernobyl accident (Schmidt, 2000). It is well known that, even when documentaries cast a positive light on safety in the nuclear industry, they tend to have the opposite effect on public opinion, raising doubts and failing to change public perception of the risks (Mazur, 1990).

However, according to several authors, the Ukrainian accident was an opportunity seized on magnificently by the government to remove the danger of American nuclear plants from the eyes of the population, as if the danger no longer existed. Nuclear energy, which for many years had been the ultimate symbol of fear, could go back to its image as a clean alternative to fossil fuels in the fight against climate change. As if it did not release any of the gases that produce the greenhouse effect. It should be noted that using official and business sources does not always

turn out as intended. When the Exxon Valdez oil disaster happened in Alaska in 1989, the majority of journalists from the four main American newspapers used institutional sources: the administration of George Bush Sr, the State of Alaska and the oil industry. But these all came out looking bad in contrast to scientists and environmentalists (Smith, 1993).

In addition to official sources, increasing use is made of unofficial ones, in particular environmental groups. Partly due to their skill in setting up campaigns that are attractive to the media, environmental groups have succeeded in "institutionalising themselves" as a media source in almost every Western country. They often provide "pre-packaged news material" to help journalists address more complex subjects (Jamison, 1996, p.226).

The relationship between environmentalists and the media has been demonstrated in numerous surveys that credit them for stimulating interest in environmental issues and keeping them on the agenda from the 1970s onwards. Their growing professionalism, their knack for creating visible events – to a level almost equalling the royal family itself, according to one British author (Anderson, 1997) – guarantee their influence. Greenpeace is the textbook case here, but by no means the only one.

Maintaining credibility is an essential condition for good co-operation between NGOs and the media. Certain episodes set off by environmentalist activists with great support from the media, which subsequently proved to be based on faulty information, diminished public confidence in the NGOs. One example was the "thousands" of tons of oil waste in 1995 that Shell presumably wanted to sink into the North Sea. In the end it was less than half of that, as Greenpeace itself acknowledged, admitting its projections had been overblown.

The credibility of Greenpeace was not the only credibility to suffer. Television was accused of uncritically accepting "cassettes" from environmental pressure groups, and failing its own

reporting standards (Pearce, 1996). It probably became much less willing to believe and use such sources in future.

Environmental groups have to keep in mind that no mistake they make is ever forgiven. Unlike business and official sources, their one asset as far as media companies are concerned is their credibility. At a time when newspapers are under ever greater economic pressure, journalists are increasingly pressured not to join campaigns that may cost the paper money or support (Cox, 2006). If activists are not careful with their facts, the pressure from the other side may be too much to withstand.

The presence of economic groups is increasingly felt among the media, either directly or through communication agencies that insinuate themselves in a highly sophisticated manner. "Green marketing", "moral entrepreneurs" and other such new categories have invaded editorial desks (Yearley, 1992), particularly since the idea of sustainable development took off (Cox, 2006). Companies have made great strides in updating their style and their messages to make them fit current news values.

Even when they fail to persuade environmental journalists, they become primary sources for the economic sections of the press. News about one particular matter subject in one section can often contradict another in a different section of the same publication, since each of them has its own framework and its own sources.

A frequent example on Portuguese newspapers can be articles about the erosion of coastal lands and the negative impact of building along the coastline but in the same edition of the newspaper we can read another article in the economy section praising the very same project as a good investment being this one the cause of such erosion, with no mention of lack of sustainability.

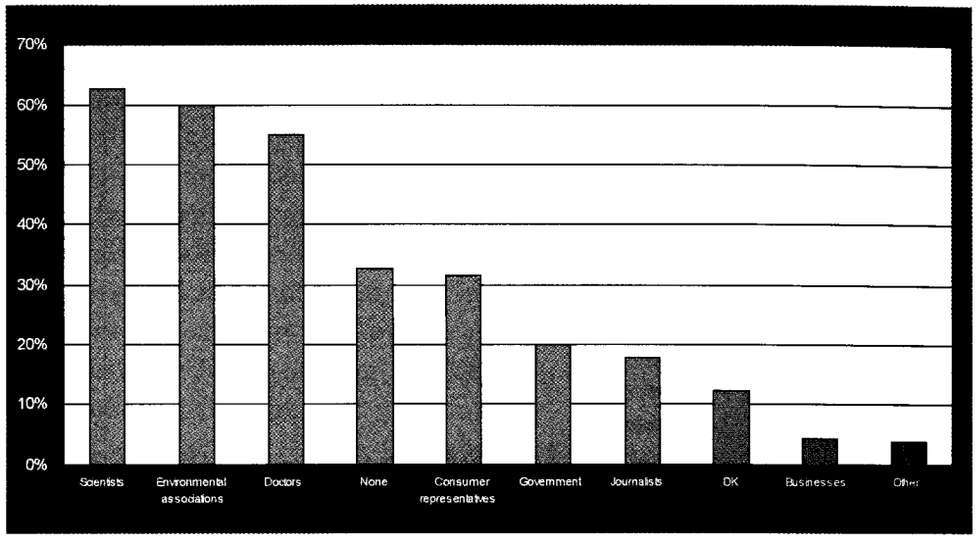


Figure 10 Imagine there has been a disaster in your neighbourhood or district. Who would you most trust to explain the reasons?
Source Eurobarometer 55.2 (2001)

A source that should never be absent from environmental stories is scientists. Contrary to what happened in previous decades, scientists are increasingly called upon to play a part as they have become indispensable in decoding complex problems and also because the general public relies on them. In the hierarchy of players or organisations that people would trust in the event of a disaster in their neighbourhood or district, scientists come first, followed by environmental protection associations (figure 10).

In the case of environmental problems in general, associations come first, followed by scientists (above all those working at a university or government laboratory and not in an industrial laboratory) (figure 11). Considering the different European countries, Sweden places the highest trust in associations, Latvia the lowest (Eurobarometer 295, 2007).

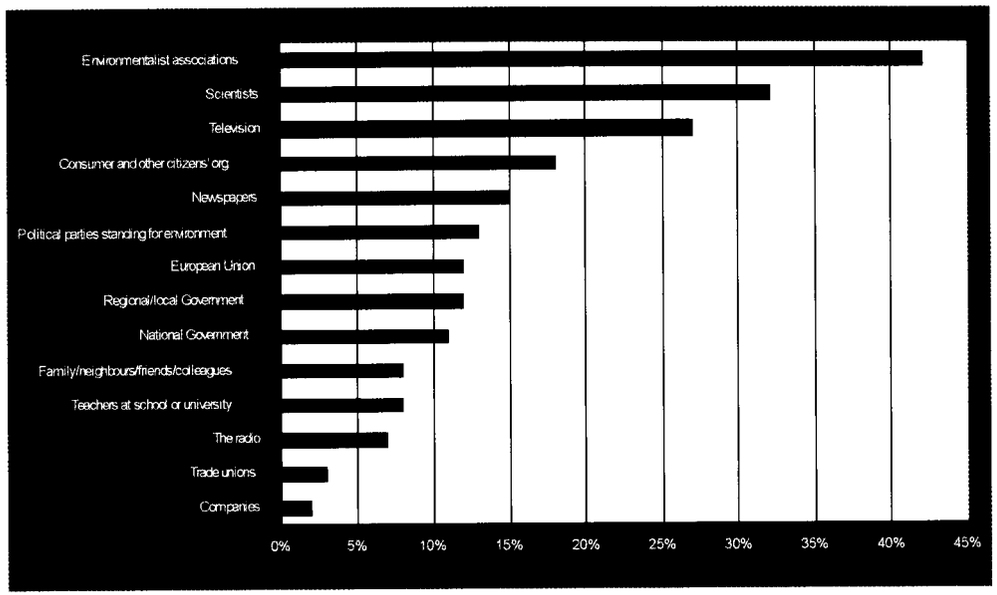


Figure 11
Who do Europeans trust most when it comes to environmental issues?
Source Eurobarometer 295 (2007)

An analysis of media projection of the problem of climatic changes in different European countries shows how important the intervention of scientists was when people suddenly began to grow anxious about the issue. The study concludes media coverage would be considered more reliable if specialists were more available to play a part in forming public opinion.

At one extreme is the French case, described as the "anti-communicational model". Scientists and the media have a difficult relationship. There is a certain rejection of the media on the part of the scientific community as they consider them "incapable of disseminating serious information on climatic change" and say they exploit fear, hysteria and irrationality, transforming "scientific theories into disaster scenarios" (Mormont and Dasnoy, 1995, p3).

As a result, the media in France, for the very reason that they are not entirely respected, tend to take up too much space in the public arena for environmental information and debate about climatic change, providing more fragmented and less credible data than would otherwise be the case.

At the opposite extreme is the German case, described as the "communicational model", where there is a reasonable connection between media and scientists. Scientists value the work of the media as catalysts for "public opinion phenomena" and creators of "political pressure", opting to intervene to protect the quality of the debate.

Regarding climate change, German scientists have organised themselves into their own institutes, with a scientific spokesperson employed specifically for contacts with the media. The result of this interaction between scientists and media is shared construction of public opinion, in which the media provide consistent information about climate change and only occupy their own "sub-space".

In Portugal we are closer to the French model. Two journalists wrote a book for scientists called "How to speak with a journalist without having a nervous breakdown" (Malheiros and Granado, 2001). An obvious obstacle, here as elsewhere, is that scientists and journalists have different timescales. While for scientists environmental issues involve long analytical processes, news organisations move quickly and in short bursts. Journalists cannot wait for results to be published in Nature magazine...

One criteria for newsworthiness is how appealing the news item is: it must have a dramatic and spicy storyline. It follows that if scientists make no attempt to interpret scientific facts, journalists will have to do so with the ensuing mistakes, which are so often criticised by scientists themselves. If scientists only talk to each other, journalists will have to use other sources,

including the famous "*maîtres à savoir sans savoir*", those pseudo-masters who know nothing and talk about everything on television (Bourdieu, 1996).

In sum, there is a complex interaction between the scientific agenda, political priorities and media coverage of the environment. It is the media or the NGOs who usually end up with the role of raising environmental issues to the top of the political list of priorities and decisions.

As institutions, the media perform a more relevant role when the intervention of other actors is fallible, and a society has a weak tradition of civic organization (and is also dependant on socio-cultural contexts in a society where sources interact with one another). As powerful autonomous structures in comparison with other groups, the media can even function independently of sources, creating their own 'dysfunctional' news for other powers and institutions. Neuzil and Kovarik underline this in relation to the media's role in many environmental conflicts in the US, highlighting the importance of the competitive nature of media, which forces them to look for new stories, and also the 'liberal' leaning of journalists, which lead them, at least occasionally, to stray from the dominant vision (Neuzil and Kovarik, 1996).

There is today a new kind of journalism among science journalists that some authors call 'sustainable' and which incorporates several interconnected components: the best aspects of traditional journalism, with good investigation, clear language and fair reporting; a coverage of environmental issues providing a systematic approach, at once environmental, economic and social; making the multinationals that own great part of the media more aware of their own environmental performance; and increasing the coverage of "promising solutions to complex environmental problems" (Detjen, 2002).

3. Back to Water Issues – Final Remarks

Since we became part of the EU, Portugal has invested a considerable percentage of European funds in sewage treatment. Throughout the country, a vast sewer system as well as many *ETARs* (water treatment plants) have been built for both urban and industrial sanitation. Highly sophisticated technologies have sometimes been used. However, twenty years on, the results are unimpressive. An evaluation conducted in the 90s revealed the vast majority of *ETARs* did not work (Melo Baptista and Matos, 1995); the country is now on course to be fined by the EU because of its sanitary failure (Schmidt, 2007). Water in Portugal is a worrying synthesis of environmental inefficiency, territorial mismanagement and the failure of civic information and participation processes. Whatever the technology may be, nothing will be achieved without a new culture of water, which implies levels and ways of information and participation we are still very far from. This, despite the Water Framework Directive and the basin plans, which explicitly demanded the adoption of mechanisms of participation and information of citizens and the several social sectors, including users.

In water issues, as in other environmental problems, there is an imperative need for timely transmission of knowledge, with cooperation from all the different institutions and agents involved and the media action. (A) One crucial point seems worthy of special mention and is directly linked to the classic question of the transfer of environmental information to mass culture, using the media communication. It is by integrating environmental knowledge that people can work together to find solutions. If people are aware of water quality, and have information about pollution sources and the effects of pollution in their health and in the environment, they will be able to pressure political bodies to oversee and apply

better the existing rules, which are essential for the preservation of this common good. (B) The second one is related with new methodologies of participation.

3.1. (A)

To begin with, the first requirement to obtain good information is, of course, that it exists. Public institutions must produce, organize and transmit credible and consistent information in a way that makes it accessible to citizens and journalists. In today's knowledge and information society, information must be carefully prepared and widely available. In Portugal, we often remain within the old system of restricting information, using the alleged lack of available data as an excuse. In fact, even when information exists, as in the case with the basin plans especially under pressure from Europe, it is codified or has not been translated for the general public.

An evaluation of the National Plan for Water noted the use of excessively technical language. Despite the creation of the SNIRH (National Information Service on Water Resources) in 1996 and the resulting improvement in access to data – with an increasing number of users – the information very often is sparse, and in general "very technical", therefore inaccessible to the general public (Marques et al, 2001; Lima et al, 2001).

The State must implement a deep change in this respect. Scientists must also intervene more, for there is a positive view of the role of science and technological capability. People need scientists to help them understand many features of the modern world and the risks they face. Complex problems must be described in simple words, with no fear of using metaphors, narratives and emotion whenever necessary. For these are the tools of the popularisation of science.

To quote an author, there should be a 'new social contract' between science and society. Science must enter the agora, join

the information race and participate in the production of a more robust social knowledge (Gibbons, 1999). The independence of scientists is crucial, and must be defended at all costs. Credibility is very difficult to gain, very easy to lose, and almost impossible to recover.

Environmental information cannot be left to the media to the extent that it has been so far. Besides knowledge factors, there are other considerations. Increasing concentration of ownership is a global phenomenon. In 1980 in the US, "there were 30 companies that owned the majority of American media. Today there are just five" (La Harpe 2004). Corporate ownership of the media has turn out to be monolithic. In fact, some corporations, for instance, a big water company such as Lyonnaise des Eaux, become shareholders in the largest media companies. This means stories may go unreported because of their potential impact on the corporation's interests and a divestment in complex news and controversy (Mann, 2001; Miller, 2004).

All these cuts in journalists' budgets, coupled with growing pressure to increase revenue, have a direct impact on environment stories. Not only do they require specialized staff, but they are also time-consuming and can cause trouble, especially if, for instance, an important advertiser's interest is affected. This creates an obvious issue of credibility. Journalists and scientists have to cooperate more and also watch over each other in a world where knowledge and communication are strategic resources.

On the other hand, the Internet has an ever increasing role in information access, but the necessary filtering can only be done by people with the know-how. A new kind of literacy is required to use that tool. Hence the indispensable role of education not just in schools but throughout life and in every profession.

3.2. (B)

A qualitative jump is required also in methods of participation. In Portugal, the lack of participation is due not only to population inertia but to the unwillingness of official institutions to promote it (Schmidt, Nave and Guerra, 2005). In the case of basin plans, participation bodies – like Basin Councils – were created. They were supposed to bring together representatives of civil society as required by the Directive. However, that opportunity to involve all interested parties was wasted. A study about the Alqueva's evaluation process and Environmental Impact Assessment concludes that there was no direct involvement of the stakeholder and public participation was limited to responsible agencies. Also the chapter on public participation for the The National Water Plan acknowledges that public participation processes were generally reduced to some sort of information sharing (mostly via website) with practically inexistent debate (Lima et al, 2001). Moreover the 15 Basin Councils were of little or no use in terms of the effective involvement and participation of civil society. In addition, despite the fact that the framework directive requires the adoption of mechanisms of participation and information of citizens by those councils, the report describes them as "structures conceived to represent basic local interests" and put its several representatives in contact. "They have become top structures, closed to dialogue and inaccessible to the citizens they represent." (Lima et al, p.48, 2001).

This is what generally happens. Public consultation is usually left to the end of the process, limited to one or two sessions where plans are presented as final and where people, caught by surprise, have no means to contribute with anything.

For instance, the new legal regime for the environmental impact assessment for plans and programmes, which was mentioned at the beginning of this paper and transposed by Portugal

at the end of 2005, goes so far as to reduce the mechanisms of public audience and consultation leaving it to the discretion of whoever is proposing the undertaking – which means it is very unlikely to happen.[6]

[6] In this regard, see the CNADS (Report, 2004).

That is to say, we are going in the opposite direction of the directives, making citizens' life difficult and bringing in the "bureaucratic despotism" which Villaverde Cabral mentions, according to which delayed administrative procedures are not "mere inefficiencies" but "deliberate instruments of powers", from the large to the small ones (Villaverde Cabral and Silva, 2006).

If this happens with mere public consultations and audiences, it is not hard to imagine what it must be like insofar as effective intervention of citizens in decision-making – which is, after all, the main objective of participation. As a rule, even when people get together and express a well-grounded opinion, it is rarely taken into consideration by decision-makers. This increases scepticism and consequently dissuades people from public participation, which is weak to begin with. It is no coincidence that the Portuguese are among the Europeans who most strongly feel they are unable to influence politicians. This, in turn, leads to a marked disappointment with democracy, as seen in the latest European Social Survey (ESS, 2007). Portugal is on a par with countries like Poland and Slovenia in the level of distrust towards politicians and parliament. Only 24 percent declare themselves satisfied with the way democracy works, against a European average of 46 percent.

This has led studies on citizenship to consider the issues of quality of democracy and the need to audit the actual performance of representative regimes like the Portuguese (Villaverde Cabral and Silva, 2006).

However, despite the inertia, there is a will to intervene. Numerous studies reveal a growing wish to participate. According to the 2004 Observa inquiry, 70 percent of the population thinks it should be consulted even about decisions not affecting them directly; the

number is higher among younger people. On the other hand, complaints to the Commission for Access to Administrative Documents (CADA), a Portuguese independent Parliamentary agency, are on the rise; they more than quintupled between 1995 and 2005 (CADA, 2005). The same happens with the book of complaints about public administration, which was created in July 1997 and receives an average of 1,500 complaints a month; or with the *Linha SOS Ambiente 24*,[7] which was created in 2002 and receives an ever larger number of complaints, being water issues the third great motive of complaint (IGAOT, 2004; SEPNA, 2006).

[7] Dedicated telephone line "SOS Environment"

With this in mind, one of the obligations in projects and programmes should be the principle of public participation. Even if it means a longer period of time, it will eventually pay off dividends, not just in efficiency of implementation but in conflict prevention in ever more complex and conflictive areas. Thomas Hughes (1998), a historian of technology, has identified "a new ethos among engineers who now recognize that the deeper involvement of communities in decision-making actually produced better engineering solutions in a number of projects". Studies made in Portugal show that the more controversial the issues are, the less they can be solved by technicians only (Gonçalves and Castro, 2003), and debate on these problems cannot take place merely within their framework, but must also incorporate public concerns (Lima, 2004).

All this requires great methodological changes. Not only must people acquire the necessary skills, but institutions must be prepared and also have the know-how to allow and carry out participative processes. It may appear more expensive, but it will come out cheaper in the end.

If institutions are more transparent and open to participation, public trust will eventually grow as will efficiency. That is the best way to protect the public interest, of which water is a perfect metaphor.

Bibliography

Ader, C. (1995), "A longitudinal study of agenda-setting for the issue of environmental pollution", in *Journalism and Mass Communication Quarterly*, vol.27, nº2, pp.300-311.

Almeida et al (2000), *Os Portugueses e o Ambiente: I Inquérito Nacional às Representações e Atitudes Face ao Ambiente*, Oeiras, Celta Editora.

Almeida et al (2004), *Os Portugueses e o Ambiente: II Inquérito Nacional às Representações e Atitudes Face ao Ambiente*, Oeiras, Celta Editora.

Anderson, Alison G. (2002), "The Media Politics of Oil Spills", *Spill Science & Technology Bulletin* Vol. 7, Nos.1-2: 7-15.

Anderson, A. (1997), *Media, Culture and the Environment*, London, UCL Press.

Beck, U. (2006), «Living in the world risk society: A Hobhouse Memorial Public Lecture given on Wednesday 15 February 2006 at the London School of Economics», in *Economy and Society*, vol. 35, n.º 3, pp. 329-345.

Bourdieu, P. (1996), *Sur la télévision – suivi de l'emprise du journalisme*, Paris, Liber Éditions.

CADA (2005) http://www.cada.pt/

CNADS (2003), *Reflexão sobre o Acesso à Informação, a Participação Pública nos Processos de Tomada de Decisão e o Acesso à Justiça*, Lisboa, Ed. F. C. Gulbenkian.

CNADS (2004), "Comentários Prévios sobre AIA de Planos e Programas", in *Pareceres, Reflexões e Relatórios de 2003-2004*, Ed. CNADS, Lisboa, http://www.cnads.pt

Cox, Robert (2006), *Environmental Communication and the Public Sphere*, London, Sage Publications

Dauber, R. (1992), «The environment is in trouble: concept diffusion in US television», apresentado na American Association for Public Opinion Research Conference, St. Petersburg, Florida.

De Marchi, B. Funtowicz, S. Guimarães Pereira, Â. (2001), «From the Right to be Informed to the Right to Participate: Responding to the Evolution of European Legislation with ICT», in *International Journal of Environment and Pollution*, 15 (1), pp.1-21.

Detjen, J. (2002), "A new kind of environment reporting is needed", in Environmental Reporting, *Nieman Reports*.

Eurobarometer 55.2 (2001)

Eurobarometer 217 (2003)

Eurobarometer 224 (2005)

Eurobarometer 58.0 (2005)

Eurobarometer 295 (2007)

European Social Survey I (2002/2003); II (2005) and III (2007) www.europeansocialsurvey.org/

European Values Study (2000) www.europeanvalues.nl/

Gerbner, G., Gross, L., Morgan, M. e Signorielli, N. (1994), «Growing up with television: the cultivation perspective», in J. Bryant e D. Zillmann (eds.), *Media Effects: Advances in Theory and Research*, Hillsdale, N. J., Laurence Erlbaum Associates, pp.17-41.

Gonçalves, M. E. and Castro, P. (2003), «Science culture and policy in Portugal: a triangle of changing relationships?», in *Portuguese Journal of Social Science*, 1 (3), pp.157-173

Gonçalves, M. E. (org.), (2003)"*Os Portugueses e a Ciência*", Lisboa, Ed. D. Quixote

Hall, S., Chritcher, C., Jefferson, T., Clarke, J. e Roberts (1993), «A produção social das notícias: o 'mugging' nos media», in N. Traquina (org.), *Jornalismo: Questões, Teorias e "Estórias"*», col. «Comunicação e Linguagens», Lisboa, Ed. Vega, pp.224-248.

Hall, S. (1997), *Representation – Cultural Representations and Signifying Practices*, London, Sage Publications.

Hughes, T. P. (1998) *Rescuing Prometheus,* Pantheon Books, New York, pp. 301-303.

IGAOT (2004), http://www.igaot.pt

Jamison, A. (1996), «The shaping of the global environmental agenda: the role of non-governmental organizations», in S. Lash, B. Szerszynski and B. Wyne (eds.), *Risk, Environment and Modernity*, London, Sage, pp.224-245.

La Harpe, J. (2004) News Coverage of Science and Environment: What's the Problem? http://www.environmentwriter.org/resources/articles/0205_coverage.htm

Lima, L., Pinto, A., Baptista, C. e Castro, P. (2001), «Participação, informação e responsabilização dos cidadãos no domínio da água», in *Plano Nacional da Água.*

Lima, M. L. (2004), «Images of the Public in the Debates about Risk: Consequences for Participation», Lisboa, Centro de Investigação e Intervenção Social, ISCTE.

Malheiros, J.V. & Granado, A. (2001), *Como falar com jornalistas sem ficar à beira de um ataque de nervos,* Lisboa, Gradiva.

Mann, B. (2001), *Bringing good things to life?* On the media, New York: WNYC.

Marques, M., Rodrigues, R., Quadrado, F., Lopes, A.R. e Brandão, C. (2001), «Disponibilização e divulgação generalizada – um site na Internet», in *Dossier Monitorização de Recursos Hídricos*, Expresso, 26 de Maio, pp.18-25.

Mazur, A. (1990), «Nuclear power, chemical hazards and quantity of reporting», in *Minerva*, vol. 28, pp.86-93.

Mazur, A. (1998), «Global environmental change in the news (1987-1990 vs 1992-6)», in *International Sociology*, vol. 13, n.º4, pp.457-472.

Melo Baptista, J. e Matos, R. (1995), Gestão de sistemas de saneamento básico: o saneamento básico em Portugal, Lisboa :LNEC/ MARN.

Miller, M. M. and B. P. Riechert (2000), «Interest group strategies and journalistic norms: News media framing of environmental issues» in *Environmental risks and the media*, ed. S. Allan, B. Adam, & C. Carter, London, Routledge, pp. 45-54.

Mormont, M. and Dasnoy, C. (1993), L'institutionnalisation du changement climatique: France, Allemagne et Belgique, Fondation Universitaire Luxembourgeoise.

Mormont, M. and Dasnoy, C. (1995), «Source-strategies and the climate change mediatization», in *Media, Culture and Society*, vol. 7, n.º1, pp.49-64.

Nave, J. G. e Fonseca, S. (2004), "Entre a cultura ambiental e o efeito NYMBY: as várias faces de uma cidadania para o ambiente" in Ferreira de Almeida, J. (Coord.), *Os Portugueses e o Ambiente: II Inquérito Nacionais às Representações e Práticas dos Portugueses sobre o Ambiente*, Oeiras, Celta Editora, pp. 237-335.

Neuzil, M. and Kovarik, W. (1996), *Mass Media and Environment Conflict America's Green Crusades*, Thousand Oaks, London, Nova Deli, Sage Publications.

Patterson, T. E. (1993), *Out of Order*, New York, Knopf.

Pearce, F. (1996), «Greenpeace mindbombing the media», in Wired, vol. 2, n.º5, pp.51-55.

Peltu, M. (1985), «The role of communication media», in H. Otway and M. Peltu (eds), *Regulating Industrial Risks*, London, Butterworths.

Halimi, S (1998), *Os Novos Cães de Guarda*, Oeiras, Celta.

Schmidt, L. (2001), «Representações ambientais e os *media*: Da vida animal à questão nuclear», in *Natureza e Ambiente: Representações na Cultura Portuguesa*, coord. C. Beckert, Lisboa, Centro de Filosofia da Universidade de Lisboa, pp. 129-144.

Schmidt, L. (2003), Ambiente no Ecrã – emissões e demissões no serviço público televisivo, Lisboa, Imprensa de Ciências Sociais.

Schmidt, L.. Nave. J.G. and Guerra, J. (2005), *Autarquias e Desenvolvimento Sustentável – Agenda 21 Local e Novas Estratégias Ambientais*, Porto, Ed. Fronteira do Caos.

Schmidt, L., Nave, J. G. and Guerra, J., (2006) "Who's afraid of Local Agenda 21? Top-down and bottom-up perspectives on local sustainability", *International Journal of Environmental and Sustainable Development*, Vol. 5, No.2, pp. 181-198.

Schmidt, L. (2007), *País (In)Sustentável – Ambiente e Qualidade de Vida em Portugal*, Lisboa, Esfera do Caos.

Schmidt, L. (2008), "Comunicar a Ciência: o papel dos media e os problemas científico-ambientais" in *Ciência e Cidadania – Homenagem a Bento de Jesus Caraça*, org. Luísa Schmidt e João Pina Cabral, Lisboa: Imprensa de Ciências Sociais.

Schwarze, S. (2003), «Juxtaposition in environmental health rhetoric: Exposing asbestos contamination in Libby, Montana», in *Rhetoric & Public Affairs*, 6(2), 313-335.

SEPNA – Serviço de Protecção da Natureza e do Ambiente (2006), *Relatório de Actividades*, http://www.gnr.pt/

Shain, R.E. (1989), «It's the nuclear, not the power and it's culture, not just the news», in L. M. Walters, L. Wilkins and T Walters (eds.), *Bad Tidings: Communication and Catastrophe*, L. Hillsdale, N. J., Lawrence Erlbaum, pp.149-160.

Smith, C. (1993), «News sources and power elites in news coverage of the Exxon Valdez oil spill», in *Journalism Quarterly*, vol. 70, nº2, pp.393-403.

Smith, J. (2005), «Dangerous News: media Decision Making about Climate Change Risk», in *Risk Analysis*, vol. 25, n.º. 6, pp., 1471-1482.

Taylor, N. and Nathan S., (2002), «How science contributes to environmental reporting in British newspapers: a case study of the reporting of global warming and climate change», in *The Environmentalist*, 22, 325-331, 2002.

Villaverde Cabral, M.(2001), «Autoritarismo de Estado, distância ao poder e familismo amoral – uma pesquisa em progresso», in A. Cohn, A Camargo & B. Sousa Santos (org.), *Brasil-Portugal entre o passado e o futuro: o diálogo dos 500 anos* (Actas do Congresso Brasil-Portugal Ano 2000 – Secção de Sociologia & Antropologia; Recife, 1999), Rio de Janeiro, EMC.

Villaverde Cabral, M. e Silva, F. C. (2007), "Ciudad y Ciudadanía (en Portugal): El 'efecto-metrópolis' sobre el ejercicio de la ciudadanía política". In Terry Nichols Clark e Vincent Hoffmann-Martinot (Orgs.), *La Nueva Cultura Política*, Buenos Aires: Miño y Dávila, pp. 311-333

Yearley, S.. (1992), *A Causa Verde – Uma Sociologia das Questões Ecológicas*. Oeiras: Celta

VALUING WATER: THE ECONOMICS OF AN 'IMPURE PUBLIC GOOD'

Bernard Barraqué
CNRS CIRED
Centre International de Recherches sur l'Environement et le Développement, Paris

It is a great opportunity to meet again, ten years after we finished the *Eurowater* comparative research on 5 Member States of the European Union, under the coordination of Francisco Nunes Correia (1998)[1]. But while we were developing this thorough comparison of the institutions for water resource management in Europe, a global issue has risen in the passage to the 21st century: while the Dublin principles insisted that water is an 'economic good', there was growing dissent from various movements all over the world, based on the fear that neo-liberal economy leading the globalization process would transform all water into a market good, made unaffordable for the poorest. For some, water is a gift of God and should be free; for others, it is just essential to life, and it should be treated as a global public good, just like the air.

This unrest is partly fuelled by another growing crisis, which takes place in the most developed countries, and concerns the water industry's sustainability. In the European Union, the Water Framework Directive aims at recovering the good ecological and chemical status of all aquatic environments, and at covering the costs from water users as much as possible[2]. Public Water services are chiefly concerned. Yet, in Europe, they have become a mature industry with an increasing need to reproduce the (huge) infrastructure capital that was set up over the

[1] The partnership involved Instituto Superior Técnico in Lisbon; Andreas Kraemer and ECOLOGIC from Berlin, Germany; Johannes Wessel and Erik Mostert from RBA centre in Delft, Netherlands; Thomas Zabel and Yvonne Rees from Water Research Centre in Britain, and myself from the LATTS, Ecole nationale des Ponts et Chaussées and University of Marne la Vallée in France. The project also involved many younger researchers and doctoral students, and, last but not least, the regular support and inputs from Evan Vlachos, from the Colorado International School of Water Resources.

[2] The third broad aim is the obligation to inform and consult the public, and an incentive to its active involvement. This may be paradoxical, if the public only wants to pay less for water...