

GreenFacts 2003 Conference: *Conveying Science into Policy* Science Communication and Environmental Decision-making

Scientists are from Mars, the Public is from Venus

The GreenFacts 2003 Conference, *Conveying Science into Policy*, brought more than 100 science communicators from across Europe and North America to the Atomium in Brussels, on 16 October 2003, to discuss the role of science communication and environmental decision-making.

The morning session participants were consulted on the role of scientists in science communication, environmental governance and how to improve the image of science vis-à-vis the general public. These are essential issues for GreenFacts Foundation, and the event provided an opportunity for the organization to listen and learn, reinforcing its convictions and giving direction for further strategies.

In the afternoon, spokespersons from the UN, EU, industry, an environmental NGO and the field of risk communication shared stakeholder perspectives on science communication. The afternoon participants were presented with brief summaries of the results of the morning workshops.

The event was a GreenFacts initiative to raise questions and develop approaches for communicating scientific information on environment and health issues to non-specialists. GreenFacts is interested in developing a European-wide network of specialists committed to widening the scope of science communication.

The conference produced the memorable expression: *Scientists are from Mars, the Public is from Venus*. The role of science communicators is to bring both parties to Earth.

This document provides the general conclusions and recommendations drawn from the contributions of science communicators. The full proceedings, details and photos are available at www.greenfactsfoundation.org/news/conference/proceedings.

The staff and members of GreenFacts Foundation feel fortunate to have benefited from such valuable advice. They present these proceedings in an effort to improve stakeholder dialogue and expand the role of scientific information on health and environment issues.

10 December 2003
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Conclusions for Science Communication

On Science and the General Public

Scientists are from Mars, the Public is from Venus. This enduring expression was made during one of the morning workshops and encapsulates the general communication problem that exists today. The main conclusions on the relationship between scientists and the general public were:

- ***On getting the message out***
 - The general public trusts messages from NGOs the most, and from government and industry significantly less. Scientists need to take this into consideration in presenting their work, and communicate to all stakeholders.
 - Scientists are not working in a world of black and white conclusions, but must be aware that the public crave such conclusions.
 - Because of the wide number of scientific issues and concerns today, people have come to associate science with controversy. Some stakeholders have used unwitting scientists for their own agenda and this has damaged the public perception of science.
- ***On the need for certainty and risk management***
 - Scientific demands for certainty regarding their results are based on a different model than the non-specialists, who merely require clear information to be able to make a decision or feel comfortable with the issues at hand.
 - Expert disagreement is alarming to the public and should be presented as expert uncertainty. The audience can make its own decisions when facing uncertain matters such as risks, but has more difficulty making decisions in the face of disagreement.
 - The scientific world should understand that for people to accept a risk, they must be allowed to choose to do so. Science must provide sufficient information, clearly, and in a credible process so decisions can be taken in a responsible manner.

On Science and Education

In certain countries, like France and the UK, recent political issues have damaged the reputation of science, leading, in part, to a decline in university enrolment in the traditional sciences. The fear of a less innovative culture has lead policymakers to actively promote the image of science, most notably in the schools. The conference conclusions are:

- ***On teaching science***
 - There is serious concern about the lower numbers studying in schools – with fewer good science graduates meaning fewer good science teachers, increasing the downward spiral of disinterest in traditional sciences.
 - Science should be better taught to young children to maintain their passion for science.
- ***On prospects for scientists***
 - Science positions need to be better paid and career prospects in science need to look more promising. There are more science PhDs in Europe than in the US, but they tend to cross the Atlantic to get better-paid positions.
 - European researchers have to struggle to get funding.

On Science and Environmental Governance

Environmental governance has evolved from a series of reactive corrective measures to a more proactive and preventative approach. The role of science and scientific advice in this decision-making process was evaluated during the workshops, with the following recommendations:

➤ ***On the policy process***

- Environmental policymaking is no longer just the power of government; it is now shared with stakeholders. Objectivity is essential: science needs to play a central role.
- The most successful policies separate the science from the political process, and link them in a two-step process where science produces the evidence and politics sits in judgement.

➤ ***On policy legitimacy***

- Science offers legitimacy to environmental policy decisions. But policymakers must not regard the scientist as the justification for difficult decisions. Political accountability cannot be outsourced onto the scientist.
- Policymakers need to consult internal and external scientific experts. Since scientists often disagree, it is important for policymakers to have the gamut of scientific opinions.
- The selection of expert advisers needs to be done on the basis of qualifications rather than political compromise. The political structures need to leave room for proper scientific method – reports should be peer reviewed.

➤ ***On public acceptance***

- Environmental challenges today should be harnessed to awaken people's interest in science, rather than blaming science for them.
- In order to get public acceptance, communication and science need to be involved at every phase of the policy cycles, from formulation to implementation.
- Where policymakers ignore scientific advice, information must be given to the general public (thus the need for good scientific communication mechanisms is imperative).

On Science Communication

One of the main conference objectives was to examine practices and possibilities for science communication, including questions on who communicates scientific information, to whom, how it is presented and for which purpose. The conclusions were:

➤ ***On the audience***

- Communicating scientific information requires different methods, depending on the audience. Scientists need to communicate differently but certainly not less.
- Scientists should not define themselves outside of the system they are trying to influence. They need to speak as persons concerned about the developments.

➤ ***On the message***

- Scientists should always preface their communication by explaining that their knowledge is based on the research available to date.
- Scientists need to communicate more on the benefits of their research. When people weigh risk issues, they do so with consideration of the benefits.

Proceedings Summaries

The following pages provide brief summaries of the proceedings. For the full documents, please go to www.greenfactsfoundation.org/news/conference/proceedings.

Workshop One: **How should Science be Communicated (and by whom)?**

The methods of communicating science must be adapted to the target audience (audience assessment is the key). The educational background of the audience is important, so schools have an important role to play.

Scientists are never really satisfied with their work – they want to be sure before they communicate anything to the public. Scientists should be willing to take a risk and release information earlier; people need time to adjust to information.

Scientists must be honest – accept that uncertainty is almost always there and that there are different viewpoints. In some cases, people should be alarmed. The question of “expert disagreement” must be converted to “expert uncertainty”. Scientists should trust the public with uncertainty - they can make their own decisions.

Scientists only get funding if a problem is identified, so funding depends on uncertainty. Bad news sells newspapers and also drives funding (it’s a double-edged sword).

Everyone should beware of manipulation and the use of selective quotes; the public must check several sources before forming a viewpoint. There is a need to build a consensus of opinion, but it is hard to give a balanced view – “there is no average truth”. An EU tool – “the explanatory memorandum” can help to provide a pertinent summary of information.

Scientists are from Mars, the public is from Venus – you must build bridges.

Workshop Two: **How are environmental and health policies determined?**

Environmental governance is moving from chiefly traditional environmental governance to more innovative and consultative processes. At the same time, there has been a dilution of the power of government: policy-making now needs to be shared with stakeholders. Objectivity is essential in policy-making, incorporating stakeholder inputs to tackle the problem of complexity. They need to make the general public not only understand but to make it act.

To set policies for environmental guidance, there is a need to evaluate cost. This is a problem as one cannot always put a cost on the environment. The cost element is important in enforcing compliance.

Stakeholders need to understand the process of policy – to have an awareness of the extent that they themselves will need to take responsibility as part of decision-making. Clarity and realism are needed in the question of dealing with the issue of participation.

In seeking scientific advice, there is a need for a mix of both in-house and outside experts. Policymakers need the right indicators for different levels of implementation hence balance is needed in dealing with every issue. The workshop agreed on the inevitability of disagreement. The challenge lies, however, in the management of uncertainty and the need to communicate it, the risks involved and the implications situations are likely to raise.

The post-enlargement EU foresees a scenario where it will potentially be more difficult to make environmental decisions, given the diverse environmental conditions. A lot will depend on the new European Constitution.

As to the inputs of scientists to EU policy, it was noted that problems have different aspects/perspectives and that cooperation between networks working on the same issue has become essential. There is an important role for scientific think tanks and the possibility of different options and different advisory bodies.

In cases where scientific advice is not followed by policymakers, the best hedge will be to give good information to the public at large, emphasizing the necessity of effective communication of scientific advice.

Workshop Three: **How can the image of science in society be improved?**

A Eurobarometer survey pointed out that 65% of Europeans believe scientists are dangerous, but there was a 50/50 split between those who want more info and those who do not. Perception is crucial; it raises questions of who is controlling the information and communication. Whatever is unnatural is perceived as suspicious. One's image of science often depends on background and education. Ten years ago the image of science was worse. Over recent years there have been efforts to improve the image with campaigns, e.g. in the chemical industry.

The falling number of students wanting to study science is partly because scientific studies are more difficult while the jobs provided don't pay better. This will lead to fewer good candidates for science teachers, thus further decreasing the interest of science in the schools. In secondary schools, science should be taught more and better.

There is a lack of confidence in science. It is getting harder to discriminate between science and science fiction. Scientists do not always help: always wanting the full results disseminated; not being very accessible for the public.

Scientists don't like yes/no answers; they give qualified answers. The problem with the press is that it will turn a scientist's 'maybe' into a 'will'. People now associate science with controversy and feel increasingly uncomfortable with it.

Scientists, however, need to communicate differently, not less. Children should be involved from a young age. There should be more collaboration and better exchange of information between scientists and journalists, working more closely together to avoid misunderstandings and communicate the possible benefits of their research. Moreover, there is a need to find a common and simpler language to ensure scientists and journalists understand one another.

Afternoon Conference Speakers

Michael Williams

UNEP – Head of Information Unit for Conventions

The scientific processes set up under some environmental conventions are not designed for communicating science. These processes are designed to help negotiators get the agreed base of information they need. Other people or organisations – whether the UN, NGOs, journalists, governments – have to step in and make an effort to popularise the science coming out of these conventions. Objective science is essential for crafting the commitments of each convention, to decide what is reasonable and effective for governments. The most successful conventions separate the scientific process from the political process, but still link them in a two-step process where science produces the evidence and politics sits in judgement.

The public relations campaign on the ozone problem was very successful. This was because of the powerful image of the ozone hole in sky, the limited range of chemicals involved, and the way NGOs, press and governments all gave the same message. The downside of the ozone PR success story is that it is now harder to get people's attention about something that is still a problem. Current attempts to link ozone with climate change risks confusing people more.

The Intergovernmental Panel on Climate Change has a very good track record of the science feeding into the politics. Two of its assessments formed part of the scientific basis for negotiating the 1992 climate convention and the Kyoto Protocol. The IPCC's independence from politics gives it great credibility, underlining that it is possible to have some consensus on complex, new science. There are several constraints to communicating climate change science through the IPCC and the convention. The IPCC can't get mixed up with politics and can't popularise the science, as it needs to stick closely to its agreed texts. It also needs to link yet keep separate its scientific, political and communication efforts.

Grant Lawrence

Director, European Commission, DG Environment

"When I began my job in the Commission a decade ago, I believed that science would give me the message and I, as part of the policy process, would act on it. But I soon learnt that scientists often have very different views about science." Science does not give yes/no answers and may change its ideas about a subject over time. So it's important to openly put the gamut of scientific opinions to policymakers.

The European Union's environmental policy is being developed for the next 10 years, based on the Sixth Environmental Action Programme. The Union's environmental policymaking needs to be based on the best available scientific evidence, as well as information on the state and trend of the environment.

Eurobarometer surveys reveal that Europeans mainly get their environmental information from television. The surveys underline that the public most trusts NGOs for this information, while it least trusts governments. Scientists wanting to present their work to the world must take these answers into account.

Jody Lanard

Princeton, USA, Risk Communicator, adviser to the WHO on the SARS crisis

While the media often hypes up minor *risk-of-the-week stories*, in times of serious crisis it mostly allies with officials to try and reassure the public, often prematurely. The normally sceptical media then becomes a microphone-holder for press releases and announcements.

The SARS crisis highlighted how some scientists often feel about the public's reactions to risks. One scientist blamed the crisis' "disproportionately large impact on people" on the nearly "costless and rapid transmission of information" and a "lack of sufficient medical information". She largely factored out the role of scientists and officials, focusing more on the spectacle of the public and the media.

Officials and experts always seem to be concerned only about over-reaction to a crisis and almost never factor in the dangers of under-reaction. Another expert called for information and warnings on SARS, so people would take appropriate precautions about frightening new information without actually getting anxious. But that's impossible in risk communication.

When the public doesn't accept the scientists' conclusions, scientists get annoyed with the public and words such as 'irrational' and 'hysterical' creep in. Scientists define themselves out of the system, making the false assumption that they are not part of the system they are trying to influence. Scientists need to learn the public's views before trying to change those views. They need to form a more mature alliance with their target audiences.

Jacques de Gerlache

Senior Toxicologist and Head of Environmental Communications, Solvay

When communicating about new and sometimes controversial products, Solvay avoids force-feeding people all the company's scientific information. Instead it tries to help the public to understand and make its own judgements. When communicating about danger, risk and safety, there is a didactic challenge. Stakeholders want to feel they can make their own choices and decisions. So Solvay gives them access to information and allows them to interpret it themselves.

In a democracy, it is the people not the scientists or technocrats who decide what is and is not safe. It is important to help people identify when scientists are talking about danger, risk, decision or perception – this helps people to think by themselves and to take on board some elements of science.

Public mentality has evolved, due to the desire for more knowledge. In the 1960s, industry could tell people to trust it; today the public wants explanations. There is a big gap between what the public expects in terms of communications and industry's message, which is to do with technical facts and figures. It is probably the role of authorities to fill this gap between the public and scientists.

No decision can be made without information, but it should be remembered that there can be no knowledge without background. And it can take years to provide that background.

Wendy Goldstein

Head of Environmental Education and Communication, IUCN

The effectiveness of communication is built on reputation. The IUCN's work is about knowledge management – collecting, analysing and using that to empower people so they can negotiate in governance situations and influence others.

The IUCN does not take an advocacy role; in presenting science information, it is distinguished from many environmental NGOs. Today, scientific information is just one of the positions in the stakeholder dialogue. Stakeholder engagement is key to the acceptance of policy and management practices.

Communication and science should be involved at every phase of a policy cycle, from formulation to implementation, in order to get more public acceptance. Science needs to be credible and part of a recognised process. But in the political process, many other factors weigh in.

About GreenFacts Foundation

GreenFacts Foundation asbl is a non-profit organization based in Brussels that summarizes authoritative scientific documents on environment and health matters on the Internet, in a language accessible to non-specialists (policymakers, journalists, stakeholders and teachers). Its summaries are peer-reviewed by independent specialists and published on www.greenfacts.org using a reader-friendly Three-Level structure of increasing details.

GreenFacts was formed in December, 2001 by stakeholders from the academe, industrial groups and environmental NGOs concerned about the difficulties of communicating scientific information on environment and health issues. GreenFacts Foundation received three years of seed capital from the Solvay Group, which will expire in May, 2004. From this date, GreenFacts will be funded by grants, subsidies, subcontracted communications projects and membership fees.

About the GreenFacts Membership Structure

The Membership of GreenFacts Foundation is an essential element in its character, performance and viability. The members represent the GreenFacts philosophy: that stakeholders coming from diverse backgrounds can find common ground and a means for dialogue through their agreement on basic scientific facts.

GreenFacts benefits from the active involvement of its members, who participate in the activities of the organization as well as the preliminary stakeholder reviews which ensure that GreenFacts publications are unbiased and even-handed. As well as the general support of the organization, all members can enjoy a series of benefits, ranging from networking opportunities to communication tools and cooperation on projects.

There are five categories of membership to reflect the nature of the stakeholder involvement: Corporate, Non-profit, Association, Government and Individual. The GreenFacts membership programme began in the autumn of 2003. For more information on becoming a member, please contact David Zaruk at +32 (0)2 211.34.25, email david@greenfacts.org or visit www.greenfactsfoundation.org/members.