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# Investing in Trust: Nuclear Regulators and the Public

Workshop Proceedings
Paris, France
29 November–1 December 2000

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**Nuclear Regulation**

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NUCLEAR ENERGY AGENCY
ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

## ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

Pursuant to Article 1 of the Convention signed in Paris on 14th December 1960, and which came into force on 30th September 1961, the Organisation for Economic Co-operation and Development (OECD) shall promote policies designed:

- to achieve the highest sustainable economic growth and employment and a rising standard of living in Member countries, while maintaining financial stability, and thus to contribute to the development of the world economy;
- to contribute to sound economic expansion in Member as well as non-member countries in the process of economic development; and
- to contribute to the expansion of world trade on a multilateral, non-discriminatory basis in accordance with international obligations.

The original Member countries of the OECD are Austria, Belgium, Canada, Denmark, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The following countries became Members subsequently through accession at the dates indicated hereafter: Japan (28th April 1964), Finland (28th January 1969), Australia (7th June 1971), New Zealand (29th May 1973), Mexico (18th May 1994), the Czech Republic (21st December 1995), Hungary (7th May 1996), Poland (22nd November 1996), Korea (12th December 1996) and the Slovak Republic (14 December 2000). The Commission of the European Communities takes part in the work of the OECD (Article 13 of the OECD Convention).

## NUCLEAR ENERGY AGENCY

The OECD Nuclear Energy Agency (NEA) was established on 1st February 1958 under the name of the OEEC European Nuclear Energy Agency. It received its present designation on 20th April 1972, when Japan became its first non-European full Member. NEA membership today consists of 27 OECD Member countries: Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Luxembourg, Mexico, the Netherlands, Norway, Portugal, Republic of Korea, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The Commission of the European Communities also takes part in the work of the Agency.

The mission of the NEA is:

- to assist its Member countries in maintaining and further developing, through international co-operation, the scientific, technological and legal bases required for a safe, environmentally friendly and economical use of nuclear energy for peaceful purposes, as well as
- to provide authoritative assessments and to forge common understandings on key issues, as input to government decisions on nuclear energy policy and to broader OECD policy analyses in areas such as energy and sustainable development.

Specific areas of competence of the NEA include safety and regulation of nuclear activities, radioactive waste management, radiological protection, nuclear science, economic and technical analyses of the nuclear fuel cycle, nuclear law and liability, and public information. The NEA Data Bank provides nuclear data and computer program services for participating countries.

In these and related tasks, the NEA works in close collaboration with the International Atomic Energy Agency in Vienna, with which it has a Co-operation Agreement, as well as with other international organisations in the nuclear field.

## FOREWORD

In its report on *Future Nuclear Regulatory Challenges*, published in 1998, the NEA Committee on Nuclear Regulatory Activities (CNRA) stressed the importance of the interface between regulatory authorities and the public.

In many countries there is little or no interaction between regulatory bodies and the public for a variety of reasons. Moreover, for those countries where there is already interface with the public, the consultation process varies widely from one country to another. In general, it is believed that providing the public with information will require increasing resources in the future.

Regulatory bodies are responsible for informing the public about their role in ensuring nuclear safety. Major challenges in this area were summarised in the report in the following way:

- responding to increasing pressures on regulatory body resources in some countries to accommodate public needs to participate in deliberations as well as the decision-making process through hearings and consultations;
- meeting freedom of information requirements and the requirement in some countries to respond to all requests from the public and the media;
- responding to public demands for involvement in major decision making; and
- how to maintain an appropriate balance between the need to inform the public and at the same time the need to encourage responsible media reporting of regulatory actions.

Good governance and efficiency in decision making by governmental authorities are increasingly dependent upon mutual trust and confidence between those authorities and the public. In response to the recommendation made by the CNRA, a workshop on "Investing in Trust: Nuclear Regulators and the Public" was organised in Paris on 29 November-1 December 2000. About 80 participants having responsibilities within nuclear regulatory bodies, either as top officials, communications or public relations specialists, or technical specialists with communications responsibilities attended the workshop. They represented organisations in Australia, Belgium, Canada, the Czech Republic, Finland, France, Germany, Hungary, Japan, Korea, Norway, Spain, Sweden, Switzerland, the United Kingdom and the United States, as well as Chinese Taipei, the European Commission, the International Atomic Energy Agency and the OECD/NEA. Twenty-seven invited papers and six contributed papers were presented. Regulatory organisations web sites were demonstrated during the workshop.

The workshop provided an opportunity to exchange information and views on how national nuclear regulatory organisations organise, plan to expand or can improve their interface with the public in a spirit of greater trust, confidence and accountability.

The meeting confirmed that the term "the public" covers a variety of potentially interested parties such as the lay public, professional bodies, the media, pressure groups and elected representatives. The word "interface" was viewed as encompassing not only communication activities

with the public, either as an interactive process or as a one-way information effort, but also aspects of public participation in regulatory decision making such as in hearings and local information boards.

Major topics explored at the meeting included:

- the nature and role of the regulator, and the composition and characteristics of discrete groups making up the public;
- the importance of communication and consultation with the public, openness and transparency, credibility and trust, examples of interfaces;
- communications experiences by regulatory organisations, where pro-active seeking of public participation had yielded clear benefits or been less successful;
- where to draw the line between the regulatory role and what is demanded from regulators by different groups within the public.

The workshop was part of an on-going, broader effort by the NEA to focus on communicating with the public and involving the latter in decision making in the nuclear field. One of its objectives was to develop conclusions and recommendations to assist the CNRA in establishing an action plan for international collaboration in the area of expanding regulatory authorities' interactions with the public.

Communication with the public will be on the agenda of the Committee on Nuclear Regulatory Activities in the future. The workshop's final panel session explored next steps that could be taken as a follow-up to the workshop. In addition, the results of the workshop are intended to serve as a basis and a focus for further in-depth activities of the NEA in the area of improving public trust in national nuclear regulatory organisations.

*Acknowledgements*

We would like to express our thanks to the Organising Committee, the Session Chairmen and all those who contributed to the success of the workshop by presenting their work and taking an active part in the discussions. Special thanks are due to Mrs. Solange Quarmeau and Miss Anastasia Slojneva for their dedication in preparing these proceedings for publication. The NEA also wishes to express its gratitude to the Government of Japan for facilitating the production of this report.

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# SUMMARY REPORT ON THE CNRA WORKSHOP "INVESTING IN TRUST – NUCLEAR REGULATORS AND THE PUBLIC"

**J. Laaksonen**
Chairman of the Workshop
Chairman of CNRA

The workshop was held in Paris on the 29 November-1 December 2000. Its objective was well captured in the title: Investing in Trust, Nuclear Regulators and the Public. The general public is concerned with the risks involved in the use of nuclear power, and has a legitimate desire for reliable and impartial information. The nuclear regulators have answers, but in order to fulfil the information needs of the general public and their elected representatives, they need to be regarded trustworthy.

Most of the about 80 participants were from nuclear regulatory bodies and radiation protection agencies. The discussions gave regulators an opportunity to change views and experiences on how to gain trust in their openness and honesty, and in their will and capability to protect public interests. The weight given to the topic was indicated by participation of nine heads of national regulatory bodies, among them top regulators from four countries with largest nuclear programmes: the USA, Japan, France, and the UK.

The number of papers presented was 33, and their topics were considered well chosen by the organising committee. Throughout the workshop "posters" were available; these were electronic links to the web sites of the attending regulatory bodies. Proceedings of the workshop will be published during the first half of 2001.

## Public communication is considered a key function in all regulatory bodies

In the discussions it was concluded that maintaining public confidence in the nuclear regulatory body is essential for effective nuclear regulation. Public confidence is of equal importance as technical competence, independence, and adequate resources. If it is lost, also political confidence is lost, and the regulatory body will no more be provided with means that are necessary for its continued successful operation.

In order to gain public confidence, each regulatory body needs a long-term strategy for public communication. The strategy must be built on a culture of openness and on active collaboration with media.

It is important to convince the people that the regulatory body works for them and for their safety, and is not promoting the use of nuclear energy or any other interests. Therefore, the public communication should not give an impression that the regulator is trying to gain public acceptance for nuclear power or other activities it is regulating. Instead, regulators need to build confidence in

regulatory programmes and decisions and in their own capabilities and will to provide the public and the elected decision-makers promptly will all relevant information. The target is to become a confidential agent of the public in matters of nuclear safety and radiation protection, an expert organisation at the service of the public.

Public interaction and consultation was suggested to be done separately from other organisations. In specific, the regulators are advised to keep adequate distance to stakeholders involved in energy policy – government, industry, and pressure groups.

Where public confidence has been lost, it must be restored. This is very difficult and may take long time. For this process, unambiguous assignment of responsibilities and the accountability of the responsible persons are essential.

A generally accepted view was that one should not aim for too high or "blind trust". More important is to aim for "sustainable trust" which is not at risk of being suddenly lost as a consequence of an unexpected incident. A sustainable trust can be aimed for by confessing openly the weaknesses in the regulatory programmes and the shortcomings in knowledge. It should also be made clear that incidents and accidents can not be absolutely eliminated.

**A necessary condition for being trustworthy is to be well known**

The only way that regulators can be perceived as being credible in emergencies, or in any other events where public has a reason for concern, is to have earned credibility in advance in the daily dealings with the public. If the regulatory body's existence, role, and responsibilities are not known, the public cannot make a difference between the information coming from a regulatory body and the ad hoc messages from sources that have limited understanding of the situation.

Being known requires proactive information. A regulatory body benefits from a high profile, which it should shape by itself.

Good examples were presented on how to increase and maintain the visibility of a regulatory body among the public. A common observation is that the news threshold in this field is very low. Especially the regulatory organisations with broad responsibility in the nuclear and radiation matters are in a good position to keep the public informed on their work, because they are in the news in various connections. In one presented case, proactive information has brought a situation where messages issued by a regulatory body on one or another field of its work are distributed weekly in the news media.

Direct personal contacts with certain stakeholders are also valuable. In some countries journalists have appreciated encounters where they are briefed by regulatory experts, and can ask any questions on selected topics of their interest. The aim of such encounters is not to produce immediate news, but rather to make sure that the journalists get to know the experts personally, and can request for information from the right source when they need it. However, such encounters have often resulted in news or articles on topics that were discussed.

Other important partners for direct personal communication are local politicians and citizen's groups in the neighbourhood of existing or proposed nuclear sites. They are often participants to the regulatory process, and have a desire for interaction and consultation with the regulatory experts.

Meetings with local people, who have a genuine personal interest in nuclear safety and radiation related issues, also provide insights on how the public perceives the risk and what are their main concerns.

**Efficient communication channels are needed**

The most important communication channel is through the news media. It is the only way to call the attention of a large audience. Press releases, press conferences, and articles written by the regulatory experts are the standard means for approaching the public through the news media. Some regulators even have an own text page in nation-wide TV channels where they can provide current information. At a more advanced level of media relations, the regulators well known to the journalists are often asked to be interviewed or make statements on current issues of interest. Personal acquaintance with media representatives is therefore valuable. Some regulatory bodies have an information manager with journalist background, and these persons have brought their own personal contact networks to the benefit of the regulatory body.

Regulatory web sites are most important to day, and each regulator seems to have such a site. A web site gives a possibility to provide information at low cost after it has been properly established. It also gives a possibility to inform different audiences at various levels of depth. Less efficient in reaching laymen are periodical publications, but some regulatory bodies have their own magazines distributed mostly to professionals in the field.

The role of direct communication should not be overlooked, and a wide network of direct contacts was commended. Of special value is a partnership with persons and organisations that have credibility with the public. Such persons are, for instance, leading politicians and other opinion leaders, medical doctors, pharmacists, teachers, and civil defence workers. Commendable partner organisations are the authorities working in other domains of public safety or being in charge of environment protection, institutions providing public education, and scientific community at large.

A presentation on a public nuclear safety information centre, operated by a regulatory body, was received with great interest. This centre could serve as a model for similar centres elsewhere. Such a centre could stand alone, or alternatively be erected and operated under an umbrella of a larger public science centre.

Another way to reach a good number of publics is to attend various larger exhibitions with an own stand, and to distribute topical information leaflets to interested visitors. Such exhibitions can be for instance in the field of medicine, housing, or energy. A smaller number of people can be informed on visits to the regulatory body's premises, but many regulators have a practice of receiving special groups such as school classes.

**Good communication is information transfer to two directions**

In order to make the communication with the public and other stakeholder's right, and to address the issues of real interest, it is necessary to listen to the stakeholder concerns. In this communication the contacts with the local people in the neighbourhood of nuclear facilities are a most valuable source of feedback.

Issues of public concern have in many cases turned out to be different from what the experts regard as most relevant risks. Public has little confidence on probabilistic approaches, and risks

expressed in probabilities are not understood. Instead, people think that zero risk is possible, and they expect that their direct questions be answered clearly and in plain language.

A most difficult thing is to respond to emotional, irrational fears. Such fears cannot be removed by telling facts but a proper way must be found to respond at the emotional level.

Science and technology are poorly understood by the public, and concerns after some event easily create a crisis, either false or somehow justified. Crises are frequently driven further and amplified by the media. The regulatory body can do nothing but explain the facts and try to put them into a right perspective, but public reaction to this information strongly depends on the trust built earlier.

It should also be found out what the public expects from the regulatory body in general. All communications should respond to the expressed concerns and needs.

**Information must be easily available to the public**

A regulatory body must be reachable any time when needed. The news media, and even the members of the public, need an easy access to experts who can tell them about matters of immediate concern. Such matters may typically be incidents at domestic or foreign facilities, or other alarming news transmitted by international news agencies.

Some regulatory bodies provided examples on how their experts can be contacted also outside office hours, should a sudden information need appear. For instance, one regulatory body has a communication contact person reachable 24 hours a day from a given phone number. This person has a task to find a regulatory expert who has adequate knowledge on the topic of interest and can be interviewed.

A general consensus was expressed that official documents need to be easily accessible to the public, although regulations in this matter vary amongst countries. Some regulatory bodies routinely publish in the Internet all public documents, or at least documents on issues that have raised general interest. Many others make such documents available at request.

**Public communication is a joint effort by all regulatory body staff members**

The role of professional communicators in regulatory bodies was considered important. However, a common view emerged from the discussions that public communication should not be left to the communication experts only. Rather than increasing their number, communication duties can be integrated into the other tasks of suitably qualified technical staff.

All managers of the regulatory body must understand the importance of public communication, and meet their responsibility in this matter. Also the entire regulatory staff must be prepared for giving complete, clear, and accurate answers to questions on their own work. Training on communication skills is thus an essential part of staff training.

Internal openness and good information exchange within the regulatory organisation is needed to ensure that external communication is done in a consistent and coherent manner. Communication officers must closely follow the daily decision making within the regulatory body,

and assess the relevance of decisions from public interest point of view. However, the technical staff must also understand when to submit an issue to public information.

Openness can sometimes strain the resources and have adverse impact on primary functions, but if communication is not done timely in the right manner, the efforts needed later on may be much larger.

**Lack of harmonisation between countries could destroy the trust**

Good co-operation between regulators of different countries, and especially the need to harmonise emergency plans internationally, was emphasised. In today's global information environment, news on regulatory positions and actions spread quickly from one country to another. Any differences between the regulator's response to the same issue are easily attacked by journalists and public interest groups.

Confidence can quickly be lost if the information and guidance given by regulators is not consistent and coherent in neighbour countries. A warning example was presented on iodine prophylaxis: practices and quidance are different in nearby communities that are next to the same nuclear power plant but in two different countries.

**Lessons can be learned from other fields**

An interesting parallel was presented by a speaker who told about the experience from communication within the food and agriculture industry. The public perception of risks deviates from the expert's view in a similar manner as in the nuclear field. Abnormal incidents are hastily reported and uncritically accepted, and the public reactions are very strong. There is excessive media interest, dubious validity of scientific reports, and defensive researchers. Laymen find it difficult to cope with large amounts of information, to differentiate between essential and unessential data, and to distinguish between reliable information and junk data or groundless opinions.

**Public communication will be on the agenda of CNRA also in the future**

As a key recommendation for the further international work in this field, it was recommended that the CNRA should consider establishment of a standing advisory body with a mandate to help developing public communication of the regulatory bodies. The core of such a body could be formed from the public information officers of some regulatory bodies that have advanced programmes in this domain.

A question that has hardly been addressed by any regulatory body is how to measure the trust. The goal of public trust should be put into the context of the regulatory programme, but then success definitions, success measures, and effectiveness measures need also be developed. A proposal was made that public criticism should be perceived as a "resource", the same way as operational feedback provides useful information to improve plant operations.

## OPENING REMARKS

**L.E. Echávarri**
Director General, NEA

Thank you Mr. Chairman. Bonjour à tout le monde et la première chose que je veux faire c'est de vous remercier de votre participatiion à cette réunion de travail de l'AEN sur un sujet qui est de la plus grande importance pour l'Agence et pour l'OCDE.

But before you switch the headphones let me explain to you how this kind of activities fits into the OECD as a whole. The OECD is an organisation dealing with the world economy and making recommendations on policy for Member countries very concerned with the relationship between governments and the civil society. We call civil society an ensemble of different elements like business, for example, trade unions or non-governmental organisations in general. While the relationship with business and trade unions is relatively easy to organise because they have a specific organisation, in the area of non-governmental organisations it is much more difficult because of the variety of groups of interest. In any case, it has been clearly identified in recent years that for governments it is every time more difficult to deal with the function which is to take decisions on policy if really they do not take well into account and they do not establish a dialogue with the civil society at large. The first message I would like to convey to you is that the problem of relating to the public that we are going to see in this Workshop is not unique for the nuclear sector and is not unique for the regulators.

The OECD experiences more or less the same type of problems – maybe in the nuclear field it is more acute – but in areas for example like food safety, or globalisation of the world economy, investments, agreements for investments and so on, so it is not unique that society rejects sometimes the decisions that the policy makers want to make. So it has been identified in the OECD that it is very important that we analyse how we can progress in having a better dialogue with the civil society in all the different aspects of the OECD. We already knew in the nuclear sector that this was very important because you know we have a long tradition of having difficulties in communicating with the public and I think that we are welcoming very much initiatives of the different committees on discussing specifically this issue. We have an overall programme of organising the dialogue with the civil society in general but different areas of the nuclear sector have some specific problems.

We are very pleased that the CNRA has organised this Workshop on Investing in Trust and the relationship between the regulatory bodies and the public. I think that there are very important issues there, not only information in general but also how the public can participate to some extent in the decision making of the regulators in general, their process of hearings and so on. I think that altogether to analyse the good practices and where you can really advance in getting more trust for the regulators is extremely important. Trust of the public in regulation and in the regulatory bodies is an essential element for the stability of our societies which are using nuclear power. This is a special element and I think that all the countries have experienced many difficulties on that.

I see this workshop as being very specific because as you know the regulators have a special statute and we value here very much the independence of the regulatory bodies so I would not like to mix the discussions, specifically on the relationship between the regulatory bodies and the public with other areas but I think that some lessons which we are going to learn here can also be applied in different parts of the nuclear sector.

For your information, we have some other committees having specific activities on this and I would like to mention that the Radioactive Waste Management Committee organised last August here in Paris a first Forum on Stakeholder Confidence. As you know, for siting and development of repositories for high-level waste the participation of the public and public information is also a very important element. You will have the opportunity of having M. Yves Le Bars, Chairman of ANDRA – the French organisation for nuclear waste – in this workshop, giving you the conclusions of that meeting. He was chairman of that meeting and we are going to have in January the Second Villigen Workshop on Better Integration of Radiation Protection in Modern Society, which is being organised by the CRPPH. This is also about the radiation protection systems and the understanding by the public of the system which, as you know, is really complicated and I think that these are three clear examples of areas in which we want to progress in better analysing and understanding the reactions of the public.

At the level of the NEA I would like to take benefit of the conclusions of all of these discussions to present to the Steering Committee, for the future, we are not in a hurry for that, an overall picture of how really NEA can help governments in the relationship with the public. This, as I said at the beginning, fits very well with the present and future priorities of the OECD and I would like to, once again, thank you all personally for having come to this workshop.

Then regarding the specificity of this meeting I think that the Chairman of the CNRA, Mr. Jukka Laaksonen, is much better prepared to address that. Thank you.

# SESSION 1

## Keynote Papers

*Chairman: J. Laaksonen*

## OBJECTIVES OF THE WORKSHOP

**J. Laaksonen**

Good morning Ladies and Gentlemen,

During this morning we have an opportunity to hear the views of some distinguished speakers, but before giving the floor to them I would like to say a few words on the objectives of this workshop.

The objectives are in fact well captured in the name of the workshop: Investing in Trust, Nuclear Regulators and the Public. Trust is certainly the first prerequisite if we want to meet the information needs of the general public and their elected representatives. How to gain trust in our competence, and in our openness and honesty, is a key question to which we have to seek an answer in this workshop.

Only a few days ago we witnessed the failure of the UN climate conference to reach an agreement on means for reducing the emissions of greenhouse gases to the atmosphere. One important reason for the failure was evidently the difficulty among those who attended to get accurate and trustworthy information on risks and opportunities involved in alternative ways to produce energy. In any case, the discussions on global warming and on energy policy must continued, and the availability of objective information on nuclear risks is among the key issues that need to be addressed better in the future.

The agreements on any global matters have to be reached at international level, but the background information to the decision makers needs to be provided nationally within each country. If the national experts enjoy trust among their own people, and are able to tell about the international expert consensus on resolved and on open issues in their own field, it would facilitate acceptance of coherent messages worldwide. The opposite case, loosing credibility even in one country, could cast doubts on experts in other countries as well. Therefore it would be most valuable if we could learn from each other during these three days how we have managed in our own countries to gain the confidence of the pubic, and also exchange warnings on less successful experiences.

It is often questioned whether it is appropriate that the nuclear regulators inform the general public on nuclear safety issues. I would answer that question referring to the thoughts presented by Thomas Jefferson at the time when the democratic system was still seeking its form in the USA: “I know of no safe depository of the ultimate powers of society but the people themselves, and if we think them not enlightened enough to exercise their control with a wholesome discretion, the remedy is not to take it from them, but to inform their discretion”. In a more simple language, I would interpret this as follows: if people do not have enough knowledge to make an informed decision on a complicated matter, it is the Governments duty to inform them.

Unfortunately modern people are not always ready to believe what the Government authorities tell. Therefore the authorities have to earn people's trust every day again and again. In some countries it may be more easy than in others, due to the different general attitudes and values of the people. For instance in my country the polls tell that in the nuclear safety matters more than two thirds of the people regard the Government authorities as the most reliable source of information. In some other countries the situation is almost the opposite: people have a deep mistrust towards everything the Government authorities tell them in the matter of nuclear safety. In this situation I have to ask myself whether we have succeeded exceptionally well in our public information. Or is the trust on experts in civil service simply an indirect consequence of the commonly shared values of our people. It has namely been shown by social psychologists that our people are in many situations stressing the common good of the entire society rather than the individual rights. Such values evidently facilitate the process of making difficult political decisions.

In any case, it is tempting to assume that successful public information has made some contribution to the frank and open co-operation we have today with the news media, and we are willing to share our positive experience. I trust that all others will do the same, and I hope that at the end of the workshop each of us has got some useful ideas to take home.

# RESPONSIBLE OPENNESS: AN IMPERATIVE FOR THE U.S. NUCLEAR REGULATORY COMMISSION

**Dr. R.A. Meserve**
Chairman
U.S. Nuclear Regulatory Commission
United States of America

Good morning, ladies and gentlemen. I am pleased to have the opportunity to address this workshop on "Investing in Public Trust".

My purpose today is to describe why responsible openness is important for the processes of the U.S. Nuclear Regulatory Commission (NRC) and to explain what we are doing to achieve it. This workshop shows that many countries consider it important to keep the public informed about the work of their nuclear regulatory agencies. I am sure that we can all learn from each others' perspectives and experiences. I hope to contribute to this exchange and to learn from it.

## Why openness?

First, let me set the stage with a question: why openness? The regulation of the civilian uses of radioactive materials is obviously a highly technical activity, involving scientific analysis and engineering judgement that most members of the public at large cannot be expected to follow at the level of technical detail. It might be easy to conclude that, since most of the public does not understand, for example, conditional core damage frequency, special treatment requirements, or emergency core cooling systems, it is pointless to involve the public in the everyday intricacies of nuclear regulation. I think that such a conclusion is wrong.

In the United States and in most other countries, the operations of nuclear facilities are a controversial subject. There are segments of our population that are concerned about the risks – real and imagined – that the technology presents to the public health, safety and the environment. Others worry about the collective ability to safeguard nuclear materials so that untoward uses of them are avoided. And others are worried about the risks attendant to nuclear waste and the legacy that these materials present to future generations. Many of those holding strong views on such matters may not be technically knowledgeable and cannot engage with the regulatory agency at the level of engineering sophistication with which our staffs are most comfortable. Somehow, however, these concerns must be confronted.

I mean the words "must be confronted" quite literally. Although our regulatory decisions may have a veneer of technical detail, at core they usually implicate embedded social judgements about the acceptability of risk and the balance of costs and benefits. These social judgements are matters on which the public has a stake and on which the affected public is entitled to have its

concerns addressed. There is thus a substantive imperative for the regulator to involve the public in its decision-making. Indeed, the public may on occasion bring to light issues that deserve careful attention that otherwise would not have been examined.

Equally important, there is a procedural imperative to make such licensing decisions through processes accessible to the public. In the absence of such transparency, sceptics who do not have access to the regulatory process cannot be blamed for suspicions that their concerns have not been considered. No matter how careful a job that the regulator may do, if the work is performed behind a veil of secrecy, the public will not have confidence that the result is fair, objective, honest, or in the public interest. There will always be the corrosive suspicion that decisions made outside the sight of the public serve to protect those favoured by the decisions, to conceal dangers, or to cloak imprudent, unethical, or illegal acts.

There is a practical consequence of the failure to build public confidence in the validity of regulatory decisions: the invitation for intrusion by other institutions of government to "correct" the perceived inadequacies of regulatory decision making. In the case of the United States, the situation may be aggravated by a philosophy of government that stems from the origins of our country.

As many of you know, the government of the United States is organised around a system of checks and balances, reflecting our Founding Fathers' mistrust of placing unrestrained power in the hands of any one governmental entity. The system was designed to create tensions among the branches of government. To the extent that the public believes that the decision-making by any branch is improper, it may seek correction elsewhere. Thus, the decisions of the Nuclear Regulatory Commission are subject to review in the courts, and our policy decisions may be examined and modified by the Congress. We invite exactly such intrusion on our decision-making if we do not demonstrate through open processes that our decisions are sound. Any other course invites concern by the public, thereby encouraging the public to seek redress in other branches of government, and breeds skepticism in those other branches as to the validity of our actions.

The dangers that attend the failure to heed the need for openness are reflected in the history of nuclear matters in the U.S. At one time the entirety of nuclear enterprise in the United States – both weapons development and commercial applications – was under the purview of the Atomic Energy Commission (AEC). In 1975, the AEC itself underwent a fission event, with the regulatory activities becoming the responsibility of the NRC and with the weapons-related activities eventually becoming the responsibility of the Department of Energy (DOE). Of course, the military-related activities of the AEC and then the DOE were shrouded in secrecy but, as time went on, the culture of secrecy in those agencies persisted even in matters that were distant from weapons.

Starting in the late 1980s, there have been slowly emerging revelations about past activities: involuntary human testing involving nuclear materials, environmental releases exposing civilians about which the affected populations were never told, and waste practices that were flatly inconsistent with sound stewardship. Many of these activities would not have been undertaken, or certainly would have been curtailed, if the public had been informed about them in a timely fashion. Moreover, the failure of DOE and its predecessors to be open with the public about these events has caused the agency to be viewed by many with distrust and suspicion. This climate has had a destructive effect on the confidence of the public in the decisions of DOE. And the intrusion on DOE's powers by other branches has occurred: many of DOE's activities are subject to litigation or are supervised by the courts and Congress has created an independent agency, the Defence Nuclear Facility Safety Board, to review and comment publicly on DOE's stewardship of nuclear activities. The current management of DOE has made great strides to improve the public trust through aggressive efforts at openness and

public interaction, but nonetheless the effectiveness of the agency has no doubt been constrained by the past history of unjustified secrecy.

The bottom line is that all regulators need to build public confidence in regulatory programs and decisions. We can earn that confidence only by treating all views fairly and openly, by analysing data competently, and by resolving issues judiciously. And the public cannot know that we are doing these things unless it has open access to our processes. We cannot expect everyone to agree with our decisions, but we can aspire to show that we have addressed every legitimate issue fairly and thoroughly. To build public confidence, we must practice responsible openness.

**Risk-informed regulation and economic deregulation**

Let me bring this discussion down to earth with a specific example. Although the primary objective of the NRC is to protect public health and safety, we have established certain other performance goals. One of these goals is the reduction of unnecessary regulatory burden. Based on four decades of experience with operating nuclear power reactors and on improved techniques of probabilistic risk assessment, we now recognise that some regulations imposed in the past may not serve their intended safety purpose. When many of our regulations were originally designed, we did not have much practical experience with commercial reactors, so we generally proceeded very cautiously, relying on conservative engineering judgment and defence in depth.

We have learned much in the intervening years, however, and now recognise that some of our regulatory requirements may not be necessary to provide adequate protection of public health and safety. Where that is the case, we should revise or eliminate those regulations, since they are not required to achieve our mission. The identification of such regulations is one aspect of the program to risk-inform the NRC's regulatory program. (Of course, insights about risk can also reveal shortcomings in the current regulatory system and these are also being addressed.)

At the same time that the NRC is using insights about risk to examine the regulatory program, the U.S. is experiencing a dramatic change in the economic conditions within which the nuclear electric power industry operates. Until recently, the rates that generators received for their service were regulated, state by state. Licensees could readily recover the costs of meeting safety requirements in the state-regulated rate base. Within the last year or two, however, many states have deregulated electricity prices and many more are expected to do so in the near future. The result is that nuclear electricity now must compete in an open market with other sources of electric power. The costs of our regulatory system now come directly off the economic bottom line, and affect the economic competitiveness of nuclear power.

Although the effort to risk-inform the regulatory system started long before the change in the economic climate, the juxtaposition of the two activities can invite scepticism. How is the public to be assured that the changes in safety regulations that we adopt are not merely intended to promote the economic interests of the industry? As a regulator, the NRC does not promote nuclear power; that is the responsibility of the Department of Energy. However, this fact does not prevent the question from being asked. And the only way we can satisfy the sceptics is by fully revealing the substance of our efforts to revise our regulatory program so as to show that our actions are reasonable and appropriate. Without an open process, the public cannot be assured that our focus is indeed on health and safety, as it must be, and not on the financial interests of our licensees.

Let me mention one other demand for openness that arises from the current economic changes. The new regime of economic competitiveness holds the danger of creating an environment in

which heightened concerns about nuclear power might fester if not addressed forthrightly. Some may fear, for example, that the new economic environment creates incentives for licensees to cut corners on safety in order to improve their competitive position. It is the responsibility of the regulator to assure that exactly such actions are not taking place. And it is equally the responsibility of the regulator to keep the public informed of our findings so that there can be an accurate factual foundation for the public's perceptions. Fortunately, our review to date has shown the improved economic performance and improved safety performance go hand-in-hand. The changed economic environment in fact may be providing increased incentives for safety because a safe plant is also one that is reliable. Regardless of the ultimate resolution of the tension or complementarity of safety and economic competitiveness, however, the regulator is responsible for assuring that the public is fully and accurately informed of licensee performance so that needless fears are avoided and appropriate pressures are placed on those licensees whose performance falls short.

**Spent fuel**

Let me illustrate the immeasurable value of openness with another example: the challenge of regulating the management of spent fuel wastes. Everyone in this audience appreciates this challenge, whether the issue is on-site storage, off-site surface storage, or deep geological disposal. NRC's role is to license these activities in response to applications from operators. For one of these options, the proposed deep repository at Yucca Mountain, two other federal agencies are involved. The Environmental Protection Agency (EPA) will promulgate a standard to protect public health, and the Department of Energy (DOE) will, if the site is deemed suitable, apply for a license to construct and operate the repository. The NRC will decide whether to license the repository using technical and licensing criteria it has developed to implement EPA's standard.

Many of the citizens in the affected states are gravely concerned about the impacts of a repository. As a result, any decision about the management of nuclear wastes must be made in the cauldron of intense public controversy. Under these circumstances, it will be easy to stoke passions that a decision does not reflect a legitimate, forthright examination of the issues. In my view openness is the only way to combat corrosive suspicions that the decision has not been made on the basis of the technical merits. Openness may not be sufficient to assure acceptance of our decision, but complete transparency in decision-making is essential if there is to be any possibility of achieving a stable outcome.

**Openness in practice**

I have tried thus far to provide an explanation for the importance of openness. Let me now turn to some of the ways in which the NRC conducts its business in order to achieve openness.

First, the Commission operates under laws governing administrative procedures that promote government in the sunshine. For example, these laws require that we provide public access to the documents considered in decision making. We thus maintain a Public Document Room in which public materials are made available. We are also trying to harness information technology so that these materials will be more readily available electronically, offering the prospect for timely and easy access throughout the world. This task has proven to be a formidable one, but I am hopeful that our systems will soon meet our expectations. Our administrative procedures also require the Commissioners to meet in public and to provide full explanations of their decisions for the public record. The public is encouraged to participate in our meetings.

Second, our staff routinely conducts both formal and informal public meetings in the field so that the public has opportunities to learn about proposed actions and to express views about the proposals and the resulting NRC decisions. Such meetings are held in the affected communities, often in the evening, so that all segments of the public can participate. These meetings are extraordinarily popular and usually result in important, mutually informative exchanges.

**Current initiatives**

We are also undertaking several initiatives to enhance our openness. One of these is to provide formal training for both our managers and staff on the art of conducting public meetings. The ability to organise and conduct meetings that promote open, effective communications is not a natural one, but it is one that can be learned. Because public meetings often address controversial issues, our staff must be able to provide participants with clear and accurate information. Moreover, the staff must be mindful of something that my wife often tells me: half of communication is listening (or, at least, listening to her). And thus the staff must be trained to listen carefully and thoughtfully and to react responsively to the views and concerns of others. Our new training courses are aimed at reinforcing a cultural climate of openness and providing our staff with the skills to be responsible shepherds of honest open processes.

Another initiative is to develop explicit communications plans for important activities in our major programs, such as licensing, spent fuel storage, and inspection. The objective is to provide guidance to our staff who routinely works in the respective areas so their communications with the public are consistently thorough and complete. We want to avoid, for example, inadvertent omissions that could be misinterpreted as attempts to conceal information, thus needlessly creating suspicions. We have already used a communications plan to explain our response to the failure of a steam generator tube at the Indian Point 2 plant just north of New York City. The plan provided a useful framework to guide public discussion of the relevant issues and to facilitate public access to the ongoing decision-making process.

Another initiative is to redesign the NRC's website. We recognise that the Internet has become an important vehicle for making information widely available. The feedback we have received has impressed us with the need to upgrade and redesign our site so that it is more user friendly, is more easily navigated, and provides a richer variety of current mission-related information about the NRC's regulatory activities.

**Conclusion**

In summary, let me reiterate my view that responsible openness is an essential ingredient in the stew that is regulatory decision-making. As conscientious public servants, we cannot be successful if we are seen as being secretive. Openness is all the more important for decisions in highly technical areas, because otherwise the public has scant opportunity to understand the issues or to participate in a meaningful way. Openness is the spice that helps to make difficult decisions more palatable.

The NRC historically has had a good record in this regard, but we are nonetheless working to improve our interactions with the public because improvement is always possible. We want the public to continue to have confidence that the NRC will carry out its mission to protect health and safety in the public interest, and we are investing in our staff and in programs to enhance that trust.

Trust, however, is a fragile commodity. Governmental organisations and their relations with the public they serve can be strengthened by trust – or paralysed by a lack of it. Responsible openness is the key to building and maintaining trust in regulatory programs.

Thank you for the opportunity to talk with you today. I look forward to our continuing discussions of this important topic.

# CHALLENGE FOR RECONSTRUCTION OF PUBLIC CONFIDENCE

**S. Matsuura**
Chairman
Nuclear Safety Commission, Japan

## Introduction

During the latter half of the century, the main activities in Japan related to nuclear energy have been proceeded according to the "Long-Term Program for Research, Development and Utilization of Nuclear Energy" that was drawn up by the Atomic Energy Commission and approved by the administration. As a result, there are currently 51 commercial nuclear power plants providing more than 1/3 of our electricity. On the other hand, radiation is utilized across a wide range of fields, including industry, agriculture and medicine, and the economic effects of these radiation applications are close to the sales amount related to nuclear power generation. The research and development activities related to nuclear utilization for the future are being continued consistently. This is the current state of nuclear power activities in Japan.

The "Long-Term Program" mentioned earlier has been reviewed and revised about every five years. The current "Long-Term Program" was established in 1994. In May 1999 the Atomic Energy Commission decided to begin the revision work on the existing program. For these years, as a result of the incidents and scandals that have occurred in the nuclear energy field, the tone of the media reports has become increasingly harsh. In this situation, the Atomic Energy Commission requested the participation of specialists from an unprecedented range of areas of expertise, and conducted open meetings on the "Long-Term Program", to proceed with the discussion of the revisions. In the midst of these efforts, the JCO criticality incident (incident at a uranium processing facility) occurred on September 30, 1999. This was an extremely bad incident, and a seemingly fatal blow to the nuclear power industry, which has "Safety Assurance" as a major premise. Starting with the re-examinations prompted by the JCO incident, the efforts to revise the "Long-Term Program" continued with the government and the nuclear power industry taking various measure, and a new draft "Long-Term Program" was completed in August this year. This represents a consensus on the future, based on the present. Taking the opinions of the general public into consideration the draft was revised into the final one, which was officially decided by the Atomic Energy Commission on November 24. The new "Long-Term Program" stresses the importance of alleviation and removal of the distrust and anxiety of the public caused by the incidents and scandals associated with nuclear power, as well as emphasizing "Safety Assurance" everywhere.

Apart from the tone of the media reports, the results of public opinion polls after the JCO incident are suggestive. Each of several separate public opinion surveys has indicated that nearly 70% of the people believe that "Atomic energy is valuable" and that "It is worthwhile to make use of atomic energy". This indicates that there has been no large change in attitude over the past 10 years.

However, there has been a steep increase in “anxiety about nuclear power” and “safety concerns” following the JCO incident, with nearly 60% of the people indicating a feeling of anxiety. This clearly shows the need for safety assurance and a restoration of public confidence in safety for the activities related to nuclear energy in the future.

In the following portions, past incidents and scandals that have had a large influence on damaging public confidence in nuclear energy safety are presented. It is hoped that the key issues for restoring confidence will be found from these examples.

**How has public confidence been damaged?**

The “Atoms for Peace” statement by the U.S. president Eisenhower, marks the start of the peaceful utilization of atomic energy. In Japan as well, there were many discussions among knowledgeable persons starting in the late 1950s and into the 1960s, leading to promulgation of the “Atomic Energy Basic Law”. After reaching a consensus that “The guarantee of safety is the major premise, based on the three principles of democracy, independence, and openness”, for the most part, the research, development and use of atomic energy received fairly positive support from the general public, and made strong advances under the guidance of the Atomic Energy Commission. This was accomplished even though at that time the memory of the 1945 nuclear holocaust was still fresh, as were the memories of the Japanese fishermen exposed to radiation as a result of hydrogen bomb testing in the Bikini atoll in 1954. It is likely that there was a strong influence to choose in favor of the development and use of nuclear energy from factors such as the awareness of the significance of Japan's lack of energy resources, the impression of the lavish promise of cutting-edge science and technology as a result of contact with American culture after the war, and the general public opinion that economic recovery and growth depended on new science and technology. The atomic energy development that began under such expectations, has experienced a growing gap in the judgement of society as a result of the changes in societal, economic, and government circumstances, both in and outside Japan, as well as several incidents and scandals in the nuclear energy sector; so that now, although there is a general belief that the steadily increasing results have led to a recognition of the value to the majority of the public, at the same time there is an increasing anxiety and distrust about the safety of nuclear energy. What changes in public awareness, incidents and troubles are the major factors contributing to this increase in anxiety and distrust?

***Distrust of big science and technology***

The period from the 1960s through the 1970s was a time of remarkable economic growth. Increases in productivity and efficiency were the primary goal, bringing a trend of mass production and mass consumption. This trend can be summed up by the catchphrase “Bigger is better”. However, this movement went too far, causing serious pollution problems in various places. This led to the next phase, in which conservation became the primary issue in production, along with demands for limits on growth, so the catchphrase became “Small is beautiful”. In this era, the “big” science and technology that once was the object of admiration became to be viewed as untrustworthy. In the midst of this kind of shift in social psychology and sense of values, the nuclear energy science and technology system has become symbolic of Big Science and technology, and a source of concern. In other words, Big Science and Technology gives rise to the following anxieties:

- Can't grasp them with human sense of nature.
- Unfamiliar and hard to understand.

- Cannot prevent or control disasters by ourselves.
- Although it's said to be unlikely, a big incident will probably occur.
- This will probably affect future generations.

This kind of anxiety is not unique to the nuclear energy system. It is an inevitable result when a system increases in size, complexity and detail, which is a characteristic of the development of modern civilisation. If this kind of system is not controlled safely as it is used, there is no possibility of a current or future civilized society. One of the common problems for the next generations is how to reduce public anxiety and distrust.

***Troubles with nuclear power reactors***

In the 1960s the construction plans for PWR and BWR throughout the world proceeded on a surprising scale, to the extent that the US government was concerned about whether there was a sufficient supply of low-enriched uranium fuel. In Japan as well, following the start of power generation by JPDR (BWR) in 1963, electric power companies began working hard to introduce LWR. However, in the 1970s and early 1980s troubles with power reactors began to occur, and the performance of operation fell to miserable level. This led to public concern, summarized by opinions like "This is supposed to be proven technology, but don't these failures indicate otherwise?" Technical progress and advances led to decisive improvements. By the 1990s, these problems had generally been resolved, and the capacity factors were exceeding 80%. However, the sense of distrust that had been caused was not so easily removed, and is renewed every time there is any kind of problem. In particular, there is a haunting worry about whether relevant information is being adequately disclosed.

***Research and development delays***

Generally, an engineering system is designed, and the first prototype is built and tested. Then, the second system is developed based on the results of the performance tests for the first. This kind of method leads to a polished, finished final product after several generations of development. However, an atomic energy system, for example, a reactor, is an immense system that represents a combination of many technologies. It is extremely difficult to use a development method of making improvements across several generations to achieve a finished product. Even completing a single model requires a significant investment of time and money. This is the basic difficulty in quickly developing a reactor with a good performance, including good safety performance. Unfortunately, delays in development projects funded by government budgets are likely to cause a loss of public confidence. The drop in confidence further slows development, and leads to a growing distrust. This lack of trust is different from a distrust of the safety, but psychologically, it is very easy for these two to become linked, and the problem tends to become even more difficult. When new development is started for a large, compound system like a reactor. it is crucial to have the preparation of the basic technology elements already completed.

***Incidents and scandals***

This section will present typical cases that are believed to have had a large negative effect on public confidence in atomic energy in Japan. These provide a number of lessons, in the form of bad examples for future efforts to restore public confidence. These are all incidents that have occurred since Japan started developing and using atomic energy. There were also earlier incidents, like the

Windscale reactor incident [radioactive materials containment failure (U.K.)], and an SL-1 reactor incident [reactivity initiation incident (U.S.A.)], but these do not seem to have had any effect on public opinion, except among specialists in atomic energy.

*Radiation leak on the nuclear-powered ship "Mutsu" (1974)*

The "Mutsu" was Japan's first, and only nuclear-powered ship. The nuclear reactor onboard was the first reactor engine domestically designed and built in Japan. Right after leaving the home port of Mutsu in Aomori prefecture on the initial commissioning test, overcoming the strong protests of local fishermen with loud proclamations of confidence in the safety, the "Mutsu" experienced a radiation (neutrons and gamma rays) leak through the circular gap around the reactor pressure vessel during the first stage of the power raising test (output 1.4%) in the Pacific Ocean, and the test was immediately stopped. The actual event was minor, with no significant radiation exposure. Nevertheless, the contentious departure and testing, as well as the incomplete shielding of the reactor became a big social and political issue. The fishermen prevented the "Mutsu" from returning to port for more than 50 days, during which time the ship wandered in the Pacific Ocean. From a technical point of view, the necessary modifications were not difficult, and similar incidents had occurred during the development of ship-propulsion reactors in other countries. Actually, after repairs, operations testing conducting over about 82 000 km (about 2 times around the earth), including tests in rough seas, confirmed the excellent performance of the "Mutsu", completing the plan to develop a nuclear powered ship. Then the reactor was disassembled. On the other hand, the social and political problems were not so easily resolved, and detailed and strict inquiries were made into nuclear energy research and development methods, and the way of examination of nuclear reactor safety. This incident led to the conclusion that questions of nuclear safety should be treated by an organisation that is independent of the Atomic Energy Commission. Thus, the Nuclear Safety Commission was established as an independent organisation to plan, deliberate, and decide on matters related to the safety of atomic energy. In addition, "double check system" of nuclear safety regulation was strengthened, in which primary safety examination was carried out by administrative ministries and NSC reviewed appropriateness of the primary examination. The modifications to the "Mutsu", construction of a new home port, and experimental sailing after obtaining the understanding of the fishermen required a great deal of money and nearly 20 years of effort. (Incidentally, the "Mutsu" has been rebuilt, and is now being operated as the ocean observation vessel "Mirai".)

*TMI incident (1979)*

This incident shocked both experts and the general public. The steam generator that was the cause of the incident was a different type than that used at PWR in Japan, but there was a large influence on the confidence of the safety of LWR. The Nuclear Safety Commission closely examined the safety assurance measures for LWR again, and took the measures of 52 items. In addition, intensive research on the thermo-hydraulic safety of the LWR was conducted, and countermeasures against the loss of coolant incidents and severe incidents were strengthened. Furthermore, the importance of probabilistic safety evaluations was recognized, and research in this area was enhanced. This incident was evidence of the strength of the LWR ability to withstand an incident, but an anxiety that a "core meltdown" incident was a possibility also was planted in the public's mind. Since then, the concern in nuclear disasters has been at an even higher level.

*Chernobyl incident (1986)*

This incident frightened the entire world, and many things have been said. This is also true in Japan. Technically the Chernobyl type reactor was different from power reactors those in Japan, and it was determined that there were no countermeasures to consider based on the lessons from this incident. However, there was a large increase in interest in the "Safety Culture" advocated by the IAEA/INSAG, and the common, basic instruction principles gradually began catching on. This is an incident that has instilled fear in the general public.

*Sodium leak at the "Monju" reactor (1995)*

During a power-increasing test of the prototype fast-breeder reactor Monju, the secondary cooling system thermometer sheath was damaged, and there was a leak of sodium (Na) from the secondary coolant system. Sodium leaks from the secondary coolant system were not uncommon at other fast-breeder reactors, and there was no effect on the primary cooling system in the Monju case. However, after the incident, there were large problems both technically and socially as a result of improper handling of the release of information, and the discovery of the extremely rudimentary and amateurish design of the thermometer which caused the problem. This led to severe criticisms of the research and development methodology, the operating methods of the organisation, and the lack of transparency of relevant information. These problems have still not been completely resolved. It is a case that illustrates the difficulties of achieving a balance between public understanding, the political characteristics of local government, and the government's development plans.

*Fire and explosion at a low-level waste asphalt solidification facility (1997)*

There was a fire and an explosion at an asphalt solidification facility at the Tokai reprocessing plant. This caused some significant damage within the facility, but fortunately, there were no fatalities and the release of radioactive substances to the outside was also minor. However, there was some false information in the incident reports, which became a big problem, escalating to the point that the relevant authorities accused the operators of breaking the law. In this case as well, the operation methods of the organisation operating the facility became the object of severe criticism. As a result of this incident, the operating organisation underwent a reorganisation.

*JCO incident (1999)*

This is a criticality incident that occurred at the uranium processing facility in Tokai-mura. Two people were killed, making this Japan's worst nuclear incident. The report on the situation and circumstances of the incident has been publicly released, and OECD/NEA workshop was held in Tokyo in May of this year. The basic cause of this incident was the unsafe work procedures of the employees as a result of insufficient training along with unbelievable and unforgivable violation of regulations. Currently the operators are facing legal prosecution for their activities.

This incident is not only the first fatal nuclear incident in Japan; but also it was a case in which it was impossible to obtain an accurate understanding of the incident situation in the initial stages, making it necessary to implement evacuation and indoor staying of residents in the vicinity. This had an enormous impact on the local residents, local governments and national government, creating turmoil that has still not calmed down. This is a region that is the cradle of nuclear energy research and development in Japan, with a long history of beneficial coexistence with atomic power. There are a large number of research and development organisations and businesses connected to

nuclear energy in Tokai-mura. The damage from having Japan's largest and worst incident occur here is incalculable. It is anticipated that long years of effort will be required to recover.

This incident also led to criticism of the overseeing authorities, for their blunder in not noticing the illegal activities of the operator over such a long period of time. The Nuclear Safety Commission needed a greater capability to verify that the regulatory activities of the overseeing authorities are being fully implemented, so the independence as well as the skills of the personnel of the commission were enhanced.

Furthermore, relevant laws were quickly enacted to enhance nuclear emergency preparedness systems and strengthen the safety assurance at nuclear facilities, including fuel fabrication plants.

*Other*

In addition to the above examples, other recent incidents that have created feelings of distrust and anxiety in society include the data falsification on MOX fuels by BNFL, radiation sources mixed into scrap iron, and improper storage and handling of nuclear source materials. None of these have resulted in personal injury or property damage, but all are associated with suspicions about the reliability of the use of nuclear energy. Each incident is being investigated dealt with.

**For the restoration of public confidence**

As described above, each time an incident, trouble or scandal occurs, the causes are identified, countermeasures are investigated, and the necessary measures are taken. The use of nuclear energy and radiation has increased under these circumstances, so that the current maintenance and development of civilisation and society is hard to imagine without the use of nuclear energy. On the other hand, although the general public recognizes the value of nuclear energy, confidence is dropping, and each incident seems to increase feelings of distrust and anxiety. The way to handle this situation is not simply to leave it to fate; rather, the concentrated effort and knowledge of those involved is continuously required.

***Preparing and effectively implementing standards and regulations***

This goes without saying, and is absolutely crucial. In Japan, as a result of recent incidents, the revisions have been made to nuclear reactor regulations, special measures for nuclear emergency preparedness have been drafted, and safety inspectors as well as disaster prevention officers were deployed at nuclear site (areas). It is expected that these measures will be effectively and efficiently executed, but this will have no direct connection to restoring public confidence. The effect is expected to be to get the falling confidence under control. It is especially important to devise ways to increase effectiveness. One idea is an appropriate "Indication system" which shows a level of safety performance.

***Strengthening the independence and functions of the Nuclear Safety Commission***

The Nuclear Safety Commission is expected to have a high level of expertise, and, from the perspective of the general public, is expected to closely watch the situation in nuclear energy and present timely and relevant opinions. For this reason it is necessary to always maintain accessibility

and transparency, to foster two-way communication with society, and to exchange information with regulatory agencies while maintaining a strict relationship.

In addition, an important responsibility of the Nuclear Safety Commission is to clearly and systematically present the basic concepts and regulation guides related to safety assurance. The formation of the "Safety Goal" will be an important duty from now on.

***Constant reconfirmation of the principles of safety assurance***

The most important factor in obtaining public confidence is to achieve a record of no incidents or disasters, as well as no "near miss" incidents. It is also crucial that this be achieved under open and transparent circumstances. To achieve this, all levels of operations must be involved in "Defense-in-Depth" and "Safety Culture". In this period of keen economic competition, it is easy to understand how this can be difficult for operators to implement. Nevertheless, safety is a matter of life or death for these operators. This is an important point that must be recognized throughout all levels of these organisations.

***Openness, truth and honest integrity***

Reviewing the circumstances of various incidents and scandals, it is painfully obvious that there is no better way to win confidence than to be open to public scrutiny and to be honest to the public. Without this openness and honesty, there is no chance of trustworthiness. Practising this as an organisation and as individuals is considered to be the most important point. However, there is a question about what level of difficulty will be understood by most people. At the very least, even if they only understand that an honest effort is being made, this will be effective. One ironic point, and this is not just in the nuclear energy field, is that the public demands extremely old-fashioned virtue (sincerely honest) of the people handling state-of-the-art technology and complex systems. This is probably natural. As things become more advanced and complex, things become harder to understand and cause more anxiety. The public can only place confidence in the belief that "the people running things are serious, and work hard to do things right". When these expectations and confidences are betrayed the recovery is difficult, as shown by the many past examples. There is no other way than to act with integrity after obtaining public understanding through openness and accessibility.

***Respect for individuals***

When implementing safety assurance, it is well known that guaranteeing safety depends on the qualities, abilities and efforts of the individuals involved at each of the various levels. Accordingly there should be a reaffirmation of the importance of and respect for the role of each individual in an organisation.

Traditionally, organisations have been constructed to efficiently achieve the common goals of groups of individuals. However, once an organisation is built and begins to operate, it is often the case that the goals and activities of the organisation take precedence, and the individuals are ignored. For safety assurance, the culture of the organisation must foster recognition of the importance of individuals, and support the proper evaluation and actions of the individuals. This is one of the important points of "Safety Culture". In addition, the confidence of the public in an organisation is the accumulation of confidence of individuals, so it is also important to remember perspective of individual persons forming the public.

### *Dissemination of accurate scientific information*

Having the public grasp and maintain a correct scientific awareness is part of the intellectual infrastructure of modern society. In particular, dissemination of knowledge on radiation effects on the body and protection is required to eliminate unnecessary anxiety and to prevent injuries due to carelessness. It is necessary to devise ways to increase the opportunities to spread this knowledge, including education in schools.

### *Establishment of risk and benefit concept*

This assumes that there is a widespread understanding of accurate information. In this civilised society, when we are making a decision about whether to accept a thing or a procedure, it is not possible to avoid making the selection according to a risk and benefit concept. In the case of nuclear energy, the risks of the radiation must be compared to the various benefits to make the evaluation. If this kind of intellectual process becomes widely used, it is expected to help make confidence in nuclear power safety assurance a reality. The “Safety Goal” is based on this concept, so this idea must be made widely known in order to obtain the general public's understanding of the validity of the safety goal.

### *Disaster preparedness and training*

The goal is to avoid having a situation in which the emergency systems are activated, but inadequate preparation will cause a disaster to become an even bigger problem. Having concrete preparations for crisis support is also an important means of building public confidence. Even if disaster facilities and organisational preparations are made, it is crucial to provide training and to repeat drills in order to ensure the proper operation. Such efforts cannot be omitted.

### *Assignment of responsibility*

One of the factors that destroys public confidence is a situation in which there is no clear assignment of responsibility. Those holding the formal responsibility, as well as those with the practical responsibility must be clearly identified. To restore confidence, this accountability is a point that cannot be ignored.

## Conclusion

Maintaining confidence is like taking a demerit point test. It isn't possible to increase the number of points, only to lose them when something bad happens. Recovering is much more difficult that imagined. Unfortunately, at this time, nuclear power in Japan has lost public confidence, even though it has and is producing real results. The fact that a majority of the public recognizes that “nuclear power is useful” is the final handhold. In order to restore public confidence there is no other course but to be prepared for difficulty and work honestly to our fullest ability, with all steps made openly and accountably.

# A PROACTIVE PUBLIC INFORMATION POLICY: A KEY ELEMENT FOR REGULATOR INDEPENDENCE AND CREDIBILITY

**J.M. Kindelán**
President
Spanish Nuclear Safety Council

Good morning. I should first like to thank the OECD Nuclear Energy Agency for its invitation to participate in this interesting meeting, and especially its Director General Luis Echávarri, whom I had occasion to talk to recently in Spain during the celebration of the 20th anniversary of the Nuclear Safety Council, the Spanish regulatory organisation that I have the honour to chair.

I should also like to thank our Chairman, Prof. Laaksonen, for organising this meeting, and naturally also those accompanying me during this session.

The subject of my speech: public information strategies as a key element in the independence and credibility of regulation and of the regulatory bodies, is one I feel to be of enormous importance.

For this reason, I should first like to make a general reflection on this issue, and finally include a brief description of the information policies that the CSN has attempted to develop in Spain.

## Democratic legitimacy

In this respect I should like to begin with the two following basic statements:

- In democratic societies, legitimacy comes entirely from the citizens, the people exercising sovereignty.
- The citizens have the right to demand that their institutions act transparently and provide them with the information needed for evaluation and decision-making.

In a sense, democracy may be said to be based on a paradox. It is quite clear, on the one hand, that democratic systems seek to create a culture of trust. By creating a network of rules and mechanisms controlling those governing, conditions are created that allow the public to have a sense of confidence: given that those governing are subjected to controls, one can trust in them (Sztompka). However, at the same time democracy constitutes the institutionalisation of mistrust: the rules and mechanisms of a democracy are aimed at controlling those in charge, thereby implying necessarily that such control is essential, and that without it, the leaders and their representatives might betray the interests of the citizens, the people that elected them, and act only in their own interest.

The regulatory bodies, as democratic institutions, are an excellent example of this paradox. They are born of the mistrust that the general public has in the sector to be regulated, the suspicion that if a given sector is not controlled, it might act contrary to the general interest. At the same time, however, the underlying idea behind these bodies is to allow the public to feel trust and not to feel threatened by the regulated sector. This is why independence is so important. The objective is for the regulatory bodies to be double independent, in order to avoid being captured and placed at the service of the interests they are supposed to regulate, and also to avoid a given government being able to limit their regulatory powers depending on political interests.

The experience of the democratic transition whose anniversary we are currently celebrating in Spain is an example of the above. It was in the wake of our Constitution that the organisations giving shape to the political and institutional frame of the State were created: the Constitutional Court, the General Judiciary Council, the Ombudsman... At the same time other organisations with controlling roles were being created, such as the Tribunal for the Defence of Competition, the National Securities Market Commission, or the Nuclear Safety Council itself.

**The regulatory bodies in the nuclear sector**

In the case of nuclear power it is quite clear that the initial feeling among the members of the public is one of fear, because of the symbolic link between nuclear fission and its initial development for weapons. Added to this is the almost magical of its risk, largely due to the fact that radiation does harm without seeing it. Furthermore, there is an important technical barrier, both as regards language and understanding of the production processes.

Given this starting point, the mission of the regulatory bodies is not only to eliminate or reduce the risks involved in the use of ionising radiations or nuclear energy, not only to maximise safety in their use in the interest of society. These bodies must also seek to create a feeling of trust among the members of the public regarding this safety, avoiding unjustified alarm and convincing the public that whenever there might be reasons for alarm, the regulatory body will intervene and attempt to act at the source, and that in all cases it will inform the affected population and take action to protect it.

There are various obstacles in performing such a task. The first has already been mentioned, and relates to the opaque nature of technical language and ignorance of the processes and mechanisms used by the sector and by the regulatory body in their respective functions. Attempts are made to overcome this obstacle through education, increasing familiarity with technology among young people in general, and not only those who choose to read scientific or technological studies. The regulatory bodies can, and indeed should, also undertake to provide general information, themselves or through the media. In this respect new information technologies such as the Internet are powerful and useful tools.

**Perception of risk**

The sensation of risk cannot, however, be removed simply through information or by improving the public’s technological understanding, regardless of whatever progress is made in this direction. The perception of risk always has a strong subjective component, which depends not only on possible lack of knowledge but also on the ideas through which individuals and groups interpret social reality. It also depends on other factors, such as physical proximity to the perceived risk factor, familiarity with it and the benefits perceived in relation to its existence.

There is no objective assessment of risk that regulatory bodies or a democratic government can fall back on (Thompson, Rainer & Ney). The institutions must negotiate an acceptable level of risk with the public, on the basis of the best information available from the experts, but also taking into account the subjective perceptions of the different groups and segments of the public that coexist in a democratic society. They must also carefully evaluate at all times which opinions or perceptions should be rejected as being marginal or inadequate.

There are two reasons for this. The first is that in a democracy, the opinion of the public, of the largest possible number of people, should always be taken into account, in order to define the common good through consensus and not through imposition by a minority of experts. The second is that in the past there have been cases in which the experts have acted recklessly or without due care, causing unnecessary damage. For example, the use of soldiers and civil personnel during the Second World War – and immediately afterwards – in nuclear and chemical experiments, without due precaution and protection, is a fact that cannot be ignored.

The third obstacle arises directly from deep-rooted mistrust of nuclear energy and radiation. As we all know, trust is something that is lost quickly, but that is very difficult to generate when it does not exist and also the underlying situation is one of strong apprehension. In this case the communication policies of the regulatory bodies should go hand in hand with the example of their actions, in order to gradually build new trust in the public, confidence in the regulatory body itself, in its independence and in its capacity to act when faced by possible risk or by attempts of any kind, economic, political, etc., to place specific interests before the interests of all the citizens.

Sociologists who, like Hardin, study issues relating to trust in democratic societies generally state that there are two possible sources of mistrust in both institutions and people. One is familiarity, first-hand experience; and the other is reputation. The regulatory bodies can only achieve confidence based on familiarity if their representatives are very much in the public eye, and it is highly doubtful that this would be a good thing. On the one hand because the protagonism of the representatives of the institution might lead it to deviate from its ultimate purpose, even if initially they had wide social support. This happens with both regulatory bodies and with the courts of justice: a judge who becomes personally a public figure may distort the image of the legal system and the social expectations regarding the way it should perform.

And so what remains is reputation, a label of credibility that, to some extent, is the positive result of previous courses of action (Riker). The problem is to know how this reputation is created. In the case of a regulatory body this may spring from clear signs of authority and independence in the early part of its institutional life, showing that it is capable of facing up to private individuals and of imposing the priority of social interests.

However, if the reputation of the body rests on a series of keen and spectacular successes, the result will be increasing mistrust of the sector regulated, which will be seen by the public as a continuous source of risk, inasmuch as it requires such drastic interventions. Once again, and as with democratic institutions in general, designed within a framework of mistrust with the mission of creating confidence, if the actions taken continuously cause doubt upon the representatives and governing organisations, the result will be failure.

This in turn has two aspects. If, for example, a regulatory body is required frequently to get involved in tough situations of confrontation with the regulated sector, this will imply that its actions are incorrectly performed, since they evidently do not manage to modify the sector's routines and performance strategies. Consequently, the institution is not meeting its functions. Secondly, this

mistaken approach by the organisation reveals that it is placing its own protagonism before its role: placing the interests of the regulated sector at the service of public interest.

Such spectacular actions might sometimes be inevitable, but when they occur they should set a precedent, making it less likely that the situations making them necessary are repeated. The success of a spectacular action is measured by the extent to which it makes new interventions improbable, modifying the performance routines of the regulated sector. One action of this kind might be the origin of the reputation of the organisation, but no more than one. What is required from here on is information and transparency, in order to convince the public that there will be no further drastic interventions because they will not be required, but that they would be taken if the need arose.

I have already mentioned the fact that in the nuclear sector the regulatory bodies are set up with the purpose of establishing – in an area which is complex and sensitive for many reasons – reinforced mechanisms guaranteeing the objective application of the standards that govern its operation.

The legitimacy of the regulatory bodies, with respect to the political powers, the owners of the installations and, above all else, the members of the public, who are ultimately the recipients and judges of their actions, arises through the performance of their functions, to the extent to which they are capable of demonstrating fundamental characteristics warranting credibility:

1. **Scientific rigour**. The regulatory bodies are above all else knowledge-based organisations. This means that their efficiency and effectiveness depend at all times and in a critical manner on the availability of the most advanced tools and capacities.

   This should lead us to pay priority attention to R&D programmes and to the on-going training of the technical personnel that constitutes the basis and foundation of our organisations.

   The decisions that we are continuously required to take, should be based on the very highest degree of knowledge of the issue being regulated, since this will allow us to enforce what needs to be enforced, but not that which does not need to be enforced. It will allow us to be efficient and effective.

   In view of the experience that has been accumulated since its beginnings, now half a century ago, the nuclear industry is a mature one, but there are reasons for us to continue to improve our knowledge, one of which is the solving of already identified technical problems.

   Furthermore, and I believe this to be important, it is necessary to conserve the knowledge already acquired and transmit it to the new generations, as regards both technology and regulatory practices. I know that the OECD shares this concern, as is demonstrated by three recent reports addressing the challenges of maintaining research into nuclear safety, ensuring competence in nuclear safety in the 21st century and enhancing training on nuclear matters in the OECD nations.

2. **Independence and objectiveness**, in accordance with the best available technical knowledge and disregarding other considerations that might undoubtedly exist and try to influence decision-making. I refer to economic and political considerations that should not be a part of our decision-making processes.

3. **Transparency in performance**. Publicity for the actions of the public institutions is essential as an element allowing the public to control and participate in decisions affecting us all, that is the

very mechanisms upon which the democratic system is based. Therefore in the case of the regulatory bodies the obligation to inform, in addition to being a requirement of democratic ethic, it is also a requirement of practical rationale. If we wish the public to place their trust in us, then we must be capable of explaining ourselves and remain accessible. The intrinsic difficulties of the issue, such as the technical nature of our language or the rejection and social concern that everything relating to the nuclear and radiological world causes, cannot become an argument releasing us from our obligation to be as transparent as possible in our actions.

I believe this is a concern common to us all, and this meeting promoted by the NEA is a clear demonstration of this.

Up to this point I have dealt with the general reflections that I wanted to share with you all. Now I should like to briefly explain our own experience, as a regulatory body, in relation to communication policies.

As many of you know, the Spanish Nuclear Safety Council is a public organisation created by Law in 1980, and the maximum authority for nuclear safety and radiological protection in our country. (SLIDE No. 1)

As may be appreciated in the following SLIDE No. 2, one of the explicit functions conferred upon us by Law is to *"Inform the public on matters of its competence"*.

The objectives that we have set ourselves in performing this function are as follows: (SLIDE No. 3)

- To bring the CSN closer to the public, the man in the street and the media, which in many cases are the intermediaries between the institutions and the citizens.
- To disseminate information on the activities of the organisation.
- To promote the presence of the Council in forums for debate and discussion close to the public, including those promoted by associations and social organisations concerned about nuclear safety and radiological protection.
- To be accessible to the public and respond to their individual or collective demands for information.
- To contribute to informing the public on matters of its competence.

These objectives are developed through different complementary and interrelated areas of work (SLIDE No. 4).

The continuous provision of information to the media on the activities carried out by the Council is our organisation's essential public information task. (SLIDE No. 5)

This information is provided along two main routes.

On the initiative of the Council itself, through the following:

- the issuing of press releases on all matters that might be of interest. The current trend is to increase the number of such press releases, with a written position statement transmitted to the media whenever there is an event that might be of interest;
- press conferences;
- specific information sessions;
- the participation of journalists in emergency simulation drills;
- the continuous issuing of the Council's publications to the different media.

(SLIDE No. 6)

The Council also has a website, this currently being our most visited site, with more than 300,000 visits per year. In addition for the general information on the organisation and on nuclear safety and radiological protection, this site allows the visitor to consult press releases and updated reports, as well as whatever other areas that might be of interest.

(SLIDES No. 7 and 8)

We have also put together an important number of publications that now constitute a significant inventory.

(SLIDE No. 9)

Finally, we have created an information centre that is visited by more than 10 000 schoolchildren every year. The centre provides information on what radiations are, what they are used for, what problems they pose and what the Council does to face these problems. A specific paper is to be presented on this issue at this meeting, so I shall not deal any further with this particular question.

The future of the nuclear industry will depend to a large extent on the perception that the members of the public have of it. However, our mission as regulatory bodies is not to change the pro- or anti-nuclear feelings of the public, but to set in them the confidence that the use currently made of nuclear energy is carried out with the greatest guarantees of safety. We should continue to avoid their feeling of fear without reasons or their perception of uncertainty regarding processes that are duly controlled and supervised.

I am convinced that whatever progress we make in increasing transparency will lead to an increase in the public credibility of the organisations that we represent. The reason underlying our need for this credibility, this reputation for autonomy and efficiency, for good performance, is that without it we will not have sufficient authority in the eyes of the regulated sector or other private political and economic interests, and will not, therefore, be in a position to provide a sensation of confidence to the members of the public, whose tranquillity and interests are our obligation.

Thank you very much.

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# 1. Nuclear Safety Council

# 2. Public information and communication

- One of the functions established by the Law creating the CSN was to: "inform the public on matters of its competence".
- Objective of the Organisation's *Strategic Orientation Plan*
- The Technical Cabinet of the Chairman of the CSN includes an Information and Communication department, with personnel specialising in this area.

# 3. Objectives

- To bring the CSN into closer contact with the public and the media
- To disseminate information on the activities of the institution
- To promote the presence of the CSN in forums close to the general public
- To increase the credibility of the organisation as a point of reference on issues regarding nuclear safety and radiation protection
- To place the CSN closer to society, in order to provide the information requested
- To contribute to informing the public on matters of its competence

# 4. Areas of work

1. Relations with the media
2. Public information centre
3. Issuing of publications
4. Internet information service
5. Other activities

# 5. Information to the media

- Essential within the CSN's mission to inform the public
- Information provided by two routes:
  - CSN initiatives
    - press releases
    - press conferences (at least two per year)
    - specific information sessions
    - participation of journalists in emergency simulation drills
    - distribution of publications
  - Response to demands for information
    - telephone attention to requests for information
    - interviews with the press, radio and television

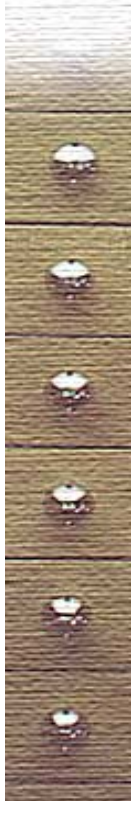
# 6. The CSN on Internet

- Information server at *www.csn.es*
- Available since April 1997
- Information on:
  - Organisation of CSN
  - Installations
  - Environmental protection
  - Research and development
  - Legislation
  - Publications
  - Breaking news

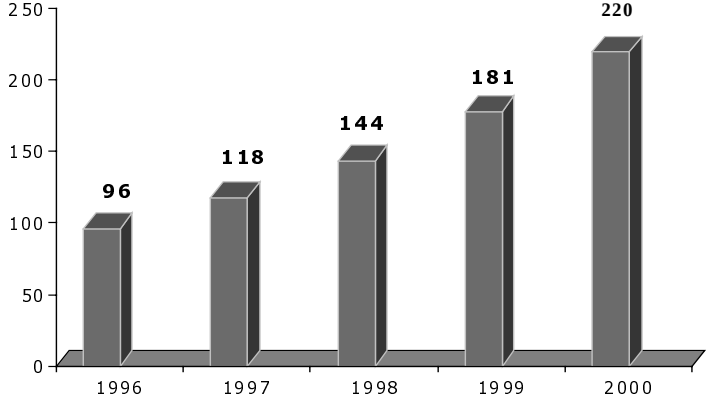
# 7. Issuing of publications

- Annual publications plan
- Various technical and general information collections
  - Periodic publications
    - Annual activities report
    - Annual report to Parliament
    - Quarterly journal. *Seguridad nuclear*
  - Non-periodic publications
    - Safety guides
    - Technical reports
    - Informative editions

# 8. Issuing of publications (continued)



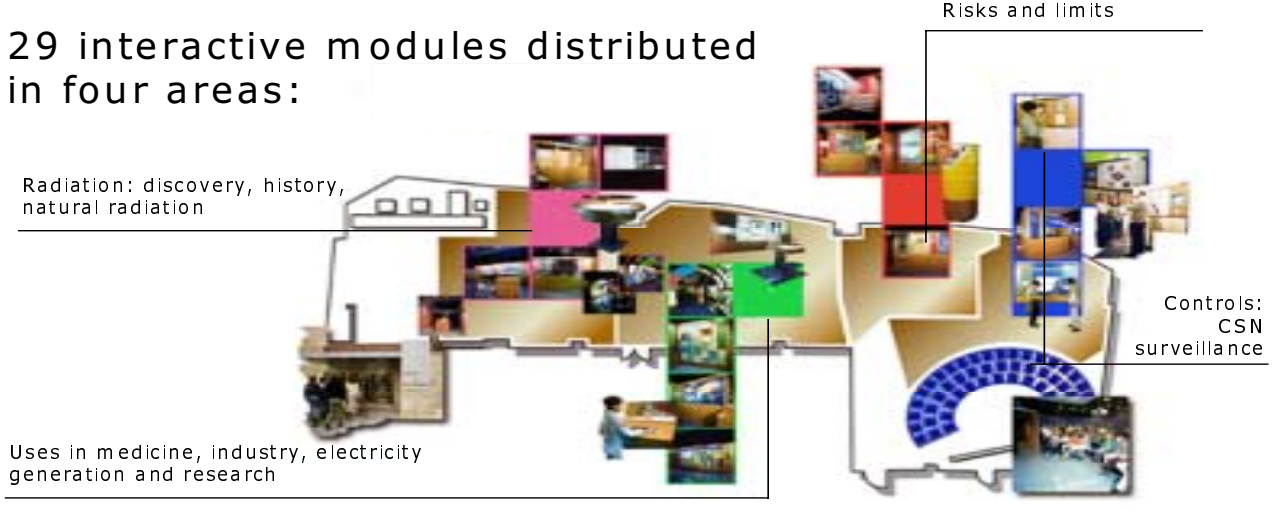
- Publications issued in 2000
  - 27 technical publications
  - 10 informative publications
- Current inventory: 220 publications
- The publications issued by the CSN are free of charge




- Distribution: institutional database with more than 3,000 entries

# 9. Information Centre

- Facility dedicated exclusively to providing information for the public
- Interactive exhibition with priority given in design to school visits
- 29 interactive modules distributed in four areas:



# THE OVERSIGHT OF NUCLEAR SAFETY – A MISSION IN THE SERVICE OF THE PUBLIC

**J. Melin**
Director General
Swedish Nuclear Power Inspectorate

## Trust is something you have to earn

A country introducing nuclear power in their energy strategy has a life long obligation to the public. The obligation is not a question of energy production. It is an obligation to maintain safety during the phase of construction, energy production as well as for the disposal of waste and spent fuel.

One part of this obligation and responsibility to the public is a matter of trust. A responsible government should never accept that fear related to Nuclear Power is a lack in trust. Trust can never be regulated or forced upon the public. Trust is something you have to earn.

## A mission in the service of the public

We must remember that we as Nuclear Safety Regulators have a mission in the service of the public. We are by the public seen as guarantor for the safety of Nuclear Installations in our countries. Our aim must be that the public is trusting that our work will lead to a safe operation of Nuclear Installations.

## Trust means an investment in expertise, independence and communication

I would like to stress that trust can only be obtained by demonstrating expertise, independence and by a good communication with the public.

It is easy to realise that one pre requirement for the public to trust our actions and policies to maintain and improve safety is the openness with respect to our decisions and considerations.

In Sweden we have a long tradition in openness – that is the right of insight to all processes leading to a decision. In 1766 the “transparent government” was introduced in the law. Today this basic principle is one part of our constitution.

This means that each citizen is granted access to information with regard to activities by the government and governmental bodies to promote a free exchange of opinion. In addition each citizen

has the right to take any denied access of public documents to court. Any document filed at a public authority is a public document.

**Openness means to be active**

We have to realise that the right of insight into the documentation of the authorities or the government is only one part of openness. Openness is also a question of being active in informing about our decisions, our policy our oversight strategy or other questions related to safety. Openness is also a matter of being prepared to answer questions, to discuss and to exchange views with the public or organisations. The importance for us (SKI) as a regulator to communicate has been stressed by the Swedish government by stating, in the letter of Appropriation, that one of our (SKI's) main objectives should be to report and inform.

One question which might arise is weather openness is improving safety at nuclear installations. I would say that this is the case. You can se the public as inspectors of decisions and considerations we make as authorities. We must remember that a continuous discussion with stakeholders on issues related to safety will most certainly enhance quality in our decisions and increase knowledge and experience. However, it is important to be realistic and realise that openness towards the public can not be introduced from one day to another. It takes years before it will have an influence on trust. In Sweden we have by Law a "transparent government" for more than 200 years.

**An example**

I would like to take the opportunity to give you one example within the field of nuclear safety where the trust of the public is indispensable. My example deals with one of the most controversial siting projects – a waste repository for spent nuclear fuel. The Swedish programme for managing nuclear waste and spent nuclear fuel has been in progress for about 25 years. Since the mid-80s the nuclear industry's strategy for managing the spent fuel is direct disposal in bedrock. The method proposed by industry is to encapsulate the spent fuel in copper canisters with cast iron insert. The canisters will be embedded in bentonite clay in individual deposition holes.

There is by Act a clear responsibility for a permit holder for nuclear activities to take all measures that are required for ensuring the safe handling and final storage of nuclear waste arising in the activities. Of course the act will not by itself make the public accept a site for spent nuclear fuel. It is easy to realise that in a democratic regime a voluntary commitment is a necessary condition for the site selection. Consequently in order to fulfil their responsibility the nuclear industry in the shape of a jointly owned company, Swedish Nuclear Fuel Waste Management Co (SKB) in 1992 invited all Swedish municipalities (about 280) to participate in the siting process. In total SKB has since 1992 been conducting feasibility studies in eight municipalities. Two of them decided on an early stage to terminate their participation. Last week SKB selected on the bases of the feasibility studies three sites for further investigations.

During these eight years long the municipalities involved have given their consent to each stage of industries investigation programme. Even if a municipality can terminate their participation in any new stage in the site selection process the commitment towards accepting a repository become greater with each new stage in the investigation. The need for consultation and involvement by the stakeholders (including the municipalities) did become apparent with the ongoing site selection process. Industry as well as the regulators factual statements has to be evaluated by the public. The responsible authorities, the Swedish Nuclear Power Inspectorate and the Swedish Radiation Protection

Institute have during these eight years prioritised the task to support and engage in the dialogue with the municipalities. At the same time there was an increased request by the municipalities for the authorities to take an active role in the environmental impact assessment as the peoples expert at the same time maintaining the integrity as licensing authorities. It is easy to realise that in the Swedish process for finding a site for spent nuclear fuel; the most important investment is that of the trust of the public. An investment that not will pay off within a few years – it takes decades.

**Investing in trust**

Trust means that you have to invest in an independent regulator, with an open attitude and with the capacity and competence to review the safety assessment done by industry. You have also to invest in the regulators ability to act as the peoples expert in stretching industry. At the same time the regulator must be open to be stretched by stakeholders and the public at large. You have also to invest in a legal framework, which clearly state the responsibility between industry and the regulatory bodies.

# COMMUNICATING WITH THE PUBLIC: NRPB EXPERIENCE AND FUTURE PLANS

**J.R. Croft**
National Radiological Protection Board
Chilton, Didcot, Oxon, United Kingdom

## Introduction

The UK National Radiological Protection Board (NRPB) was established as an independent statutory body by the Radiological Protection Act 1970. The latest version can be found in Documents of the NRPB [1]. It has the following responsibilities and powers:

- by means of research and otherwise, to advance the acquisition of knowledge about the protection of mankind from radiation hazards;
- to provide information and advice to persons including government departments, with responsibilities in the UK in relation to the protection of the community as a whole or of particular sections of the community from radiation hazards;
- to provide technical services to persons concerned with radiation hazards;
- to make charges for services and for providing information and advice in appropriate circumstances.

A subsequent Direction from Health Ministers extended the remit to cover non ionising as well as ionising radiations.

Unlike many organisations represented at the conference NRPB has no regulatory responsibilities but, in addition to it formal functions, it is a natural focus for enquiries from the public (some 40 000 per year) and is often referred to in the media as a “government watchdog”. Over the years NRPB has developed leaflets, publications, slide sets and a website that provide information to a wide range of audiences, particular members of the public.

The Board of NRPB has recently completed a Strategic Review of its work programme, with one of the four main areas being Public Perception and Communication. This paper reviews NRPB’s experience in the past and focuses on the outcome of the Strategic Review and the plans for the future.

## Overview of present arrangements

### *Publications*

*Scientific*

The primary routes for communicating NRPB's scientific output is through a hierarchy of in-house publications: Documents of the NRPB, Reports, Memoranda and contract reports (in the Memoranda series). The first two are professionally printed, whilst the other two are in general, produced in-house. Two other important professionally printed publications are the Annual Report and the Radiological Protection Bulletin (10 issues per year). In parallel to the NRPB's portfolio of scientific publications, staff is encouraged to publish in the peer reviewed scientific literature and to present papers at conferences.

*Public and Workers*

Since its inception NRPB has been a focus for enquiries on radiation matters in the UK and the culture of the organisation has always been to be helpful to such enquiries. However answering queries, whether by letter or telephone can be time consuming. The search for efficient means of communicating information, and so reducing demands on professional time, has been one of the drivers in developing the range of publications aimed at the public. The first of these "Living with Radiation" made its debut in 1973. It has been considerably expanded over the years and uses a wide range of schematic diagrams to supplement the text, which is targeted at the 15 to 18 year old level. It is now in its 5$^{th}$ Edition and still very popular, both in the UK and other countries. Also there is a steady stream of requests to use the graphics in other publications and in the media.

In the 1980s it became clear that there was a need for leaflets of a similar standard on specific topics. These became the "At-a-Glance" leaflets that fold out to broadsheet size for use as posters. These were quickly followed by the similarly configured "Radiation at Work" leaflets focused on work activities giving rise to occupational exposure. Table 1 provides a list of the current leaflets. Overall some 1.7 million leaflets have been produced and distributed. Arising out of these have been a number of slide sets for training and educational uses.

The content and style of this suite of documents came out of the feedback from two main sources:

- answering the frequently asked questions (FAQs) from the telephone and letter enquiries; and
- contacts with customers for our Technical Services.

The second of these is, in many ways, like a large public focus group. For example NRPB acts as the "qualified expert" [known as Radiation Protection Adviser (RPA)] for 900 organisations at 1200 locations across the UK. Each site is visited at least once a year and on each occasion the RPA will meet many workers with little or no knowledge of radiological protection. In these conditions the workers are often acting as members of the public. The experience from these direct communications gives staff a good understanding of the issues that people are interested in and the communication styles that are effective.

Table 1. **Broadsheets published by NRPB**

| At-a-Glance | Radiation at Work |
|---|---|
| Partners in Protection | NORM (Naturally Occurring Radioactive Material) |
| Radiation Doses – Maps and Magnitudes | Industrial Radiography |
| Radon | Radon in the Workplace |
| Transport of Radioactive Materials | Dental Radiography |
| Nuclear Emergencies | Security Inspection Units |
| Medical Radiation | Zircon Sands |
| Doses from Discharges | Nuclear Density Moisture Gauges |
| Non-ionising Radiations | Lasers at Work |
| Radiation Protection Standards | |
| Ultraviolet Radiation | |
| Electric and Magnetic Fields | |
| Radio Waves | |

***NRPB website***

The NRPB's website www.nrpb.org.uk was launched in February 1997 and is located on a server at NRPB Chilton. It was developed by in-house resources that developed expertise as the site grew. The site now has some 500 pages and is increasingly popular with a current hit rate of 60 000 per month. The original strategy (that the site still reflects) was:

- to minimise the download time by minimising the picture/graphical content;
- where possible to use existing material – thus although modified to fit the web and to contain appropriate links, little material has been specifically designed for the web;
- to not have an interactive site.

Whilst the site has sections covering NRPB's services, much of the website is aimed at radiological protection professionals, other interested individuals/organisations with a scientific background and the media. There is little material aimed at a member of the public or a younger audience.

***Public and Media Enquiries***

The overall volume of public enquiries has increased over the years. In the 1970s and 80s there were of the order of a few thousand enquiries a year. The Chernobyl accident in 1986 was a watershed for a quantum increase, with some 10 000 enquiries in May 1986 alone. Since then there has been the burgeoning issues of non-ionising radiations from power lines, mobile telephones etc. The current enquiry level is estimated to be some 40 000 per year.

The trend in media enquiries is similar to that from the public: indeed media interest has often driven the level of public enquiries. Inevitably many of the dealings with the media are reactive, but where possible a proactive approach is taken with the preparation of Press Releases on the results

of NRPB's work, distributed to targeted media and news agencies. In addition, these and supporting material, are made available on the web. Whilst this has little influence on the headline writers, or sections of the tabloid press, the availability of appropriate informative text on the web does help increase the probability of NRPB's message being included in articles.

All media enquiries are channelled through the Communications Group and the Group Leader, who has a scientific background, acts as NRPB's spokesperson. He undertakes many of the interviews, but where appropriate arranges for other expert staff to provide interviews. Each request is treated on its merits, but the general approach is to be accommodating, particularly with the major newspapers and television news organisations.

**Strategic review**

In 1999 the Board of NRPB instigated a Strategic Review of the direction and content of the Board's programme of work. The review was divided into a number of broad areas:

- Medical advice.
- Scientific programme.
- Public Perception and Communication.
- Business and Development for Services.

However before looking at relevant aspects of this review it is necessary to mention an important influence.

***Independent expert group on mobile phones***

In April 1999, the then Minister for Public Health, Tessa Jowell, asked the Chairman of NRPB to set up an Independent Expert Group on Mobile Phones (IEGMP) to review concerns about possible health effects of mobile phones, base stations and transmitters. The report of the Expert Group [2], under Sir William Stewart, was published in May 2000. In addition to providing a comprehensive review of the scientific literature, recommendations were also made for Government, for industry on providing more information to the public, on future research and on the role of NRPB. The recommendations in the "Stewart Report" underlined the need for NRPB to develop mechanisms for providing information to the public, as had been identified in the Strategic Review. It also called for NRPB to carry out more work related to health concerns from exposure to non-ionising radiations and to acknowledge uncertainties in scientific knowledge, where they exist. Information about the work of the Expert Group was published on its website and its final report was also made available in this way. It was noteworthy that the IEGMP website had received more than 300,000 "hits" by 4 months after publication of the report; an illustration of the merits of publishing information on the internet.

The work of IEGMP occurred in parallel to the Strategic Review and influenced both the recommendations from the Strategic Review and the Board's decisions on implementing them.

***Medical advice***

The outcome of the review of Medical Advice has a bearing on Communications. The previous focus of NRPB's medically qualified staff had been on occupational medicine and the treatment of radiation casualties. The Review recognised that priorities had shifted to Public Health issues arising from things such as environmental discharges, the presence of power lines and the mobile phone industry. Also importantly, these had to be addressed within the wider public health context eg, BSE, genetically modified (GM) crops, e-coli outbreaks etc. As a result a Public Health Physician with experience in communications in this context has been recruited.

***Public perception and communications***

In developing its recommendations in this area the Review Sub Committee, consulted some 70 organisations including some Government Departments and Agencies, public bodies, cancer charities, industry, pressure groups and the media. Although limited in nature it was useful in identifying the aspects of our Communications that were well appreciated and some where there was scope for improvement. The key messages emerging were:

- Remit
  - there is a need for a clearer remit for the Board;
  - "NRPB remit could usefully be broadened to deal with public concerns".
- Independence
  - some queries over the perception of independence;
  - need to more overtly acknowledge uncertainties in knowledge base;
  - combative/dismissive attitude to outriding viewpoints may be counter-productive.
- NRPB Publications
  - scientific publications seen as scientifically authoritative but not easily digestible.
- Press and Media
  - responsive and authoritative, but some problems in getting technical material over in a simple way.
- Website
  - could benefit from more investment; with separate material for public and specialists;
  - material needs to be more attractive (especially for the public), with pictures, diagrams and simple summaries.

The sub-committee also took notice of a number of government publications [3,4,5].

The recommendations from the review together with the underpinning reasons and the actions taken so far, are given below under a number of headings.

*Clarification of Board's remit*

The primary functions of the Board as laid down in the Radiological Protection Act 1970 were outlined in the Introduction. The second of these clearly places a responsibility on NRPB to advise those with responsibilities for radiological protection, but does not require NRPB to directly provide public information. Historically NRPB has provided some public information as this was seen to be in the "public good" and in the recognition that as a natural focus for enquiries from the public, there was a need to develop efficient methods of responding. However in recent years the volume of enquiries has increased dramatically in line with a general increase in society's thirst for knowledge.

Meeting this new burden within a constrained resource situation must inevitably detract from NRPB's ability to pursue its other responsibilities under the Act. The formal questions likely to be raised by the devolved assemblies in Scotland and Wales as well as the routine Parliamentary Questions, provide another increased burden.

*Recommendation 1:*

The Board should clarify with the Health Ministers its formal remit in providing information to the public on radiological protection matters, and the funding to support the remit.

This is currently being pursued.

*Feedback on Communications*

Communication is a two way street. If NRPB is to communicate effectively, it needs to have mechanisms to get feedback (and be seen to get feedback) from stakeholders and the public in general. At present the feedback comes from NRPB's extensive network of contacts with other organisations and from the enquiries it receives from the public. However there is currently no proactive transparent mechanism for feedback. In 1987 NRPB instituted an "Environmental Issues Panel" which brought together a number of stakeholders, such as Friends of the Earth. However this last met in 1991.

*Recommendation 2:*

- The Board should reconstitute an Environmental and Public Issues Panel, that brings together a number of Public Issues Groups to help inform its Communications Strategy and programme of work.
- (The website should include an interactive element that provides the general public with a route to identify concerns and comment upon the effectiveness of our communications.

With respect to implementing recommendation 2(a) the Board was influenced by the experience of the operation of IEGMP, in particular its use of open meetings in Belfast, Edinburgh, Cardiff, Liverpool and London. As a result the Board will establish an Environmental Issues Forum that will gather opinions from a spectrum of viewpoints. Whilst this addressed one aspect of feedback, the Board wished to ensure feedback over the whole area of communications. It is therefore to establish an Advisory Group on Communications (AGC) that will report to the Board in a similar manner to the existing Advisory Groups on Ionising Radiations (AGIR) and Non-ionising Radiations (AGNIR). Its membership has yet to be confirmed but it will provide input from a broad spectrum.

*Risk Perception*

Risk taking is an unavoidable part of life. However there are some elements of public opinion that tend towards the belief that zero risk is attainable. An awareness of risks and how best to control them needs to become part of society's culture. This is not a matter that NRPB can address alone, indeed if we did we could be seen as moving from the provision of information and advice towards persuasion, with attendant risks to our position of independence. In its Consultative Document "Revitalising Health and Safety" [4], HSC address this issue, the links to other Government agendas and notes "we must find new ways of raising health and safety awareness among the general population through mainstream education and lifelong learning. Better informed approaches to risk could help to keep health and safety issues in perspective as well as ensuring effective control of the risks we can minimise."

*Recommendation 3:*

The Board should actively seek to be part of a "joined up government" approach to improving the public understanding of risk issues. To this end positive links in this area with HSC/HSE and Committee on the Public Understanding of Science (COPUS) should be pursued.

This is being pursued.

*Development of the website*

NRPB's web site has been entirely developed in-house with limited resources, but has been extremely successful, with its use rising rapidly over 3 years to 60 000 hits per month. It is clear from this and from comments received during the sub-committee's consultation process that there is a need to redesign and enhance the site. The website will increasingly become the "public face" of NRPB, and as such will require commensurate resources. There will be many technical and operational issues to address but the broad strands are given below.

*Recommendation 4:*

The Board should assemble a project team, which, within a 2-year timescale, should complete a major upgrade and expansion of the NRPB website including:

- A brighter more appealing image.
- Better navigation and search engine capabilities.
- A major new part of the website to be targeted at the public: to this end all existing publications targeted at the public eg "Living with Radiation", "At-a-Glance" leaflets etc should be made accessible on the web.
- New material targeted at the general public including the younger age group.
- A feedback route for comments on the website and radiological protection issues in general.
- Material targeted at media needs.

This major development of the website was fully endorsed and indeed consultants have already been appointed to help draw up the specification of the website. As part of the consultation exercise extensive use of focus groups will be used to:

- identify what the public and other target audiences want from the website; and
- comment on the effectiveness of different communication styles.

The consultants are due to report in January 2001, and a further contract to build the new website will then be let. The material from the existing publications targeted at the public, e.g. Living with Radiation, At-a-Glance and Radiation at Work leaflets, will be reformatted for the website and the site launched in the summer of 2001. Over the next year new material targeted at a younger age group, typically 10 to 12 year olds will be developed and added. The website will be designed so that those who wish to get a deeper understanding can drill down through different levels, and if desired access the NRPB scientific reports underpinning the information or follow up links to other websites.

*Emergency Considerations*

The website is currently located on a server at Chilton. In the event of a high profile radiological emergency the site is likely to be subjected to an extremely high level of demand (possibly approaching one hundred thousand hits per day from around the world). The current arrangements would not support this and more importantly the traffic would block our ISDN lines and limit our e-mail connections. The latter would be crucial to our emergency response capabilities. A separate issue is that of having relevant prepared material accessible on a website that addresses the needs of the first crucial hours before data specific to the emergency is available.

*Recommendation 5:*

- in order to prevent overload of our website and the consequent failure of e-mail connections during an emergency situation, the NRPB website should be relocated to an Internet Service Provider (ISP) that could cope with peak access demands;
- basic web pages common to all emergencies should be prepared to cover the initial period of an emergency.

The transfer of the location of the existing website will be completed within the next month or so. The specifications for the new website will also address the need to mirror the website at a separate location to provide redundancy and diversity. With respect to recommendation 5(b) although accepted for implementation there are a number of questions that still need to be addressed

- should the Emergency Response material be part of NRPB's main website or a separate site in its own right; and
- should all the material be visible all the time or just during an emergency?

*Publication Routes*

Making many of NRPB's publications available on the website could potentially improve their accessibility, and hence the influence of NRPB's work. The material would be made available in

pdf format readable with Adobe Acrobat (freely available on the internet) so that the contents cannot be readily modified.

Whilst this appears to be the way for the future there are some unknowns in this approach and for the medium term there will be some people who do not have access to the Internet or who simply prefer a hard copy with "acceptable" binding. Thus an appropriate way forward may be a stepwise move of NRPB's publications to the website as the primary publication route, but with facilities to provide hard copy printed versions (at an appropriate cost) where there is the demand. For the foreseeable future, professionally printed copies of the Documents of the NRPB and the Annual Report should remain. However for lower documents, such as Reports, Memoranda and the Bulletin, improvements in photocopiers with "perfect binding" capability should provide a means of meeting the need for hard copy versions, as these are made available primarily on the website.

*Recommendation 6:*

- The primary route for publication of the Bulletin, Memoranda and Reports should be moved to the website, in a stepwise manner. In-house printed versions of the above series should be made available for sale.
- The high profile publications, such as Documents of the NRPB and the Annual Report should continue to be printed professionally.

The above recommendations were accepted, but the Board decided to go further and all publications including the Documents of NRPB and the Annual Report will become available on the website as well as being available as conventional publications.

*Communication Culture*

The responses to the consultation letter identified a number of traits in the organisation's communication culture that may need improvement.

- NRPB's independence will inevitably be called into question, whether it be in relation to industrial and commercial concerns eg, nuclear and mobile phone industries, or the Government. The Organisation has gone to some lengths to ensure its work and income is not dependent on vested interests. The independence from Government is less easy to demonstrate, as the Government line is often on the basis of our advice. Nevertheless, every opportunity must be taken to emphasise NRPB's independence and impartiality.
- There is a body of opinion that suggests not enough emphasis is given to uncertainties in the body of evidence underpinning NRPB advice. This could be more overtly recognised without it detracting from the advice based on the best evidence available.
- There was some criticism that NRPB does not readily seek and respond to the public's concerns. This in part addressed by earlier recommendations but should also be reflected in communications.
- There were comments such as "using response statements … as knee-jerk reactions to any publication off the norm" and "any outriding viewpoint being declared suspect". In essence, being dismissive of (non-peer reviewed) views and "going for the throat" of those with different views, can be counterproductive.

*Recommendation 7:*

The tenor of NRPB communications should reflect that there is a need to:

- place more emphasis on our independence;
- be seen to recognise the uncertainties in the knowledge based;
- be understanding of the concerns of society; and
- not be overtly dismissive of outriding viewpoints.

Some comments have indicated that our scientific publications are not easily digestible. The nature of our work, necessarily has to be precise and secure in a scientific sense, however in presenting the results we need to be aware of the spectrum of background knowledge of the potential readers and reflect this in the text of our documents. The development of a more readily understood lexicon is linked to Recommendation 3, however the addition to publications of summaries targeted at laymen could be the way forward.

*Recommendation 8:*

All published Reports and Memoranda should include a Layman's Summary in plain English. These may be included on the part of the website targeted at the public.

This is being implemented.

**Conclusion**

Since its inception NRPB has taken the view that it is important to communicate across a broad spectrum, including the public. It has developed a range of easily understood publications, targeted at the public, that have been successful and influenced output from other organisations. However the needs and perceptions of the public are not static. Increasingly these need to be addressed within the wider context of other public health issues. Changes in communication technology, particularly the use of the Internet, creates opportunities, and expectations, that need to be addressed. Against this background the Board's Strategic Review has identified a range of actions that when implemented will be a quantum step forward in NRPB's Communication activities, both in quantity and style. However NRPB is also aware that to be effective the quality and soundness of its underpinning scientific work must be maintained. Above all else it must retain its reputation for independence and impartiality.

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1. Radiological Protection Act 1970 (revised to 21 September 1989). Documents of the NRPB, Vol. 1, No. 1, Chilton (1990).
2. IEGMP. Mobile Phones and Health. IEGMP, Chilton (2000).
3. Jenkins of Roding and Fleeming, CP. House of Lords Great Britain "Science and Society", Vols. 1 and 2, 3rd Report Session 1999-2000.
4. HSC. Revitalising Health and Safety: Strategy Statement, DETR, London (2000).
5. Corporate IT Strategy for Government: Guidelines for the use, management and design of public sector websites. Consultation draft version 11 October 1999. See also www.iagchampions.gov.uk\iagc\guidelines.htm.

# THE PUBLIC INFORMATION IMPERATIVE

**S. Copeland**
Canadian Nuclear Safety Commission, Canada

This has been an invigorating morning. We've been on something of a global journey, and I think the speakers have proven, beyond any doubt, that public information is a growing imperative for nuclear regulators around the world.

Several of this morning's anecdotes reminded me of our experiences at home in Canada. We've had successes. I'm sure everyone in this room has had notable successes in expanding outreach to the public. But we've also faced challenges. Plenty of challenges.

The challenges ... the reverses ... even the mistakes ... have, I hope, made us tougher and smarter. Someone recently reminded me of the words of the Victorian writer, Oscar Wilde, whose wit has stood up well for more than a century. "Experience", he wrote, "is the name everyone gives to their mistakes."[1] I can tell you, we in Canada have had a lot of EXPERIENCE.

Fortunately, although the job we face is difficult and becoming more so in these days of heightened public advocacy – no country, and no regulator, is in this alone. That's why this gathering is so important.

## The demand for information

I'd like to look at what we all, as public information specialists, are facing.

Every government, and every regulator, is tried in the strict court of public opinion. Judging by what we've heard this morning, there's no question that the playing field, for nuclear regulators, has changed. In Sweden, in the United Kingdom, Japan, the United States, Spain and certainly in Canada, we're dealing with a more vigilant and more vocal public, a public which expects clear, timely, accurate information, and much more of it.

The public wants the truth, pure and simple. But – again, I hearken back to Oscar Wilde – "the truth is never pure and rarely simple."[2]

As any scientist and regulator knows, technical industries are not easily explained. Today, many regulated industries deal with extremely complex assessment of risks. Exactly how great is the

1. Oscar Wilde, *Lady Windermere's Fan* (1891), Act III.

2. Oscar Wilde, The Importance of Being Earnest (1895), Act I.

risk the public faces, be it from tainted beef, or blood, or from lead in our window blinds? Can our environment survive clear cutting, or dioxins in the water, or a nuclear incident?

The facts are not easy to assess or to communicate. How do you handle a complex issue when the risks of miscommunication are high? Do you wait for full information, a degree of surety, a clear knowledge of what the risks really are? There is no easy answer, but experience in virtually every industry has proven that waiting can be a highly dangerous game. No one is immune from the anger of a public that feels it has been kept in the dark.

The portion of truth regulators DO know must be relayed to the public. But if the facts are not relayed by a credible source – and relayed in a manner that speaks to many widely diverse groups and individuals – regulators might as well be whistling in the wind. Not only are public approval and government credibility at stake. The fate of the industry as a whole can hang in the balance.

**A question of credibility**

When information is scarce, misleading, or badly presented, the result can be allegations of a cover-up.[3] The damage done in such cases extends far beyond a week-or-two's drubbing in the media. Credibility suffers, confidence is shaken. The influence of negative public opinion on regulated industries, and ultimately on regulators, can hardly be over-stated.

All around us, regulated industries are finding that their very survival can depend on adjusting to – in fact, bowing to – public opinion. A few examples:

- Canada's forestry giant, MacMillan Bloedel, is phasing out clear-cutting – largely in response to public concern. The decision has been ratified by its new American parent company, Weyerhaeuser.[4]
- Canada's international French fry giant, McCain Foods, no longer buys genetically modified potatoes. Why? The reason they gave is very blunt. The potatoes may be good science – but they are bad public relations.[5]

**A new era for regulators**

In a similar fashion, the public effectively jettisoned Canada's plan to bury nuclear waste deep in the Canadian Shield. After a decade-long environmental assessment, the Assessment Panel concluded that the concept was technically sound, but the public would not buy it.

3. Juliet Hindell, "Japan nuclear leak cover-up," BBC News, July 15, 1999.

4. Society of American Foresters. MacMillan Bloedel to Stop Clearcutting: Canada's Forest Products Giant to Phase Out Clearcutting in British Columbia, Action Pressures Others to Follow. Bethesda, Maryland: The Forestry Source, July/August 1998.

5. Canadian Press. "Potato board laments McCain decision to drop (good science)." National Post, November 30, 1999.

Their conclusion – and I quote: "While the safety of the ... concept has been adequately demonstrated from a technical perspective, from a social perspective it has not." The concept "... does not have broad public support and does not have the required level of acceptability to be adopted..."[6]

Such decisions signal a new era for regulators. The traditional view may once have been that regulatory decisions were science-driven issues to be resolved by experts behind closed doors. That is simply no longer true. Regulators are dealing with a profound shift in public attitudes, and an often-adversarial public who increasingly recognize the limits of our scientific knowledge, and the potential for harm to both our health and the environment.

**Today's regulatory climate**

Today, the public is less likely to accept government assurances that industry risks are under control. Regulators are dealing with diminished public confidence in government itself, and a widespread belief that the system no longer responds to people's needs.

In Canada, for example, federal regulators spent nine years carefully reviewing Bovine Growth Hormone, a controversial product that increases the milk production of dairy cattle. It was never approved for sale in Canada.[7]

But when lobby groups took hold of the issue, the government's investigation looked more like a case of foot dragging than careful science. The fallout was extensive for the agriculture industry as a whole. A significant portion of the Canadian public put ALL hormones, regardless of definition, into the same suspect bag. And there was a perception that it was the lobbyists – not the regulators – who were the guardians of public safety.

The message is increasingly clear. Regulators can no longer afford to marginalize dealings with the public. Today, if regulators aren't actively interacting with the public, they cannot do their job.

**The public is part of the regulatory equation**

The battle for public acceptance can't be won by "throwing money" at public relations campaigns. Nor can public information be left to a small group of communicators hindered by lack of money and narrow mandate.

We must address issues close to the public heart, with a wide-ranging, long-term public information focus. For better or for worse – and I submit that it is much for the BETTER – the public is part of the regulatory equation. The public must be consulted, understood, read, listened to every step of the way.

6. Canada. Canadian Environmental Assessment Agency. Government Releases Report of Panel Studying the Disposal of Nuclear Fuel Waste. March 13, 1998.

7. Canada. Health Canada. Health Canada Re-iterates Position on rbST Review. October 21, 1998.

**Research and more research**

It is no simple task, however, to understand what the public really wants to know. The starting point has always been the same: research to understand your target audience. Research and more research. The difference today lies in the importance given to this first step.

Regulators might take their cue from the political arena. At a recent Canadian conference on the techniques necessary to win elections, the primary message was loud and clear – and this is a direct quote – "Campaigns are won and lost in the research phase ... marinate yourself in the data."[8]

Political campaign organisers are going well beyond such staples as public opinion polling and focus groups. Regulators should take note. We, too, need to employ sophisticated techniques to understand each segment of the public – a public that will vary from one part of the country to another, from one nuclear site to another.

**Public perception of risk**

It's important, too, that we nuclear regulatory communications professionals share our experiences. We all have similar hurdles to clear. Nuclear regulators deal, every day, with the communication of risk, and all of the emotional baggage that comes with it. We must speak directly to people's concerns.

We are not alone. Some excellent research has been done by health experts grappling with intense public concern over diseases spread by contaminated food. Creutzfeld-Jakob disease, the human cousin of mad cow disease, is a case in point.[9] Experts attempted to truthfully and wisely inform the public: the probability of developing the disease is, after all, low. The upshot? The risk of developing the disease was, in fact, amplified in the public eye.

The problem, as we know, lies in the complex range of factors that influence public perceptions: whether the risk is voluntary or involuntary to the person exposed; whether and to what extent the individual can control the risk; whether the person exposed benefits from taking the risk; and whether adverse consequences are immediate or delayed.

Today, most risk communicators are well aware of these concerns, and of the extreme difficulty of speaking to them. But for nuclear professionals, the job has an added dimension. Researchers say that some risks evoke very negative emotional images, images which make them "dread risks" in the public mind. Mad cow disease, for example, and cancer and – some would say – all things nuclear.

8. Daniel Robinson. "Why the spin doctors are on a roll." Globe and Mail, September 4, 1999. Quoting Ron Faucheux, editor of Campaigns and Elections.

9. Creutzfeldt-Jakob Disease: Decision Making in Times of Uncertainty. Conference Proceedings. Crowne Plaza, Toronto, June 5-6, 1996. Quoting Dr. Paul Slovik's "Risk Perception, Media and the Vulnerable Society: The Social Amplification of Risk from Mad Cow Disease."

**A credible source**

Research highlights not only the difficulty of designing messages that speak to people's concerns, but also the extreme importance of the messenger: the level of trust in the person carrying the message. The current distrust of experts and authority creates a significant problem. Who will deliver the messages? Who will people trust?

Canadians provided an answer to this question in a government-sponsored poll conducted in July. The poll centred on a highly contentious food issue, the regulation of biotechnology. It showed, in no uncertain terms, that Canadians are NOT satisfied with their government's efforts to inform the public.

While they want more information, however, they most certainly do not trust the food industry to provide it – and that mistrust also extends to scientists, who may be influenced by corporate funding of research.[10] According to this poll, the public trusts only independent regulators, academics and health professionals to provide the objective information that cuts through the rhetoric.

The ball, then, is in the regulator's court. Our court. In the past, regulators tended to say very little, and leave the communications job to industry. That won't work any longer, if indeed it ever worked.

Certainly in Canada, regulators and legislators have recognized the need to provide that "objective information" the public wants. Our new Nuclear Safety and Control Act specifically cites the need "to disseminate objective scientific, technical and regulatory information to the public".

That commitment to provide information must be constant and it must be consistent over the long term. The communications handbook published by the International Atomic Energy Agency states this eloquently, "A long-term relationship with one's audience, nurtured over the years, is among the most important investments nuclear professionals can make. It is the foundation upon which to build trust."[11]

**The "tools" to do the job**

How can we build that trust? With a concerted effort to build public confidence in the regulator as a credible, unbiased – and independent – source of information. Here, above all, we need to share our insights and work together.

Today, regulators are leaning heavily toward education: a "tool" that has the potential to change public attitudes and behaviour. Let me give you an example from Canada.

In less than a decade, Environment Canada (our ministry of the environment) vastly enhanced public knowledge of the dangers of ultra-violet radiation – or UV. In 1992, the ministry developed Canada's UV Index. Within a few years, more than 90% of Canadians were aware of the Index, and over half said they took extra precautions when the UV Index is high. UV became a

10. Kathryn May. "Majority immune to biotech health scare: poll." National Post. July 24, 2000.

11. International Atomic Energy Agency. Communications on nuclear, radiation, transport and waste safety: a practical handbook. April 1999.

household word in Canada, and the word spread. More than 20 countries, including the United States, most European countries and many in South America, have adopted Canada's system.[12]

Today, Environment Canada is considered Canada's expert in providing UV information. It has done its job as guardian of public safety by providing the impetus for a change in public behaviour.

Nuclear regulators, too, need to develop educational tools that speak to people's concerns. Our own organization, for example, developed Canada's Radiation Index, which graphically and simply reports on the radiation dose to the public around Canadian nuclear generating stations. People like it. Some 85% of people surveyed found the information useful, and many felt it put radiation in perspective and reassured residents of the low risk.[13]

**Listen and respond**

Public approval, however, hinges not only on delivering the information the public wants, but on providing tangible evidence that we are listening to public concerns. We must, in short, respond. Public acceptance depends on making real changes which speak to people's concerns.

The message that the public wants to hear, and needs to hear, is that governments – and of course, regulators – are listening, and acting on what they hear.

In Canada, the nuclear regulator is increasingly active in the public arena. We held cross-country consultations as we prepared Canada's strong new Act and regulations. We have developed information vehicles such as the Radiation Index and our web site, which we "branded" with a name that says exactly what we're all about: www.nuclearsafety.gc.ca (ou en français www.suretenucleaire.gc.ca).

And we continue to extensively involve the public in our licensing process. All licensing hearings are open to the public, and any member of the public can formally intervene. We feel we are on the right road – but we have only begun.

**Building trust**

As we all know, nothing is harder to capture, or easier to lose, than public trust. And that, of course, is what brings us here today. We have come together to share our insights on how to build and maintain that trust.

This conference marks a substantial investment in learning and in our common future. Together, we can work to build our credibility, not only as a source of expert science, but as regulators who act on public concerns. The onus lies on us – all of us – to find ways to pool our expertise, not only over the next three days, but in the months and years to come.

12. Canada. Environment Canada. The UV Index – A Canadian Success Story. Backgrounder on website.

13. Canada. Atomic Energy Control Board (now Canadian Nuclear Safety Commission). Evaluation of the Radiation Monitor. A report prepared by Creative Research International Inc., May 1996.

# MAIN RESULTS OF THE SURVEY ON THE INTERACTION BETWEEN NUCLEAR REGULATORS AND THE PUBLIC

# MAIN RESULTS OF THE SURVEY

**A. Jörle**
Director
Head of Communication and Public Relations Department
SKI, Sweden

A survey conducted on the occasion of the Investing in Trust Workshop received 12 useful answers from 11 countries operating nuclear power plants and one operating another kind of nuclear installations.

All respondents saw public information as a key function in their organisation. It was also clear that most of the respondents have some kind of unit for coping with public interaction. The skills of the staff used for this purpose vary a lot between different regulators and so does also the way media is handled.

Manly did the person responsible for public communication is also part of the senior management team, a position considered important for anyone responsible for handling these questions.

It is also usual practice among the regulators to provide training for staff who have to deal with media.

Most respondents do see local residents in the surroundings of a nuclear facility as a target group that needs special attention. Only one out of four conducts investigations or surveys to monitor the need for public communication and finds important target groups. A conclusion of this might be that we in general have little knowledge of our audience and their expectancies in our activities.

In most countries the public has the possibilitiy to participate in public hearings, normally on licensing matters, in a few countries also as a part of the regulatory programme on a licensee.

About half of the respondents say that public information issues are taken into consideration in the decision-making process.

Another theme of the workshop was to cope with the question whether regulators distribute their knowledge and actively communicate findings from regulatory work or rather file it in a drawer to be used later.

One answer to this is that all regulators see themselves as experts on behalf of the public. They also in general believe that the public looks at them in that way. One remark should be noticed; *if they know of our existence!*

Sharing experiences could be achieved in the area of internal communication. Few of the respondents today seem to have formally organised routines for exchanging information between the PR department and technical staff.

For communications with the public, media is considered the overall most important tool. But it should be noticed that the respondents have their own web page.

# SESSION 2

## Opportunity or Nightmare?

*Chairman: J.R. Croft*

# TALKING WITH THE PUBLIC ABOUT REGULATING HIGH-LEVEL WASTE DISPOSAL: RECENT PROGRESS IN RISK COMMUNICATION

**C.W. Reamer, J.P. Kotra and T. Bloomer**
Division of Waste Management
U. S. Nuclear Regulatory Commission
United States

## Introduction

Building and maintaining public trust that the U.S. Nuclear Regulatory Commission (NRC) is an effective and independent regulator, is explicitly stated as a performance goal for the agency. To be fully effective in carrying out our mission to protect public health and safety and the environment, the public must view the NRC as a reliable, objective, open and efficient regulator. The NRC has always sought to afford the public access to our decision making process. More recently, however, we have come to better appreciate the value of dialogue with stakeholders and the importance of expanding the opportunities for public interaction and participation in our regulatory process. In particular, in developing new, site-specific regulations for a proposed geologic repository at Yucca Mountain, Nevada, we have found the need to adapt and expand our efforts to inform and to involve the public in our decision-making process. The institutional changes made to carry out this new approach, and the positive, albeit preliminary, responses to these changes are discussed in this paper.

## Background

As an independent, federal regulatory agency, it is NRC's job to protect public health and safety and the environment from the potential adverse consequences of the disposal of high-level radioactive wastes. Under U.S. law, the NRC must regulate the U.S. Department of Energy (DOE) to assure safe waste disposal in a proposed geologic repository. The DOE is evaluating a site at Yucca Mountain, Nevada, for possible development as a geologic repository. The DOE is preparing an environmental impact statement, and it is the DOE's responsibility to decide whether or not to recommend the site for development as a repository. If the DOE recommends the site, and if the U.S. President and the U.S. Congress approve, the DOE will then submit an application to the NRC for authorisation to construct a repository. Meanwhile, it is NRC's obligation to establish protective technical and licensing criteria, using a public process-criteria that NRC must use to decide whether to approve a repository license application. If the Yucca Mountain site is approved, the NRC must decide whether to permit construction, and, later, whether to license operation of the repository. If the NRC grants the DOE a license, the NRC must also assure that the DOE complies with the NRC's regulations.

**Involving the public in the development of new regulations**

In February 1999, the NRC proposed new regulations for the proposed repository at Yucca Mountain, seeking public comment. Before the end of the time specified for public comment, staff of the NRC's Division of Waste Management held public meetings on the proposed regulations. Scientists and engineers who had drafted the Commission's proposal, went to Nevada to discuss the timing and technical content of the NRC's proposal, to answer questions, and to invite comment from the public. Photocopies of the proposed requirements, as they had been published, and copies of the presentation slides used by the speakers were provided to the audience. Little dedicated preparation time was afforded the assigned speakers outside of their technical duties, before the meetings. While clearly knowledgeable about the technical bases for the proposed requirements, and experienced with presenting the difficult technical and policy issues associated with the proposal to scientific and technical audiences, the speakers were not prepared for the range and intensity of questions and comments elicited from the audience. Many participants had questions about issues that were not directly applicable to the proposed regulations, such as the safety of transporting wastes, but which reflected deep interest and concern. Over the course of the meetings, the questions and comments from the audience clearly indicated that the speakers had not succeeded in communicating the reasons behind and safety of the NRC's proposal. Attendees made statements such as, "I hear what you are saying, but I just don't believe [you]" and expressed scepticism about the integrity of the regulatory process, strongly indicating a lack of confidence in the government, in general, and the NRC, in particular. In the days following the meetings the local press printed articles with headlines that reflected the public's mistrust and concern: e.g. "Residents rail against Yucca project's proposed radiation rule" and "NRC gets cynical reception at Beatty (a town near the proposed repository site)." These observations confirmed by written comments received after the meetings, convinced the staff of the Division of Waste Management of the need to improve our preparation and approach to future interactions and involvement with the public.

**Lessons learned**

Reflecting on this experience, the staff sought to identify where we might improve so that future attempts to engage the public would meet with greater success. By success I mean, that such future interactions would better support our mission, to protect public health and safety; better reflect the NRC's commitment to be open and receptive to public input, and better serve to enhance public confidence in the NRC. Many commentators complained that the public comment period on the proposed regulations was too short, especially given that the same people expected, over the course of the same few months, to read, understand and comment on various other government documents related to the proposed repository (from the DOE, NRC and, potentially, the U.S. Environmental Protection Agency). The staff immediately sought and received authorisation to extend the public comment period, to allow for broader public involvement, and more time for those interested to understand and evaluate the technical information and policy implications. Besides showing that we had heard the public's concern by providing an affirmative response to the specific request, this extension also allowed time for the NRC to review the transcripts of the earlier meetings, and to catalogue the comments and questions raised at the meeting. It also enabled the staff to provide personalised answers to certain specific questions that were raised, but not answered properly at the meetings.

We recognised that scientific and technical staff members, while they may be effective communicators among their peers, are used to interacting with other technically-trained specialists who insist on technically precise and complex explanations of technical and policy issues. They are not, generally speaking, familiar with risk communication nor are they trained public affairs

specialists. As a result, such professionals often use technical jargon and acronyms in their presentations, rather than the more direct, plain language explanations the public seeks and has a right to expect. To address this problem, the Division of Waste Management obtained expert training in risk communication, and is expanding the number of staff receiving training in conducting public meetings. All presentations are now reviewed for clarity and plain language. Working closely with a trained facilitator, the meeting format was restructured such that formal presentations, if needed at all, are much shorter, and are punctuated with multiple opportunities for questions and dialogue. Other formats, such as public round table discussions and poster sessions have also been used to advantage.

To co-ordinate and carry out this more ambitious approach to public interaction, we established a public outreach team, comprising technical and support professionals from a variety of disciplines. Among its many responsibilities, this team has recently completed preparation of a Communication Plan for NRC's HLW regulatory program. This plan clearly explains the goals and messages of NRC's communications activities, among these being the need to clarify the NRC's independent role, authority and processes for assuring public health and safety of spent nuclear fuel and high-level wastes while they are stored, transported, and disposed. In addition to identifying the important role of providing accurate and timely information to all interested stakeholders, the plan emphasises the value of establishing and maintaining positive relationships with communities of stakeholders, of actively engaging stakeholders by soliciting input; using stakeholder comments to develop and improve NRC products, and of providing specific feedback on how stakeholder input has been considered.

To implement this plan, the outreach team has begun developing communications tools that aid the technical staff in conveying key policy and technical messages. For example, the team has reviewed transcripts of past public meetings, and is preparing answers to expected questions. Whenever we expect issues beyond the scope of our meeting or, even the responsibility of the Division of Waste Management, we are inviting staff from other offices or divisions with appropriate expertise (for example, regulation and hazards of the transport spent fuel). In addition, team members have provided comparable support to public meetings conducted by other divisions and offices, thereby expanding the knowledge base of our own staff, and fostering greater consistency of the NRC's message in the public square.

Also, team members are working with NRC's contractors at the Center for Nuclear Waste Regulatory Analyses to identify key scientific and regulatory concepts for "translation" from technical to plain language. To support future public meetings, we are developing new handouts and displays that we believe will help our stakeholders to better understand our policies and the technical bases for our conclusions. As this team continues to work together as a group, we expect that it will identify more and better ways to support the public communication goals of the NRC's HLW program.

**Results, so far, are encouraging**

This new approach was received positively at subsequent meetings during 1999-2000. Management commitment and intensive preparation by the staff; training and rehearsal by all speakers, anticipating questions and discussing appropriate answers in advance have all contributed to more constructive interactions with the public in Nevada. Follow-up meetings on the proposed NRC regulations and on NRC's regulatory process, generated many high-quality comments from a wider array of stakeholders. In addition, these meetings received objective, local press coverage of our message (*for example*, articles entitled, "Residents tell NRC they want safety" and "Independence vowed on nuclear waste decision"). All of these suggest that we are on the right track and are making progress.

**Conclusion**

The new approach to public involvement that we are pursing in the NRC's HLW program comprises many small, rather basic improvements that, in all candour, have been long overdue. Taken together, however, I am convinced that these steps are moving us toward a more inclusive regulatory process. By engaging the public earlier in the regulatory process and listening to their issues and concerns, and by providing clear and honest responses, we are earnestly working to build public confidence and trust – trust that can enhance our ability to protect public safety.

# PUBLIC AND MEDIA RELATIONS: SATISFYING EXPECTATIONS

**T. Varjoranta**
Director
STUK – Radiation and Nuclear Safety Authority, Finland

**H. Hautakangas**
Information Officer – The Finnish Fair Corporation, Finland

## Abstract

Final disposal of spent nuclear fuel into the Finnish bedrock has been studied more systematically in Finland since 1983. The work, covering siting, technical plans and safety research and analytics, has been based on the decision made by the Finnish Government. The responsibility, both operational and financial, of the waste management, including disposal, lie with the waste producers who have formed a joint private waste management company Posiva Ltd. Radiation and Nuclear Safety Authority, STUK is the independent safety regulator.

Already a few years ago STUK became concerned about results of some studies indicating that the knowledge of the general public about safety related issues of the final disposal was poor and frequently incorrect. Taking also into account that the host municipal has legal veto right in the siting process of the final repository for spent fuel, STUK considered important that especially the local people and decision makers have correct information, understand that information and their attitudes would willingly emphasize safety. Therefore, STUK initiated a profound study in the Helsinki University with the following objectives: to find out if the local people, decision makers and media wish STUK to play a role in communication, and if so, what they expected from STUK. The main results of the study, which are explained in more detail in the paper, showed that a proactive "referee" role by STUK was appreciated. The results also revealed how differently from experts the local public viewed risks, how local people and media were interested in very pragmatic everyday safety related issues rather than the long term safety challenges that kept experts occupied. A programme for cooperation and direct communication with the public media, including oral and written materials, seminars and discussion meetings, was established and carried out by STUK. The programme and activities of STUK were solely based on the studied needs of the local public and their representatives (elected ones, municipal administration, civic and environmental organizations) which they communicated to STUK. STUK representatives from the Director General to inspectors were a frequent guest in communities, as well as in local and national media. STUK's main objective in this area is to build credibility and public's confidence in the high quality and transparency of the decision process of the disposal project itself. The objective is not to gain the public's acceptance as such for disposing the waste.

The co-operation programme has been on-going now for three years. The reception of STUK in municipalities where site investigation have been carried out and in the local media has been

positive. Safety issues have been discussed and handled in a passionless and businesslike manner. Issues have been relevant. STUK intends to continue the proactive interaction with the local public and media based on their needs and transparency.

**Clear need for STUK for public information process**

STUK had two main reasons to initiate a public information process: Firstly, the Finnish Nuclear Energy law gives an indisputable veto-right to the municipality in siting of the disposal facility. Therefore, it is of uttermost importance that democratically elected local decision makers have adequate knowledge inter alia on safety issues enabling them to make a quality decision on such an important and far reaching decision as to host a final disposal facility. Secondly, however, recent studies showed clearly that knowledge of basic safety issues related to the final disposal was poor among the Finnish public.

The licensing of a radioactive waste final disposal facility involves three licensing steps in the Finnish Nuclear Energy legislation:

- Decision in Principle by the Council of State: before this decision can be made, three main conditions must be fulfilled: Environmental Impact Assessment is done and reported, a community has voluntarily and formally committed to host such a facility, and STUK has preliminarily assessed the safety of the disposal project. If Council of State decides to favor the disposal project, the decision must be taken for Parliament's endorsement.
- Construction Permit, and
- Operating License.

Studies showed that the Finnish public's knowledge on basic safety facts of final disposal was poor: their "beliefs" were almost opposite to the findings of natural sciences. Majority believed they received the largest portion of their annual (natural) dose from radioactive waste, many thought that direct radiation from a disposal depth (500 m) is a risk to humans above ground and that radioactive waste in Finland is a larger radiation risk than operating nuclear reactors. Almost half of the people believed that after deep disposal, it is impossible to walk, fish or hunt near or at the site due to radiation. About half of Finns involved in the study said that it is difficult to get reliable information concerning final disposal, more than half considered the information available contradictory. But clearly more than half considered STUK and the Ministry of Trade and Industry as reliable sources of information.

Final disposal of spent nuclear fuel into the Finnish bedrock has been studied more systematically in Finland since 1983. The work with target schedule, covering siting, technical plans and safety research and analytics, has been based on the decision made by the Finnish Government. According to this decision, the target for the Decision in Principle by the Council of State was by the end of the year 2000.

**STUK's strategy and approach**

The starting point in addressing public information was decided to be a typical quality approach. Namely, when people get what they expect, the quality of (or satisfaction to) that product or service is considered good. The nature of the result is more relative than absolute.

The objective was to understand which safety issues concern the public, and to understand why they percieve these safety issues as they do. The underlying assumption was that the public's approach to reasoning safety issues and risks may differ from that of the experts.

Therefore, the key theme was first to clarify and understand what people and the decision makers expected from STUK, if anything, and what kind of a role they wished STUK would take.

Due to the key role of municipalities in decision making, the main efforts and resources were decided to be focused on municipality level. Three sites where site investigations were in process were involved in the study.

From the beginning STUK had two main objectives

- to support local decision makers by improving factual knowledge base in safety matters; and
- to gain public confidence in the decision making process. Objective was not "public acceptance" as such, that was seen as the main objective of the implementer.

It was also clear from the beginning that this initiative would not be a project but a process. Helsinki University was contracted to carry out the studies in three site municipalities. Due to the sensitive nature of the issues, a profound theme interview methodology was used. STUK also decided that based on the results of the study, the strategy would be adjusted and an action plan be prepared and implemented.

**STUK's public information process**

The main objectives of STUK's public information initiative were, and still are, twofold: to increase understanding of the conception of risk among local public in Finland and to find out and satisfy expectations of the local people related to the safety aspects of the final disposal of spent fuel.

**Risk – one word with many meanings**

For STUK, it was important to first understand how laymen perceived risk in order to address risk in a meaningful way and to enable a fruitful dialog with laymen.

Expert and layman perceive risk related to the radioactive wastes in very different ways. Risk is much more diverse issue to the layman than to the expert. With radioactive wastes, the expert considers risk almost without exception as a threat related to health. In addition to health, the layman senses threats to other matters of his/her wellbeing; to the livelihood, to the value of his/her property that has taken so much effort to acquire, to the image of the community and its wellbeing etc.

Where the expert knows that radiation follows the laws of nature and is therefore intelligible and non-mystic, the layman has a strong feeling, that in the end the risks and hazards related to radiation are uncontrollable and unmanageable. To the expert, risk means multiplication of probability and consequence, in other words expert considers probability and consequence together. In this context probabilities have no meaning to the layman. The layman sees risk equal to the worst conceivable consequence and reacts accordingly. In other words, even the most improbable risk is a risk that can materialise and therefore it may happen.

The layman often objects the use of probabilities that he/she has difficulties to understand. He/she feels that unknown risks are hidden behind probabilities. If the worst case is easy to comprehend or if the layman can recall memories with related emotions which are somehow connected to it (such as Chernobyl accident and his/her feelings, maybe fear and anxiety), risk is easily considered much more probable than it really is. Also, if risks related to a matter are often discussed, those risks can in people's minds become much more probable than they really are.

One's own beliefs can also function as an effective, even though unintended, filter while receiving new information. If a piece of new information does not strengthen one's beliefs, it is often considered as unreliable or even misleading. Information supporting own beliefs can, on the other hand, be taken for granted, even if invalid.

As a summary, STUK tries to avoid entering fruitless confontrations in which safety matters are discussed in a manner that aims at increasing feelings of insecurity and denies the scientific-technical controllability of wasted management.

**Municipalities' main expectations from STUK**

There were two main expectations of the municipalities that became evident from the study. Firstly, municipalities wanted to get much more information about everyday, above the ground and 1-100 year time frame safety issues and problems. Long-term safety issues which are in the focus of scientific community were also important but that much to the municipalities. Secondly, they expected STUK to take more active and visible role in their municipalities.

Municipalities felt that there was a big lack of information about the safety of transfers of spent nuclear fuel from the temporary storage facilities to the final disposal sites and about the safety of the encapsulation facility in which the spent nuclear fuel is repacked for underground final disposal. Information on issues like risks and radiological consequences of traffic accidents, terrorism, vadalism, need for evacuation in case of accidents, how often spent fuel would be transported and via which routes would be used were indicated by municipalities.

Municipalities wanted to know more about regulatory framework and control; which organizations do it, how it is done in practice, how final disposal will impact normal everyday life in the community, and how safety can be quaranteed in practice.

Many of those involved in the study mentioned that they are not emotional about the disposal but base, or want to base, their opinion on facts. Nuclear waste in the municipalities was not considered in general "so dangerous" even though it was recognized by many that total safety can't be quaranteed.

Lack of knowledge in basic facts, including those of safety, was recognised to make understanding and participation difficult. It was evident that the sufficiency of information is a challenging question; a lot of information exists but does not reach municipalities. Some information is not difficult to understand but it is not at all presented in an interesting way; municipalities said they are often tired to take time and deepen themselves in information.

It is mostly STUK who should satisfy the above mentioned expectations accoring to the municipalities. They also expressed that STUK should be an impartial and independent party in the information network, discussion and in the process as a whole. STUK was also wished to take a more proactive and visible role as a "referee" and participant in the final disposal process.

This “referee” role for STUK was expected rather strongly. Municipalities were not at all happy of contradictory, one sided, biased and unbalanced information they felt they were receiving from environmentalist groups and nuclear industry; “yes-no” type dialogued between these actors were not considered fruitful. STUK was wished to state clearly to the municipalities which information is right and wrong. Otherwise, municipalities felt it was difficult to create a total, helicopter view of the disposal question. Local people would only get tired of the information and the whole process.

**Satisfying the needs of the municipalities**

Based on the results of the study STUK decided to reconsider its information policy and strategy. The main principle of “supplying only correct information for the public” was refined to “supplying best information available promptly upon request”.

A plan of action was drafted and implemented to satisfy the municipalities’ expectations for STUK. The main elements were the following:

- commitment and visibility of STUK’s highest management in municipalities;
- discuss only safety technical issues (no participation on energy policy issues);
- decouple nuclear energy issues (construction of new nuclear power units in Finland) from nuclear waste issues;
- main focus and resources to municipality level (less on national or international level);
- all activities based on needs of municipalities;
- STUK acts on municipalities’ side and promotes confidence in the process (in this role STUK is not independent and does not promote public acceptance as such);
- STUK creates active contacts with municipal decision makers and interest groups;
- as per municipality requests and STUK’s own suggestions, STUK will participate in seminars, discussions, panels, and prepare materials for use by;
- emphasise the importance of domestic competence in the final disposal of spent fuel process and that safety can be best assured if the process continues without interruptions;
- adopt attitude to trust and help media make good articles and reviews about final disposal issues (again, focus on local and district newspapers, radio and TV-stations).

In light of the above, STUK undertook activities to satisfy the expectations of the municipalities. These activities included the following:

A special tour by STUK’s highest management to all municipalities involved in the disposal site investigations: Management met with local decision makers, media and interest groups to inform them about STUK’s information initiative and to discuss all aspects of mutual co-operation.

Preparation of written materials: Emphasis was given to above-the-ground-level, everyday and 1-100 years timeframe issues as wished by municipalities. In formulating the texts, clarity was considered more important than scientific correctness; “monk Latin” was tried to be avoided.

STUK www-pages: Internet pages include relevant and up-to-date information about disposal process. All important statements and position papers STUK prepares for Ministry of Trade and Industry are published in www-pages (for example STUK's reviews concerning waste Implementor's Environmental Impact Assessment (EIA) report and the license application for Decision in Principle).

Participation in occasions organized by municipalities: Municipalities organized several seminars, discussion meetings and panels where STUK participated actively and cost-free to the municipalities. With the municipalities STUK organized a lecture series on generic radiation and final disposal issues in local folk high schools. Upon request by the municipalities, STUK also participated some EIA meetings.

Co-operation with local and national media: STUK organized periodic and milestone based briefings with press, radio and TV. STUK considers media a very important actor simply because STUK's information to municipalities is mainly delivered by media since STUK's own resources are not big enough for a large scale information delivery process. With STUK's helping and supporting attitude, the reception in media in general has been good. One indication of this is the number of direct quotations of STUK material and statements in media. The tone of articles and interviews has also been passionless and businesslike.

Meeting the members of the Parliament: STUK has met members of the Parliament twice; once on their request and once on STUK's. In the latter, main emphasize was to create a channel for the future cooperation between STUK and special advisers of Parliament members.

**Conclusions**

As a summary, STUK has good experience about its information process to the Finnish public. However, we do not believe that what has worked well in Finland would necessarily work well in another country. We don't believe that there is a general way or a global method to carry out a successful public information process; this challenge has to be approached on a basis which recognises local needs, dialogue and media cultures specific to the area and country in question.

For STUK the key success factors have been:

- Main resources are focused on municipality level (less on national or international level), including visible participation of STUK's highest management;
- all activities are based on the needs of the municipality;
- STUK acts proactively on municipality's side and promotes confidence in the disposal process;
- STUK emphasises the importance of the domestic safety-technical competence in the final disposal process and that safety can be best assured if the disposal R&D process continues without interruptions;
- attitude of trust and help to the media to support them to make quality, many-sided reviews and articles about final disposal issues;
- transparency towards public as well as scientific community in all issues and details of the final disposal project; and
- providing promptly best available information to the public and media.

# PREPARATION + CONSULTATION = BETTER REGULATION

**W. Bines**
Health and Safety Executive
London, England

## Introduction

The extent to which interested parties are consulted in the development or review of legislation, related procedures and guidance varies widely from country to country. If asked at all, the question is often how far to involve those outside the regulatory body. In the United Kingdom (UK), it still varies considerably between different government departments and agencies. In Great Britain (GB), the Health and Safety at Work etc. Act 1974 has always required the Health and Safety Commission (HSC/the Commission) to consult "any government department or other body that appears to the Commission to be appropriate (and, in particular, in the case of a code relating to electromagnetic radiations, the National Radiological Protection Board)" when developing approved codes of practice, but HSC has long gone beyond this limited requirement. In recent years, the amount and nature of consultation has developed, also reflecting the Government's commitment to openness and transparency. This paper describes the recent experience of the HSC and its executive arm, the Health and Safety Executive (HSE), in consulting over implementation of the bulk of the revised Basic Safety Standards Directive 96/29/Euratom (the BSS Directive) and provides a personal assessment of the successes and challenges of this approach.

One of the implications of adoption of the BSS Directive, which replaced Directive 80/836/Euratom as amended by 84/467/Euratom, was the need, in GB, to revise the Ionising Radiations Regulations 1985 (IRR85). These Regulations had implemented the bulk of the provisions of the 1980 Directive (as amended). Their successor would contribute similarly to the UK's implementation of 96/29/Euratom. The development of this legislation is undertaken by HSE, working to the HSC. HSC recommends draft health and safety legislation to the appropriate Minister.

## Living in the comfort zone

### *Pre-adoption*

As HSE led for the UK during the negotiation of the revised Directive, we were well placed to see the development of the text and therefore to start to make preparations for implementation. Prompt implementation is one of the guiding principles of the UK Government, therefore we recognised that it would be imprudent to wait until the implementation clock actually started ticking before taking action. Although the agreed period for implementation was longer than we had dared to

hope for, this proved a wise move. We were also determined to take advantage of the need for revision to reflect lessons learned during 10 years operational experience of IRR85. A further opportunity was to simplify our (separate) implementing legislation for another Directive, 90/641/Euratom (the "Outside Workers" Directive), again in the light of operational experience, and to incorporate it within the revised Ionising Radiations Regulations where it properly and logically belonged.

To this end, we had already held one small seminar in October 1995 (invited audience largely comprising known interested parties – employers and employee representatives, also a couple of professional societies) to bring folk up to date with the development and likely implications of the revised Directive. Then, early in 1996 HSE issued an informal consultation paper on strategic issues relating to revision of IRR85. The distribution was limited (c.135 copies) but covered representatives of the full spectrum of interests, including government departments, employers, trades unions, local authorities and professional societies, The issues included the structure of the revised regulations and broad proposals for a more transparent approach to the recognition of the capacity of qualified experts ("radiation protection advisers", in UK legislation). We received 57 substantive responses to this document, largely supporting HSE's proposals. This helped to direct the broad approach to preparing revised regulations and gave us some confidence that, at least in general terms, it would be acceptable.

**Topic groups**

Even before the October 1995 seminar we had been setting up 11 topic groups for developing the detailed proposals, though they were not activated until fairly late in 1996 (the Directive was adopted in May 1996). The topics were:

- reporting and authorisation;
- justification;
- assessment and restriction of routine exposures;
- organisation for exposure restriction;
- classification and monitoring of areas;
- natural radiation;
- emergency preparedness;
- medical exposures; and
- control of radioactive substances.

The purpose of the groups was to act as a network and allow speedy development of proposals within the particular topic area. Each group had an HSE policy coordinator and consisted of both HSE field and specialist colleagues and representatives of industry and employees. Again the outsiders were largely chosen by HSE, though we were willing to add anyone who learned of the groups and specifically asked to be included. In the event, this willingness only resulted in a few additional names, none from pressure groups.

For each group and topic, we prepared papers describing the current situation (ie under IRR85), the Directive requirement, whether this was new and/or whether implementation would require a change, whether other influences (eg operational experience, or revised HSC or Government policies) justified suggesting a change, and proposals for achieving implementation. We refined our proposals as a result of responses, sometimes an iterative process, using the conclusions to establish a

provisional line for implementation. This was then used as a basis for preparing detailed Instructions to Solicitor for drafting the revised regulations. We found that writing the policy proposals papers took much longer than expected and, partly because of internal pressures, we were overambitious with the timetabling.

While we found to our cost that the topic group approach was not foolproof, it did help to identify and iron out potential problems at an early stage and to give some confidence that our detailed planning should be along the right lines. Consultation at this stage was essentially paper-based, although we held another small seminar in April 1997 for about 60 people (a similar invited mix as before). This gave us the opportunity to explain our intentions, also to report on the progress of the topic groups and our conclusions so far. It also allowed those who would be affected to comment on the acceptability and implications of the intention and the proposed means of execution. Any lack of clarity was also challenged, which makes such occasions a useful test bed.

**Assessment of the preliminary process**

Although, at this stage, we were living reasonably within the comfort zone for communication in that we were largely choosing our informal consultees, they were very vocal when they felt it necessary and gave us at least one surprise. This concerned dose limitation. The UK had negotiated the Directive on the basis of wishing to retain annual dose limits and therefore assumed that it was appropriate to propose these at the implementation stage. However, we found a pocket of unexpected disagreement. Although, as expected, no-one could identify an actual situation when averaging dose over five years would be necessary nevertheless some employers (in the nuclear sector) were loath to relinquish the flexibility apparently offered in the Directive by the five year dose limit.

It is important to keep internal colleagues on board during the development stage, and we therefore included them in the topic groups. We were lulled into a false sense of security by their comments during this phase, and their later strong opposition to a few policy lines that we thought had been agreed caused some difficulties (see paragraph 16). This probably proves the point that, where there are competing demands, both internally and externally consultees' minds are only really focused at the late, even final, stages. Often this is genuinely the reason. But occasionally the harassed policy maker may be forgiven for feeling a touch paranoid when suspecting that brinkmanship is being practised.

**Open consultation**

HSC publishes formal Consultative Documents (CDs) in respect of all proposals for legislation and approved codes of practice (ACOPs, which have a quasi-legal status in the UK). Copies of CDs are sent automatically to statutory consultees and to those people who the relevant policy section identifies as being likely to have an interest. The lists include government departments and agencies, employers' and employees' organisations, local authority associations, professional societies and bodies, public interest bodies and groups and individuals known to have a specific interest. The issue of a CD is publicised through a news release and copies are freely available on request. CDs are now also available for viewing and downloading from the HSE web site on the Internet at www.hse.gov.uk/new/index.htm where the user is invited to complete their details and download a pdf file.

The CD "Proposals for revised Ionising Radiations Regulations and Approved Code of Practice", CD 127, set the scene by describing the background to the development of the revised

Directive and therefore the need for revised regulations. It then described both general and specific features of the draft regulations and ACOP, explained what was being proposed and why, and asked specific questions to which the HSC sought responses. It also contained a cost/benefit analysis and a first draft of additional, non-statutory, guidance to help commentators to see how it was envisaged that the proposals would work in detail. The questions were reproduced in a proforma for optional use. They could generally be answered quite simply, by choosing either "Yes", "Yes with reservations" or "No" against a formula "Do you support the proposal for..." or variations thereon, with room also for detailed written comments if wanted. In other cases a straight choice of options was offered. The system worked well in that we had created an electronic database so that a simple record of "Yes" etc. responses could be entered for each commentator and question, allowing us to readily total the responses to give a general picture of reactions.

During the four month consultation period HSE, in conjunction with the UK Society for Radiological Protection, undertook a series of seminars in five different venues around the country (including Wales and Scotland) to explain the proposals. The purpose was to help ensure that responses to the CD would be based on understanding rather than misconception, also to alert HSE to any potential problems. These seminars were open to all on payment of a small fee; in total, some 430 people attended and there were useful exchanges of information, including the identification of difficulties with a set of values for the notification of certain incidents (confirmed in the written responses). In relation to this point, it was subsequently shown that inappropriate scenarios had been used to calculate the values and HSE had to hastily set in hand additional work to ensure that the relevant values in the final regulations would achieve the intended result. This was a clear example of the value of consultation, although it was disappointing that the amendment should have been necessary.

**CD responses**

HSE received 185 responses, the vast majority within the consultation period, and the web site recorded a steady stream of hits. Most commentators used the pro forma for their response, either extracted or copied from the CD or reproduced electronically by themselves in full or simplified version. As well as giving us a statistical analysis of support, the simple response options (Yes/Yes with reservations/No) also helped us to interpret any narrative comments, where these were not otherwise obviously consistent. The danger of not properly recognising or understanding concerns expressed in long narrative comment, not directly related to a question, was demonstrated in the case of a response from a pressure group. The concern, which was based on a misunderstanding, was eventually successfully addressed during almost fortuitous discussions at a seminar on another CD relating to implementation of the BSS Directive. Prior to this there had been two meetings with the Minister of State at which the matter had been discussed but not resolved.

Seven of the CD responses were from known pressure groups (including Friends of the Earth, Greenpeace, the Low Level Radiation Campaign, Nuclear Free Local Authorities and one individual known for her ongoing concerns). Some other respondents, particularly local authorities, had clearly been primed to make similar comments. One consistent theme was opposition to the proposals relating to Justification, which remains an unresolved problem. Others, not necessarily consistent, were: non-acceptance of the risk factors (opposition to ICRP); objection to the loss of the additional dose limit for the abdomen of a pregnant worker (no longer in ICRP or, therefore, the Directive); objection to the revised proposals for the investigation level (linked to a level of dose during the year and intended to help check that exposure was being kept as low as reasonably practicable – again not a feature of the Directive); and misunderstandings about the provision for exemption from notification and confusion over its (nonexistent) relationship to exemptions and

authorisations for discharges and disposal of radioactive substances, also the principles adopted for clearance and recycling. The latter concerns were quite properly not considered in any detail in our CD, as they are the subject of different legislation. However, it is understandable that the mosaic of legislation that makes up complete implementation of the Directive requirements in the UK is not clear to the public. With the benefit of hindsight perhaps we should have tried to explain the full picture briefly in the Background chapter of our CD, although that part was 164 paragraphs long just dealing with matters directly relating to our proposals.

**Post-CD**

Where responses revealed the need for further discussion or more work (one example has been previously indicated), this was undertaken on an informal and targeted basis to resolve the issue. In particular, supporting procedures and guidance were developed in consultation with those who were known to have an interest in those issues, either identified from previous knowledge or from responses to relevant questions in the CD.

It was at this stage that we became fully aware of our colleagues' unhappiness with our revised proposals for the recognition of the competence of radiation protection advisers. This caused a considerable amount of additional discussion and work to reach an agreed compromise, at a point when we were running out of time and needed to finalise the legislation and get the necessary supporting procedures in place.

The Ionising Radiations Regulations 1999 (IRR99) were made later than we had hoped, in December 1999 to come into force on 1 January 2000. This therefore allowed very little lead-in period for employers to bring themselves into compliance. However, most employers were already well in the picture from the consultations already described. That month (December 1999) we also undertook another series of presentations around the country, again in association with the Society for Radiological Protection, to explain the final package and answer questions. 433 people attended these seminars and responses were generally very positive with few significant problems.

**"The Radiation Protection Adviser" newsletter**

Throughout the process of negotiation of the Directive and preparation of IRR99 we fed back information in our twice yearly newsletter The Radiation Protection Adviser. This is freely available on request and currently has a distribution of some 4 500. The newsletter is also available on the Internet at www.hse.gov.uk/hthdir/noframes/iradiat.htm (indeed, we are moving to mainly electronic availability after the next edition). We issued a special edition (Issue 16) in December 1999 devoted solely to IRR99, again in an effort to minimise problems from the unintentionally short lead-in time.

**Small users**

The difficulty of properly involving small firms in consultation, without unreasonably thereby increasing the burdens that the involvement seeks to reduce, are well known. Within the radiation protection community many small firms are industrial radiographers and, fortunately, they are largely represented by a professional society (the British Institute of Non-Destructive Testing). Small users, perhaps somewhat surprisingly, are often hospitals and again are well represented by their professional societies as well as by individuals with whom HSE has regular contact. A frequently

made point is the difference in the availability of resources between the nuclear industry and most other users of ionising radiation, particularly hospitals; a cost that is insignificant to the former could be totally unfeasible to the latter.

It is less easy to be certain that the interests of other small users, such as employers who simply use gauges containing radioactive substances, or veterinary surgeons, are properly represented. However, the commercial services provided by the UK National Radiological Protection Board (NRPB) include the provision of radiation protection advisers. According to NRPB, this service attracts a considerable number of small users therefore, as NRPB is always closely involved in the development of radiation protection legislation and guidance, their interests should be adequately represented.

**HSC's Ionising Radiations Advisory Committee (IRAC)**

IRAC membership covers the spectrum of interest in matters relating to ionising radiation and radiation protection. It comprises nominees from employer (including small firms) and employee organisations, government departments, local authority associations, professional societies, higher education, also NRPB, and includes a public interest member. IRAC was fully involved throughout the development of IRR99 and the supporting ACOP, procedures and guidance.

**Benefits of open consultation – "better" legislation?**

To us, and I hope to readers, the benefits of open consultation are clear. Those most likely to be affected by the legislation are involved throughout the development process and are therefore able to alert legislators to the implications of their proposals and to errors and omissions. Provided that consultation is genuine and, where appropriate, consultees can see changes to take account of their comments, or accept after discussion that change is either unnecessary or not possible, then there is some ownership of the result and less resistance to compliance. In our case, most interested parties had been involved, or at least kept in the picture, during the negotiations of the Directive and therefore already had a reasonable understanding of what the legislation needed to achieve. "Evolution not revolution" was the mantra for the development of IRR99, although necessarily there were some new features.

The legislation itself should be better because it will have been made in the full understanding of the implications for industry and others and will have been adapted so as to achieve the desired results with the minimum of unnecessary cost or disruption. In theory at least, it should also have a smoother passage through Ministers and Parliament because problems will have been identified and tackled at earlier stages.

**Dangers?**

If openness is pursued throughout the process, then there should be no real danger (though there can still be problems, as identified previously). Being made aware of errors once they have been enshrined in legislation is worse than becoming aware of them while there is still opportunity to correct them. Equally, where there is known or suspected to be potential opposition from one part of society this is more likely to be exacerbated by a lack of consultation, rather than avoided or reduced. Even opening up part way through the process should be better than not at all, though by then there is more possibility of positions and approaches having become "fixed" and therefore more risk of "losers" and "winners". However, it is essential to be able to show that reasonable concerns have been

properly addressed and for there to be evidence of changes to take account of commentators' comments. Otherwise the system will have no credibility and will do more harm than good by raising, but not meeting, expectations.

Wide and ongoing consultation does add very considerably to timescales. For example, HSC will seldom wish to allow less, and will sometimes agree more, than a three months consultation period for a CD. Internal processes and publication delays must also be allowed for. It is also very likely that at least one important commentator, whose views must be received and cannot be ignored, will not respond until well after the official deadline. Careful timetabling is therefore essential and may involve an element of risk taking.

## Conclusion

The advantages of wide consultation more than outweigh any disadvantages, particularly if pursued throughout the process. Openness and transparency is increasingly the order of the day and the benefits come from accepting this freely and willingly.

*Acknowledgement*

The author wishes to thank colleagues for their help in preparing this paper. The views expressed, however, are those of the author and not necessarily the views of HSE.

# THE PRINCIPLE OF PUBLIC ACCESS TO OFFICIAL DOCUMENTS IN SWEDEN

**I. Persson**
Senior Legal Adviser, SKI, Sweden

For a state to function effectively, its citizen need to know the rules of the game. If the rules are observed, the decisions are felt to be legitimate. The legal framework is a pre-condition of the rule of law and the permanence of the form of government.

The obvious solution has been to gather together the basic rules concerning the manner in which political decisions are taken in a single document or statute. Virtually all countries have such a document, often called the constitution. In Sweden the term is fundamental law.

The usual pattern is thus statue assembled in a single document. Sweden, and for that matter Finland, both have several fundamental laws, however. Sweden has four. One of them is the Freedom of the Press Act. This Act contains rules on the public nature of official documents and thus the principle of public access to official documents in Sweden and its limitations. Subjects I have been asked to say some words about.

## The Freedom of the Press Act – a fundamental law

It is often said that the principle of public access to official documents in Sweden is the most far reaching in the world. We have lived with this principle for nearly 250 years.

In Sweden the principle of public access to official documents was introduced in the 1766 Freedom of the Press Act and became fundamental law in its entirety. Even this early Freedom of the Press Act contained far more than just general principles and included rules about the public nature of official documents and exceptions thereto.

After all these years – in Sweden access to information is considered one of the cornerstones of the free democratic exchange of views. It is not enough that public authorities give information about their work. Public activities shall be open to the citizens and the media in such a way that they can choose the information they wish to obtain, without having to rely on public information services.

## Reasons for the principle

In one of the gateway article one can read the following: “In order to encourage the free interchange of opinion and the enlightenment of the public, every Swedish subject shall have the free access to official documents”. And further in the act it is provided that “foreign nationals are to be equated with Swedish citizens” (except as otherwise provided in the law). The right of access to

official documents thus means that any person – a Swedish citizen as well as an alien – is entitled to study official documents held by public authorities.

The main reasons for upholding the principle of public access to official documents are that:

- it facilitates the free democratic exchange of views, thereby contributing to the democratic legitimacy of decisions;
- it strengthens the control of the administration by the public and the media; and
- it contributes to making the administration more efficient.

All civil servants are aware that, as a rule, files and documents are accessible to everybody. This reduces the risk of arbitrary action. Besides, it is often said that this accessibility contributes to making corruption a rare phenomenon in Swedish administration.

**Official documents**

The right to access to documents is restricted to such documents which are regarded as official documents.

A document held by a public authority is regarded as official document if it has been received or drawn up at the authority, regardless of its content. Electronic data processing recordings, tape recordings and other mechanical or electronic recordings are treated as documents.

**Received by a public authority**

A public authority has received a document when it has arrived at the authority. Furthermore, it is regarded as received when it is in the hand of a competent official to whom it is handed over, while he or she is outside the premises of the authority. The document does not need to be entered in the public register in order to become official.

Letters and other messages, which are addressed to a civil servant, are official documents if their contents relate to the activities of the authority. Such letters are official documents also if they are sent to the home address of the civil servant who is responsible for the matters concerned.

**Drawn up by a public authority**

A document shall be deemed to have been drawn up by a public authority when it has been dispatched. A document that is not dispatched is regarded as drawn up when the authority finally settles the matter to which it relates. If the document does not belong to any specific matter, it is said to be drawn up when it has received its final form.

Drafts, preliminary outlines, memorandum etc are not considered to be drawn up and are therefore not official. However, if they are taken care of for the purpose of filing, they become official documents

**Documents from abroad**

A document held by a public authority is an official document regardless of whether it has been produced in Sweden or abroad. However, a document produced in another country can be kept secret in the interest of Sweden's relation with a foreign state or with an international organisation, if it contains sensitive information.

**Official documents must be available**

An official document is public in principle, that is, it must be kept available, normally in the original, to anyone who wishes to peruse it. In order for the public and the media to be able to exercise their right of access to official documents, it is of great importance that it can easily be established which documents are held by a public authority. Therefore, as a rule, documents that have received or drawn up by the authority must be registered in a public register.

Secret documents must always be registered. Most other documents also have to be registered. There are, however, a few exceptions to this rule. One exception is documents that are of little importance to the activities of the authority, such as press-cuttings and advertising material.

If a private person wishes to obtain access to an official document, he or she should turn to the authority that keeps the document – either oral or in writing. It is not necessary to specify the request or to describe the document in detail by stating its date or registration number. On the other hand the authority must have so much information that it does not have to make extensive examination in order to find the document. It is always possible for a person to ask for the register of the documents and by that means find out which document that could be of interest.

The person has the right to read the document at the authority (provided it is not secret). If the document cannot be apprehended without the use of technical aids, the authority shall make the necessary equipment available. A document may also be transcribed, photographed or recorded. The private subject is entitled to receive a transcript or copy of the document and may also himself reproduce or copy it using equipment of his own (in which case the authority has a duty to ensure that the document not comes to harm).

**About the identity of the person who wishes to obtain access**

No public authority may inquire into a person's identity on account of his request for access to an official document. The authority is neither allowed to inquire as to the purpose of his request. Thus a person don't has to tell the authority his name or what the information in the document will be used for. The personnel of an authority have the same right to access to a document at the authority without telling the purpose of their request.

If, however, the document comes under one of the provisions of the Secrecy Act, the authority might need to ask for such information in order to be able to determine whether or not any obstacle exist to prevent the release of the document.

**How long does it take to obtain access to a document?**

It is provided that a request for an official document shall dealt with speedily. The document shall be produced forthwith, or as quickly as possible, at the place were it is kept.

Some delay is, however, permitted if the authority must consider whether the information contained in the document must remain secret according to one of the provisions of the Secrecy Act. In that case, such part of the document that could be released without any obstacle should be accessible as soon as possible.

**What about secret documents?**

Exceptions from the principle of the public nature of official documents, that is, cases in which an official document must remain secret, have to be scrupulously identified in a special law, by which is meant the Secrecy Act.

The Freedom of the Press Act lists all the interests governing secrecy.

The Freedom of the Press Act provide that the right of access to official documents may be restricted only if restriction is necessary with regard to:

1. the security of the Realm or its relations with a foreign state or an international organisation;
2. the central finance policy, monetary policy, or foreign exchange policy or the Realm;
3. the inspection, control or other supervisory activities of a public authority;
4. the interest of preventing or prosecuting crime;
5. the public economic interest;
6. the protection of the personal integrity or economic circumstances of private subjects;
7. the preservation of animal or plant species.

Thus the Secrecy Act specify, based of the list in the Freedom of Press Act, to what kind of information secrecy shall apply. The provisions of secrecy contain a so-called requirement of damage for secrecy.

Every time somebody asks for an official document the authority has to decide whether the document is public or confidential. And there may be no secrecy other than in accordance with the provisions of the Secrecy Act

Here is an example:

“Secrecy shall apply to any information concerning Sweden's relations to another state, or otherwise concerning another state, an international organisation or an authority, a citizen, or a legal person in another state or a stateless person, *if it can be assumed that disclosure of the information would disturb* Sweden's international relations or would otherwise cause damage to the country”.

In this example the presumption is that the information contained in the document is public, if not special circumstances could cause a risk for damage or harm.

Here is another example:

"Secrecy shall apply within the health care services to information regarding an individual's condition of health or other personal circumstances, *unless it is evident that the information can be disclosed* without the individual or any person closely related to him being harmed".

In this example the presumption is that the information is secret, if not special circumstances exclude a risk for damage or harm.

Chapter 16 of the Secrecy Act on responsibility within the scope of the Freedom of the Press Act for offence against the duty to observe secrecy, contain a list of information's that is classified as top secret.

The Secrecy Act has significance even apart from the public nature of official documents. The rules laid down in the Act establish that "secrecy applies…to information…" implying a prohibition in principle against "disclosure of information, whether orally or by release of an obligation to maintain secrecy as well as confidentiality of documents".

**Appeal against a decision to refuse access to a document**

If a public authority refuses an application to see a public document, an appeal may be lodged with the Administrative Court in the first instance. The same thing applies if only parts of a document have been allowed access.

If the appellate court rejects the appeal, the appellant can pursue the matter to the Supreme Administrative Court. However, permission has to be obtained to appeal to a higher court.

**The freedom of sources from legal responsibility**

The freedom of information sources from legal responsibility is laid down in the opening provisions of the Freedom of the Press Act.

Protection from legal responsibility applies not only with respect to legal proceedings on account of an item alleged to be in breach of the law; a source cannot be held legally responsible under special procedures in the event his communication of information constitutes an offence *per se*.

In practical terms, the most important case is one in which a civil servant or local government official passes on to a newspaper, news agency etc for purpose of publication, information which is covered by the Secrecy Act. The main rule is that he cannot be convicted for being in breach of his obligation to maintain secrecy. Of course certain exceptions apply.

But, it is not allowable to hand over secret documents.

**The right to remain anonymous**

The right to remain anonymous is also covered in the Freedom of the Press Act. It is a punishable offence for anyone engaged in the production of printed matter to disclose the names of sources of authors who wish to remain anonymous. This obligation to maintain secrecy is waived only

in special cases listed in the law, for example when giving testimony under oath before a court of law, if the court finds that it is of particular importance for information in the matter to be given.

It is prohibited for a public authority or other public body to inquire into the identity of the author of material, which has been published or is intended for publication in printed matter, or of a person who published or intended to publish material in such matter. Certain exceptions apply.

**Agreements**

Finally I would like to say that it is not possible in an agreement between an authority and a private subject or otherwise to waive the right of access to official documents or from any provisions in the Freedom of the Press Act. Such a provision in an agreement has no validity before a Swedish Court.

# RECENT UK EXPERIENCE OF INVOLVING THE PUBLIC IN DECISIONS ON RADIOACTIVE DISCHARGES

**C.J. Weedon, A. McGoff, M. Bower and R.E. Smith**
Environment Agency, UK

## Abstract

When considering applications for authorisation of radioactive discharges from nuclear sites, it is normal practice for UK regulators to consult widely and seek comments from the public, local and national interest groups, other regulators and stakeholders. At present, the Environment Agency is revising and further extending its public consultation arrangements.

The Agency is currently considering applications from BNFL for authorisations for radioactive waste disposals, including discharges, from eight Magnox power stations in England and Wales. The process for considering these applications has included the most resource-intensive nuclear consultation exercise undertaken by the Agency to date. It has used elements from the Agency's new consultation arrangements, including an extended consultation period, a wider range of ways for people to access consultation documents and make responses, and a programme of public meetings and surgeries during the consultation period. The Agency has also taken the opportunity of consulting on its new multi-media certificate of authorisation. While the Agency's decision making process is not yet complete, its experience so far of introducing these new features into its process is described.

## Background

Eight Magnox power stations in England and Wales are currently being operated, or decommissioned, by Magnox Electric plc. Each power station has two Magnox reactors, i.e. reactors using uranium metal fuel with magnesium alloy cladding, having a graphite moderator and with pressurised carbon dioxide as the primary coolant. Although these power stations are all of the same basic type, they have significantly different detailed designs.

In January 1998 the UK Government made Magnox Electric a wholly-owned subsidiary of British Nuclear Fuels plc (BNFL) by transferring its ownership of Magnox Electric to BNFL. BNFL is a public limited company owned by the UK Government. Its activities include Magnox fuel fabrication and reprocessing, and low level waste disposal at Drigg.

BNFL now intends to integrate its Magnox related activities more fully by taking over the operation of the Magnox power stations from its subsidiary and transferring the staff from Magnox Electric to itself. Before BNFL can operate or decommission these stations it needs its own

authorisations under the Radioactive Substances Act 1993 (RSA 93) to dispose of radioactive waste. UK law does not allow nuclear site authorisations to be transferred from one operator to another.

The Environment Agency (the Agency) regulates disposal of radioactive waste from nuclear sites in England and Wales under RSA 93. The Agency has the power to grant or refuse an authorisation under RSA 93. In exercising this power, the Agency considers whether the applicant is capable of complying with the limitations and conditions of any authorisation the Agency might issue. If an authorisation has been granted, the Agency keeps under review the continuing capability of the operator to comply. The Agency has the power to revoke or vary the authorisation at any time.

In January 1998 BNFL applied to the Agency for authorisations to dispose of gaseous, liquid, combustible and solid radioactive wastes in respect of each of Magnox Electric's power stations. The Agency is currently considering BNFL's applications. This is the first time that authorisations for radioactive waste disposal have been considered for all these stations together as a package. The task has been a major one for BNFL in assembling all the relevant information and for the Agency in driving the process forward to public consultation.

In 1998 six of the power stations were operating, generating around 8% of the electricity for England and Wales, and two were being decommissioned. In May 2000 BNFL announced that a further one of the operating stations would cease generation as of that time, meaning that five of these Magnox power stations are still operating, generating around 6% of the electricity for England and Wales, with three being decommissioned.

**Decision-making process – before consultation**

Historically and in the present case, when considering an application under RSA 93, the Agency considers whether the practice concerned is justified (i.e. whether the benefits outweigh the detriments). In the future, decisions on the justification for practices will be a matter for the UK Government rather than the Agency.

As part of its role of protecting and improving the environment, and in recognition of the 1998 Ministerial agreement under the OSPAR Convention, the Agency is committed to progressive reductions in radioactive discharges and authorisation limits where practicable. The Agency seeks to achieve this through the limits and conditions of any authorisation it issues. It aims to review nuclear site authorisations on a four-yearly cycle and has used BNFL's applications as the basis for its review of the Magnox power station sites.

The Agency carefully scrutinised the applications and obtained additional detailed information and clarification from BNFL in response to six rounds of questions. The applications and responses from the company to Agency questions were made publicly available. They include information on:

- the benefits and detriments of continued operation/decommissioning (as appropriate);
- the sources and amounts of radioactive waste associated with continued operation;
- the current levels of discharge of radioactive waste to the environment; and
- the application of best practicable means (BPM) to minimise discharges.

The Agency is considering all the application information and must decide, separately for each power station, whether an authorisation should be issued to BNFL. It has consulted publicly to assist its decision making. The public consultation was carried out to enable consultees to draw the Agency's attention to any matters they would wish it to consider when reaching its decisions on the applications. Prior to public consultation, the Agency had not made any decisions on the BNFL applications. It will not do so until it has carefully considered and has been informed by all the consultation responses.

To assist the consultation process, the Agency prepared an Explanatory Document and draft authorisation for each power station. These documents were intended to help members of the public and other consultees to understand BNFL's applications for each power station and the Agency's considerations up to the start of consultation. The consultation documents for each power station included:

- the application documents submitted by BNFL;
- questions raised by the Agency on the applications and BNFL's responses to them;
- information provided in response to statutory consultation with the Health and Safety Executive (HSE – the nuclear safety regulator) and the Food Standards Agency [FSA – an organisation formed in April 2000 to take over some of the responsibilities of the Ministry of Agriculture, Fisheries and Food (MAFF)];
- relevant information provided by other Government bodies in response to Agency questions;
- the Explanatory Document; and
- a draft authorisation prepared by the Agency.

The consultation documents were provided in two parts, namely a ring binder containing BNFL's application material, including its responses to the Agency's questions, and a bound document containing the Agency's Explanatory Document, its draft authorisation and information provided by other Government bodies. Both parts were substantial compilations of documentation.

**Decision-making process – public consultation**

Consultation with appropriate local authorities and other public bodies is a statutory requirement under RSA 93. The Agency also consulted widely with members of the public, national and local public bodies, interested groups and organisations, the Agency's relevant Advisory Committees and Groups, and the Local Community Liaison Council for each power station. This is not a statutory requirement under the legislation, but it is the Agency's policy to do so in appropriate cases.

The consultation package for each power station was made available to the public throughout England and Wales at Environment Agency public registers. Copies were sent to relevant local authorities, i.e. those local to the power station and those into whose areas BNFL had applied to transfer waste for disposal, for placing on their public registers. To facilitate public access to the consultation documents, copies of the documents were supplied to local libraries within the county where the power station was located and main libraries in counties within a 25 mile (40 km) radius of the station. The consultation package was also provided to the British Library. The Agency accepted requests for the consultation documents from interested persons and organisations by letter, fax, e-mail

and telephone. The documents were distributed in hard copy form and on CD-ROM. Information about the consultation was made available on the Agency's internet site. The start of the 3-month consultation period and the availability of the consultation package were advertised in the national and local press, and the Agency issued press notices.

Local people are likely to be those most affected by the presence of a power station. New features of this consultation were the arrangements made in the neighbourhood of each power station for members of the public to discuss the applications with Agency staff during the consultation period. Details of the arrangements were advertised locally. In practice the arrangements consisted of "surgeries", in which there was an opportunity for members of the public to have a face-to-face discussion with Agency staff, and a more formal public meeting with an independent chairman. In general, the surgeries at a given location were held on two successive weekdays, with the public meeting on one of the evenings. In all, eight sets of local surgeries and public meetings were held. One of these was specially arranged in response to a request made at another meeting. The two public meetings held in Wales were conducted primarily in the Welsh language, with simultaneous translation into English provided via radio headphones. All the public meetings were recorded so that points made by members of the audience could be included as consultation responses.

The Agency's aim was to ensure that questions raised at public meetings could, whenever possible, be answered on the spot. As well as having its own specialists on the platform at the meetings, it invited relevant specialists from other organisations to be present in the audience. The following were represented at each public meeting: HSE's Nuclear Installations Inspectorate, to deal with issues of nuclear safety and worker protection; the Food Standards Agency, to deal with questions associated with the food chain; the National Radiological Protection Board, to deal with the health effects of radiation; the local Chief Medical Officer, to deal with local health matters; and representatives of BNFL, to deal with questions associated with the operation of the power station.

Copies of the consultation documents and separate leaflets containing bullet point summaries taken from the Agency's Explanatory Documents were made available at the surgeries and public meetings for people to take away with them.

In addition to the public meetings, one local authority requested and received a presentation from the Agency to the members of its environment committee.

Consultation responses by letter, fax, e-mail or telephone on BNFL's applications and the Agency's draft authorisation were invited. A questionnaire was provided which could be used to respond to the consultation, although a response in any format would be acceptable. A 3-month period – about 1 month longer than the general practice previously – was allowed for the consultation, although later responses would also be accepted for as long as it remained feasible to do so.

**Decision-making process – after consultation**

Each response to the consultation has been acknowledged and, at the time of writing, is being read and carefully considered by the Agency. The purpose of the consultation is to help inform the Agency in reaching its decisions on the applications and no decision will be reached until it has completed this process. Before reaching a decision on the terms of any authorisation, the Agency will consult the Food Standards Agency in accordance with the Radioactive Substances Act 1993 and will also consult HSE in accordance with the Agency/HSE memorandum of understanding.

After careful consideration of the consultation responses, the Agency will make its proposed decisions. Whatever decisions the Agency proposes, it will prepare a single document, setting out the background to, and basis for, the Agency's proposed decisions for each of the Magnox stations concerned. The document will be published and made widely available. It will be sent to all of those to whom consultation documents were provided by the Agency.

Certain powers relating to the determination process fall in England to the Secretary of State for the Environment, Transport and the Regions and the Secretary of State for Health (the Secretary of State):

- Section 23 of RSA 93 gives the Secretary of State the power to give directions to the Environment Agency; and
- Section 24 of RSA 93 gives the Secretary of State the power to require certain applications to be determined by him. The Secretary of State may cause a local inquiry to be held in relation to the application.

The Agency will, prior to issuing any authorisations for the power stations in England, send its proposed decision document to the Secretary of State so that they can decide if they wish to exercise their powers.

Two of the relevant Magnox power stations are in Wales, where the above powers fall to the National Assembly for Wales. The Agency will, prior to issuing any authorisations for the two power stations in Wales, send its proposed decision document to the National Assembly so that they can decide if they wish to exercise their powers.

The Agency stated that should it receive any responses to the consultation which are, or appear to be, matters for the Secretary of State or the National Assembly, the Agency will forward these responses. A few such responses were received.

**Agency's explanatory document & draft authorisation**

***Explanatory document***

The Agency prepared a separate Explanatory Document for each of the eight Magnox power stations concerned. Each Explanatory Document included a bullet point summary, two introductory chapters and nine detailed parts, supplemented by annexes where appropriate. The bullet point summary was also made available as a leaflet which could be distributed separately. For the two power stations in Wales, the text of this leaflet was in both the English and the Welsh language.

The structure and content of the Explanatory Document, which is about 100 pages long, are outlined in Annex 1.

***Draft authorisation***

The draft certificate of authorisation, prepared by the Agency to assist the consultation process, was included as an annex to Part 5 of the Explanatory Document. It is about 20 pages long and was set out according to a new pattern. At present there are several separate authorisations for each power station concerned, with one for each disposal route. Thus, currently, there is an authorisation for gaseous disposals, one for liquid disposals, one for solid waste transfers, and so on.

The Agency intends to issue any future authorisation for each power station in an integrated or multi-media form, so that all permitted means of disposal would be included in a single authorisation. At any one time this would be the only authorisation for radioactive waste disposal issued for the power station.

The new style of authorisation was developed from the existing authorisations that have been used to permit disposals of radioactive waste via individual routes. Some changes were made to the conditions of the existing authorisations, for example:

- to improve clarity;
- to reflect the multiple disposal route nature of the authorisation;
- to impose specific requirements for management competence and supervision; and
- to impose new requirements arising from implementation of the 1996 European Basic Safety Standards Directive.

The draft authorisation requires the operator not only to comply with numerical limits on the activity which may be discharged, but also to use best practicable means (BPM) to minimise further the amount of radioactivity discharged. The Agency has introduced improved conditions which would require:

- The operator to use BPM to minimise the activity of radioactive waste produced which will require disposal under the authorisation.
- The operator to use BPM to minimise the activity of waste disposed of by discharge to the environment and to minimise the volume of radioactive waste disposed of by transfer to other premises.

These conditions provide the main basis for ensuring that the exposures of members of the public are ALARA. They also encourage a holistic approach to radioactive waste management, intensify downward pressure on discharges, are consistent with the objectives of the OSPAR Convention and help to ensure that the best practicable environmental option (BPEO) is attained. Furthermore, the new conditions provide a more explicit statement of the requirement to ensure that radioactive wastes are not unnecessarily created.

The Magnox stations all have different detailed designs and environmental performance. In each case, the Agency has identified potential improvements to achieve a better standard of environmental protection. The draft authorisation for each station includes conditions requiring certain potential improvements to be investigated further.

**Experiences from the public consultation**

***Consultation documents and CD-ROMs***

About 300 sets of consultation documents per site were distributed at the start of the consultation, to local authority public registers, to public libraries and to identified consultees. Various routes were used by organisations and members of the public for requesting further sets of documents. The telephone line proved particularly popular in this regard, with over 70 recorded requests received

by this route for documents or CD-ROMs. The telephone line also provided a vehicle for a number of questions from members of the public which the Agency was able to respond to.

There was a limited delay (1-2 weeks) in the Agency's response to requests for documents at the start of the consultation, for the logistical reason that the documents were all at that time with the distribution company that the Agency had employed, having been sent there directly by the printers. This delay attracted criticism from a few people, but should be seen in the context of a 3-month consultation period overall and the Agency's willingness to continue to accept responses after the consultation period had formally ended.

About 70 CD-ROMs were dispatched. These each contained an electronic copy of the set of consultation documents for all the power stations involved.

***Public notices and advertisements***

The Agency placed notices in around 10 national and around 20 local newspapers, and spent considerable sums in doing so, to advertise both the duration of the consultation and details of the local public meetings and surgeries. It also placed notices in local libraries and shops. In some instances, local newspapers chose to run feature articles on the consultation. Agency staff provided interviews for local radio stations near each of the sites and interviews for regional television news programmes in some cases.

Despite these measures, the complaint was frequently heard from people at surgeries and public meetings that these events and the consultation itself had not been well advertised. However, it is not clear what more could usefully be done in this regard. In one instance there appeared to be public confusion between this consultation and another, unrelated one that the Agency was holding concurrently. If, with the best of motives, too many consultations on different topics are held, it is possible that this will be counterproductive through creating confusion in the public mind.

***Public meetings and surgeries***

Attendance at the public meetings varied between under 20 to about 100, depending on the level of local interest. Although attendances were often quite low, it was apparent that the meetings were fulfilling a need in providing a channel of communication between members of the audience and the Agency. Members of audiences stated this on several occasions.

Relatively few people attended the surgeries, the average being about 20 over a two-day period. The surgery discussions with individual people were often extended, a 2-hour discussion being commonplace. Some surgery discussions took the form of dialogues between groups of people and Agency staff. Despite the low attendances, Agency staff gained the impression that the surgeries were providing a useful function for those members of the public that came. The overlap between the people that attended the surgeries and those who came to the public meetings was limited, suggesting that each type of event was catering to a different public need.

In one case, a meeting and surgery were specially arranged in response to a request made at another meeting. This was done for the benefit of people who lived as little as 2 miles (3 km) from two of the power stations, but on the opposite bank of a river estuary. These people were geographically close to the power stations concerned, but it would have been a long journey for them, across a toll bridge, to attend the meeting and surgery which the Agency had previously arranged near the power

stations and on the same bank of the estuary. The specially arranged meeting on the opposite bank of the estuary was considerably better attended than the other meeting, presumably indicating a greater level of concern.

### *Responses to consultation*

At the time of writing, around 400 individual responses have been received in total for all the eight Magnox power stations which were the subject of this consultation. This is surprisingly few, considering the relatively large number of sites involved. The responses received have ranged from very brief expressions of opinion to highly detailed analyses. There were no large-scale, country-wide campaigns, e.g. by environmental groups opposed to nuclear power, although there is evidence, from the similarity of certain responses received from different people, of some background orchestration of responses. There were a number of local campaigns focused on particular issues at individual sites. At one site, in particular, a local campaign against on-site incineration of combustible radioactive waste led to a petition with around 1 000 signatures.

Over 200 of the responses were received by ordinary mail, about 80 by e-mail (including a few from overseas), 18 by fax and only 5 recorded by telephone. Around 30 written responses were received at the public meetings and surgeries. About 25 written responses were made using the questionnaire provided by the Agency. Around 60 responses were transcribed from points made at public meetings.

## Discussion

### *Consultation overall*

It was difficult to judge in advance how high the profile of this consultation would be and what volume of responses would be received. The Agency entered the consultation believing that it had prepared thoroughly and could meet most eventualities. In the event, the consultation proved to be relatively low profile and proceeded with few hitches. The question arises as to whether the arrangements were in excess of requirements, because mounting the consultation was certainly not a low-cost exercise. On the other hand, the cost of the consultation was only around 25% of the overall cost of considering BNFL's applications, so it probably was not disproportionate.

Some might argue that the full consultation was too time-consuming. However, if the public is to be consulted in more than a token way, it may be inevitable that such exercises are protracted and resource-intensive.

### *Consultation package*

Some members of the public criticised the consultation package as being too detailed and too technical, while others asserted that it did not contain sufficient technical detail. It was difficult to provide a set of documents which would fulfil the needs of everyone, particularly since the major part of the package, namely the application material, was produced by BNFL and therefore the way it was presented and how the technical substance was expressed were not under the Agency's control. In retrospect, it might have been helpful if BNFL had provided a layman's guide to its application material.

Overall, the Agency believes that it got the balance and content of the consultation package about right, and that this is reflected by the varying reactions from different members of the public. The documentation was inevitably technical in parts, but the Agency did take pains to write a summary in plain language, to signpost different technical sections of the documentation clearly, to provide a glossary of terms and not to use unnecessarily obscure terminology. The impression is gained that, in many instances, members of the public had at most read only the Agency's four-page summary before making their responses, and that they had not looked at the rest of the documentation. Perhaps it is inevitable that only the earnest (and paid) researchers of environmental groups will find the time and take the trouble to go through such documentation in its entirety.

***Public meetings and surgeries***

The public meetings and surgeries are perceived as having been useful, although very resource-intensive. Their value includes the Agency's being seen as having taken the trouble to hold them, as well as the engagement that was achieved between Agency staff and members of the public. Overall, they undoubtedly led to a number of encounters and interactions which were of use to all parties involved.

The purpose of the consultation, as set out in the documentation and explained at the public meetings, was to enable people to draw the Agency's attention to any matters they would wish it to consider when reaching its decisions on BNFL's applications. Although this was explained with care and that the consultation was definitely not an exercise in voting, nevertheless at some of the meetings the feeling was expressed that a vote should be taken and that the Agency should act in accordance with the wishes of the meeting.

Care needs to be exercised in deciding where to hold public meetings and surgeries, particularly so as to accommodate people who are geographically close to the site concerned but a long way away in terms of transport, e.g. on the opposite bank of a river estuary.

***Means of communication/provision of information***

In terms of means of communication, the method of responding to consultation by traditional mail is still the one favoured by most people. However, the use of e-mail has clearly become substantial and it would be virtually impossible to conceive of holding a consultation in future without providing for e-mail responses. Use of e-mail, particularly with access to consultation information via the internet, may tend to promote international responses to consultation exercises.

Use of fax only provides a small niche for consultation responses. Nevertheless, the capability to receive faxed responses is easy to provide and so it should be included. The telephone did not appear to be at all a favoured medium for recording consultation responses. However, it was a highly favoured medium for making requests for documentation and CD-ROMs, and also provided a useful route for asking questions.

Provision of documentation on CD-ROMs appeared popular with computer-literate members of the public and had the advantage for the Agency of being cheaper both to produce and to post out than paper documents. It is likely that CD-ROMs will be even more extensively used in future consultations.

**Concluding remarks**

The Agency entered the consultation exercise on the Magnox power stations in a well-prepared state and the consultation exercise itself went well. Arguably as a result of this, the Agency is in a well-ordered position at the end of the consultation to proceed to completion of its proposed decision document.

The Agency will be reviewing its consultation process carefully in the light of the experience from this consultation.

*Annex 1*

**Details of the structure & contents of the agency's explanatory document for the public consultation**

**Summary and introductory chapters**

The Agency prepared a separate Explanatory Document for each of the eight Magnox power stations concerned. Each Explanatory Document included a bullet point summary, two introductory chapters and nine detailed parts, supplemented by annexes where appropriate. The bullet point summary was also made available as a leaflet which could be distributed separately. For the two power stations in Wales, the text of this leaflet was in both the English and the Welsh language.

The first chapter of the Explanatory Document provided an introduction to BNFL's applications and the Agency's decision-making process, together with an invitation to respond to the consultation. The second chapter provided a guide to the document. Detailed information on specific aspects of the applications and the Agency's process and considerations so far was set out in the individual parts described below.

**Part 1 – Power station site and existing disposal authorisations**

Part 1 provided a general description of the power station site and processes, and how the reactors operated as part of the Magnox fuel cycle. It described the nature of the radioactive waste arisings, the disposal arrangements and the existing authorisations held by Magnox Electric. A brief overview of the UK Magnox programme and its overall environmental impact was set out in an annex to Part 1.

**Part 2 – Concepts and principles**

Part 2 introduced the concept of risk and described the principles of radiological protection as set out by the International Commission on Radiological Protection (ICRP). It considered prospective and retrospective radiological dose assessments, and discussed critical group and collective dose methodologies.

**Part 3 – Legal and policy framework & international commitments**

Part 3 set out the Agency's understanding of current Government policy. It identified the Euratom Basic Safety Standards Directive as being the means of implementing the ICRP principles of justification, optimisation and limitation in UK law. It interpreted the requirements on the Agency in applying these principles. The dose limits imposed by EU and UK law were presented and the dose constraints embodied in Government policy were given. Part 3 described the UK's obligations under

the OSPAR Convention and the 1998 Ministerial Agreement at Sintra, Portugal, on long term reductions in radioactive discharges to the marine environment. It discussed the Agency's principal aim under the Environment Act 1995 (EA 95) of contributing to sustainable development and the guidance given to the Agency by the UK Government in this regard. It summarised other duties of the Agency arising from EA 95. With regard to conservation, Part 3 identified the EC Habitats Directive and UK Habitats Regulations, relating to the impact of discharges on European sites designated under the regulations. Finally, it outlined the new integrated certificate of authorisation which the Agency had used in preparing the draft authorisation for the purposes of consultation. An annex to Part 3 provided a general guide to the responsibilities of other Government bodies, including legal powers and duties as appropriate, referred to in the Explanatory Document.

**Part 4 – BNFL's applications for authorisations for the power station concerned**

Part 4 listed the documents submitted by BNFL as part of its applications for authorisations to dispose of radioactive wastes from the power station concerned. It also summarised the proposals and requests contained in the applications.

**Part 5 – The Agency's determination process**

Part 5 described the Agency's determination process, including:

- receipt of applications;
- requests to BNFL for additional information;
- the external scrutiny carried out of the company's avoidable cost calculations;
- questions which the Agency has addressed to the Department of Trade and Industry (DTI), to the Office of Gas and Electricity Markets (OFGEM), and to the National Radiological Protection Board (NRPB) and the replies from these organisations;
- questions to, and responses from, HSE and MAFF/FSA;
- the Agency's considerations prior to consultation (in summary, since Part 6 considered this topic in detail);
- the public consultation stage; and
- the Agency's considerations and other aspects after the consultation.

The draft certificate of authorisation, prepared by the Agency to assist the consultation process, was included as an annex to Part 5 of the Explanatory Document.

**Part 6 – The Agency's considerations prior to consultation**

Part 6 (in three sections A, B and C) indicated the initial consideration the Agency had given to BNFL's applications for authorisations, including BNFL's responses to the Agency's questions. This included consideration of the matters described in Parts 2 and 3 of the Explanatory Document and the information provided by other organisations as set out in Part 5. Section 6A summarised certain general considerations that the Agency is taking into account, mainly reflecting Part 3. In Section 6B, the Agency's approach to the question of justification was described and a summary of some of the

benefits and detriments identified by the company in its applications and in response to the Agency's questions was included. Section 6C described the principles the Agency had applied to setting draft limits and notification/advisory levels for radioactive waste disposals, and how the limits and conditions set out in the draft certificate of authorisation provided to assist the consultation process had been derived for the power station concerned.

**Part 7 – Radiological impact of discharges**

Part 7 discussed the radiological impact of discharges from the power station concerned at the limits proposed in BNFL's applications and at the limits in the Agency's draft authorisation. It compared the radiological impact at the limits in the Agency's draft authorisation with the UK dose limit and constraints for members of the public. Part 7 provided a comparison between the results of prospective dose assessments carried out by BNFL, the Agency and MAFF, and included comments by NRPB. An annex to Part 7 discussed the reasons for the different results from different assessments. Another annex provided the results of assessments carried out by the Agency of the impact of discharges on sites designated under the European Habitats and Birds Directives.

**Part 8 – Discharge and environmental monitoring**

Part 8 set out the requirements which would be imposed on BNFL, under the draft authorisation for the power station concerned, for monitoring gaseous and liquid discharges, solid waste disposals and the local environment. It described the programme of independent analysis of discharges and disposals, and the programme of environmental monitoring, which the Agency would itself carry out. It identified the information that would be made publicly available on discharge, disposal and environmental monitoring from BNFL, the Agency and the new Food Standards Agency (which took over relevant MAFF responsibilities on 3 April 2000).

**Part 9 – System of regulatory control**

Part 9 described the Agency's powers of, and approach to, regulation and enforcement including the Agency's response to incidents.

**Appendices and annexes**

Appendix 1 of the Explanatory Document provided a glossary of abbreviations and terms employed. Appendix 2 provided a questionnaire for respondents to the consultation to use if they wished. Appendices 1 and 2 were attached to the back of the Explanatory Document. In addition, the Explanatory Document referred to a number of Annexes, which were separate documents included in the consultation package.

## SESSION 3

## Defining Identities

***Chairwoman: J. Melin***

# FEATURES AND ABILITIES OF A TRUSTWORTHY REGULATOR

**S. Prêtre**
Former Director of the Swiss Federal Nuclear Safety Inspectorate (HSK)

A nuclear regulator should aim to become the trustee of the public taking care for all its concerns about nuclear safety and radiation protection. In order to reach that status, the nuclear regulator must first be independent from any type of pressure groups. This independence will have to be clearly established in law and will have to be demonstrated by visible actions or decisions. In particular, it is important that the regulator plays its own role and avoids being pushed into roles which could endanger the image of an impartial, objective and critical regulator. Real independence is the first attribute of trust.

But the public is much more demanding: it requires that the nuclear regulator is knowledgeable, competent, qualified, effective, efficient, objective, consistent, reasonable, critical, vigilant, honest, sincere, responsible, impartial, respectful and even popular. In addition, the nuclear regulator should be a good communicator. This means being not only a good transmitter of information but being much more a listening receiver of the confused fears of the public. Ideally the nuclear regulator wants to be the "confidant" of the public, being able to understand its worries.

In other words: the public requires perfection and perfection does not exist. Therefore the disappointment connected to a loss of confidence is pre-planned. It just needs a minor event or the launching of an artificially inflated issue by a journalist and the credibility of the nuclear regulator is endangered. Reconstructing trust after it has been lost is very difficult. It needs an Image Repair Discourse which should be prepared in advance.

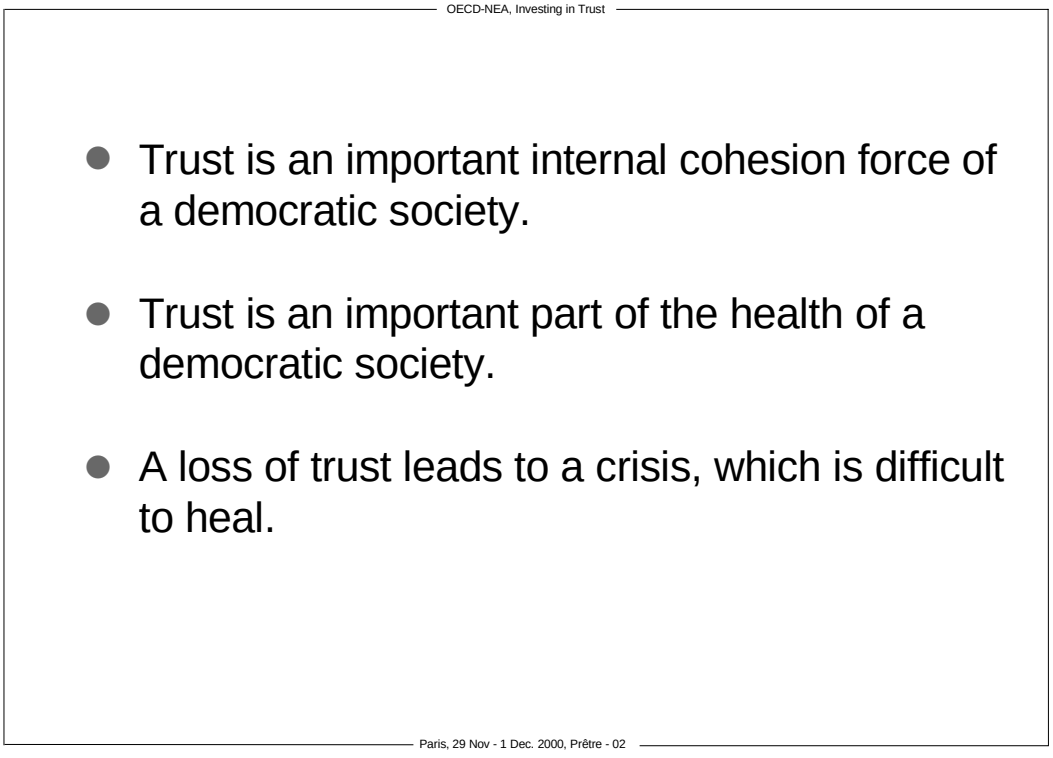
In order to avoid a fiasco, the nuclear regulator should be prepared for the confidence crisis it is going to be confronted with. A rule is: minimise the credibility loss. A first recommendation for the nuclear regulator is therefore: In your quest for trust, don't aim at full acceptance, don't try to be loved by the public, this is too ambitious. Just aim at a sort of respectful indifference or a passive and cool trust. Use every opportunity to state that the persons of your organisation are highly motivated for safety and protection but that they are not perfect. Explain also, as often as you can, that your surveillance and inspection programme cannot cover 100% of the areas to be covered. Repeat that uncertainties are an inherent part of scientific knowledge and that incidents and accidents cannot be totally avoided. This discourse will keep the expectations of the public at a reasonable level and when the crisis comes, the credibility loss will be manageable.

Another aspect is that the nuclear regulator should consider the public as a mature and responsible public. The public does not like to be classified as children ("Don't worry, we will think for you"). Therefore, a second recommendation says: Encourage the public to think about the problems; show that there are many nuances and that reality is neither black nor white. Explain the uncertainties and confess that, on certain points, the regulator also has doubts.

Let us recapitulate: In order to stay trustworthy and to be able to recover from the next credibility loss, a nuclear regulator should have the following features or abilities:

1. Independence from any type of pressure group. Capability to enforce any decision.
2. Perfection as scientist, expert and person. An extreme expectation leading to deception.
3. Understanding and empathy for the public and its fears.
4. Respect for the public and the media, which appreciate to be considered as mature and responsible.
5. Image Repair Capability including the wisdom to minimise in advance the unavoidable deception.

In the paper, further recommendations for the nuclear regulator are tentatively formulated. They should help the regulator to manage and overcome a confidence crisis whilst maintaining a sound level of trust by the public.



## The story starts in paradise!

- The nuclear regulator is performing an independent surveillance of the licensee and its nuclear installations in the name of the public.
- The public is inclined to accept the nuclear regulator as its trustee for this specialized surveillance function. In fact, the public has no other choice.
- The situation starts with a reasonable or a passive trust.





## Features and Abilities of a Trustworthy Regulator

1. Independence
2. Perfection
3. Understanding
4. Respect
5. Image repair capability

## Features and Abilities of a Trustworthy Regulator

1. Independence:

- independence of judgement
- from licensees
- from politics
- financial independence
- independence of the persons
- independence of the contractors
- in reality
- stated in the law

⇒ Demonstrate the ability to really enforce your decisions





## Features and Abilities of a Trustworthy Regulator

2. Perfection: to be knowledgeable, competent qualified, objective, consistent reasonable, critical, vigilant, honest, sincere, responsible, fair, impartial, effective, efficient, .....

A part of the public requires perfection and perfection does not exist.

## Features and Abilities of a Trustworthy Regulator

3. Understanding: Ability to listen,
to communicate,
to acknowledge the fears,
to be a confidant,
to be popular, .....

A good background in practical psychology is recommended.

⇒ Organize public hearings / citizens panels





## Features and Abilities of a Trustworthy Regulator

4. Respect:

- Consider the public as mature and responsible.
- Do not underestimate the public.
- Avoid to be considered as an arrogant or esoteric sorcerer.

Encourage the public to think about the problems and to see the complexities and nuances.

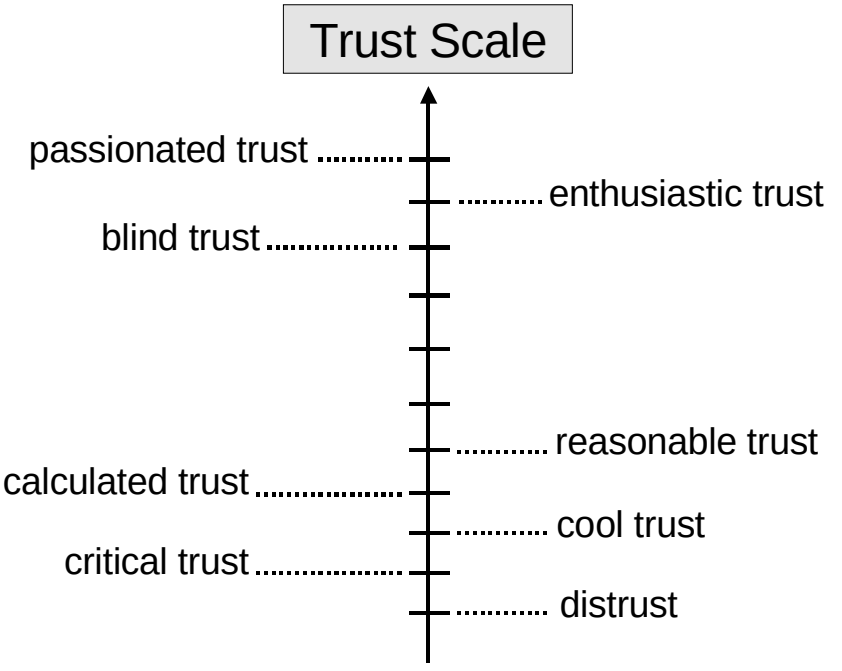
- The expectations of the public are very high.
- The public wants to be protected by a perfect regulator.
- The public will not forgive any weakness of the regulator.

The credibility crisis is pre-planned

- Minimize, in advance, depth and extent of the credibility loss.
- Prepare an image repair discourse.







## How much trust is enough trust?

reasonable trust ⟶ manageable deception

## How much trust is too much trust?

blind trust

enthusiastic trust

⟶

- deep deception
- loss of credibility
- difficult to recover





**Minimize in advance the loss of credibility.**
**To minimize the deception ⟶ Prepare your public.**

Use now every opportunity to explain that:

- The persons of the regulator staff are good and motivated but not perfect.
- The regulator surveillance and inspection programme cannot cover 100 %. Only spot checks.
- Incidents and accidents cannot be totally avoided. But occurrence probability can be reduced.
- Scientific knowledge is limited by several uncertainties.

## Don't try to be loved by the public

Don't look for easy success by playing attractive roles like:

- Little David winning against Goliath.
- The severest among all regulators.

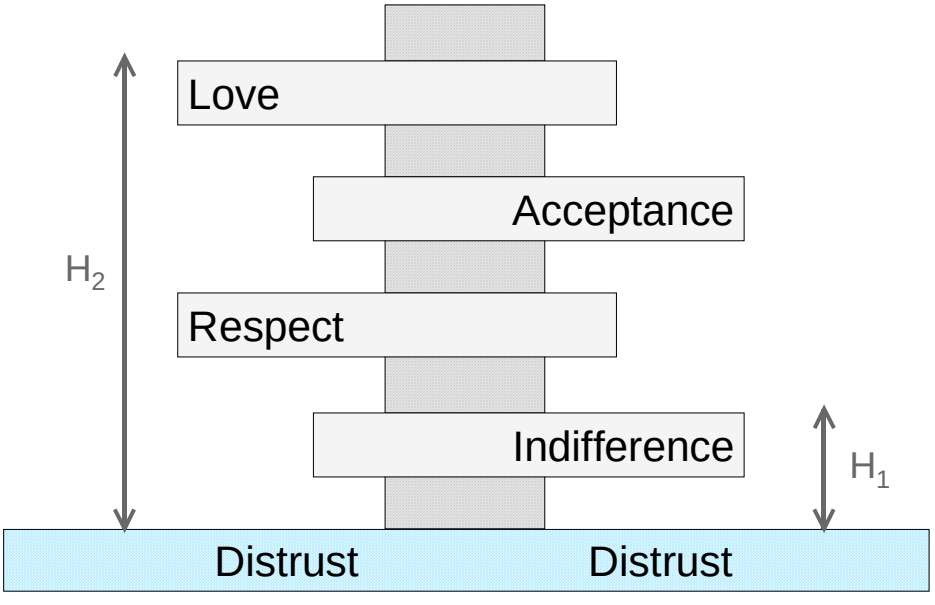
⇒ Stay objective and impartial

⇒ Invest in trust, yes, but in sustainable trust





## Plunging into the crisis



In the credibility crisis

Image repair discourse.
Reconstruction of trust.

- Take the initiative to communicate
- accept that you have a problem
- don't be defensive; don't trivialize
- show humility, not arrogance
- demonstrate responsibility and seriousness
- stay by the truth
- don't blame anybody
- take courageous actions and explain them





## Image Repair Discourse - in other words

- Admit, apologize and accept some responsibility.
- Attempting to deny or shift the blame can backfire.
- Prioritize the salient audiences and tailor your message to them.
- The discourse should be tailored to the perceived offence.
- Demonstrate a firm commitment to correct the situation, repair damages and prevent recurrence.

## Features and Abilities of a Trustworthy Regulator

### Recapitulation

1. Independence (Judgement, Enforcement)
2. Perfection (as Scientist, as Expert, as Person)
3. Understanding (Empathy)
4. Respect (Do not underestimate the public!)
5. Image repair capability (and minimize Deception)





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# IDENTIFYING PUBLIC GROUPS/ELECTED CITIZENS VS. CONCERNED GROUPS

**O. Söderberg**
Special Advisor on Nuclear Waste Disposal
Ministry of the Environment, Sweden

## 1. Introduction

The Swedish Nuclear Fuel and Waste Management Co (SKB)[1] is presently carrying out feasibility studies in six Swedish municipalities,[2] in preparation for siting a final repository for spent nuclear fuel.[3] The aim of such a feasibility study is to identify areas that might be of interest for further investigations.

Preliminary final reports from all six studies have been presented, the last two in April 2000. In these reports, a total of 15-20 areas are identified as potentially suitable for further studies, so called site investigations. SKB is planning to announce, in November 2000, the company's choice of at least two sites for these site investigations.[4] The company's choice will be based on final results of the feasibility studies and on other material. Results from feasibility studies and site investigations will form the basis for a future formal application by SKB to the Government to obtain permission to construct a final repository somewhere in the country.

In Sweden, a common understanding has developed between SKB, the Government and the municipalities that important decisions affecting the inhabitants in the municipalities concerned by SKB's investigations, cannot be taken without public insight and democratic participation by representatives of the municipality. Before a site investigation starts, SKB will seek approval by the municipality concerned, although SKB has no legal obligation to do so.

1. The nuclear industry, acting through SKB, has a legal obligation to act as the implementer for nuclear waste management and final disposal in Sweden.

2. Between 1993 and 1996 SKB also carried out feasibility studies in two municipalities in northern Sweden (Storuman and Malå). Municipal referenda were held in 1995 and 1997 respectively, and resulted in a majority for No to further investigations. As a result, SKB has declared that these municipalities will not be considered as candidates for site investigations.

3. A brief summary of roles and responsibilities in Swedish nuclear waste management is presented as Appendix.

4. This paper was finalised some days before SKB is expected to make this announcement.

Municipalities that are concerned by SKB's siting activities are entitled to limited economic support from Government sources.[5] This support should be used for information activities and for competence development among the general public and their elected representatives. Competence development includes encouraging public debate on all issues connected with nuclear waste disposal. Municipalities may also use such economic support for encouraging the activities of local "concerned groups".

## 2. A problem?

In a representative democracy, with high voting participation, it may seem self-evident that the municipality's elected politicians, i.e. particularly members of the municipal council and the municipal board, should be regarded as the legitimate representatives of the municipality, and hence the representatives of the population. But is this "formal" approach enough when deciding on issues connected with the establishment of a final repository for spent nuclear fuel? Which means of interaction between the elected representatives and the public can be initiated in order to ensure that decisions by the former will reflect dominating opinions within the latter – thus contributing to creating trust in the decision-making process? How do the elected representatives handle a situation where concerned groups of citizens, acting alongside the more or less established political parties, claim to reflect a more true picture of the public attitude than what is presented by the ordinary municipal politicians? And how would the implementer (SKB) view such a situation?

There are currently six Swedish "feasibility study municipalities".

Three are "nuclear municipalities": Nyköping, Östhammar and Oskarshamn. SKB approached these three in 1995[6] asking for their consent to a feasibility study to be made by SKB within the municipal borders. All three responded positively but in different ways, and in one case (Oskarshamn) after careful consideration lasting more than one year.

Some years later, SKB could note signs of interest among elected local politicians in Sweden to have "their" respective municipality involved in SKB's feasibility studies. The result was a "yes" for feasibility studies in three more municipalities, Tierp in 1998 and Älvkarleby in 1999 (neighbours north west of Östhammar) and Hultsfred in 1999 (neighbour west of Oskarshamn).

This paper contains examples of how three of the municipalities have coped with these issues. Two municipalities, Nyköping and Oskarshamn have been confronting the issue since 1995. The third, Tierp, had to consider its strategy for participating in the process during the latter part of 1998 for immediate implementation.

It is worth mentioning that, according to the latest opinion survey ordered by SKB (May 2000), more than 70% of the inhabitants in each of the six municipalities would accept further investigations (site investigation) in "their" municipality. For Nyköping the figure was 75%, for Oskarshamn 85% and for Tierp 71%. Six months earlier the figures were 83%, 67% and 77%, respectively.

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5. The Government may use means from the Nuclear Waste Fund (to which the nuclear utilities have to pay a fee per kWh to cover all costs for nuclear waste management) for this purpose.

6. At that time the Government had declared that it expected SKB to base a future application for a siting permit on 5-10 feasibility studies, at least two site investigations and one detailed investigation.

## 3. Interaction between municipal representatives and the public[7]

### *3.1 Nyköping*

The municipality of Nyköping was approached by SKB in the first half of 1995. The reaction by the elected municipal leadership was in essence the following: It is not required by law for SKB to acquire a permit by the municipality or by the Government to carry out a feasibility study. Given this fact, the elected municipal leadership did not see any reasons for the municipal council or for the municipal board to deal with or even to discuss this matter at this stage. But the municipal representatives told SKB that they were not negative towards the company's plans. They also announced that they intended to set up some sort of working group with the task to follow SKB's work and to review the results. This reaction could be characterised as a passive consent.

The municipality set up an Information and Review Group. All members of this group are representatives of each political party represented in the municipal council. The task of the group is to represent the municipality towards SKB. The person who chairs the group is an elected representative for the leading political party and is given a sort of political accountability for the municipality's involvement in the project. In early 1996 the municipality also initiated a Reference group. The two groups have the same chairman. About 20 different local associations were invited to join the Reference group. These associations represented local trade unions, local commerce and other business and local nature preservation and environmental interests.

Leading representatives from most of the "established" political parties in Nyköping seem to have been unanimous in their judgement that this way of handling the matter was suitable. However, some critical comments were expressed by a small minority of representatives of the Environmental party and also of the Left party.

Various reports by SKB's consultants were made available to the public by SKB as soon as they were drafted. SKB presented such drafts on several occasions for discussions within the above mentioned two groups set up by the municipality. A preliminary report of the feasibility study was presented by SKB in May 1997. Information about the contents of the report was given by SKB at a public meeting with the municipal council. The council members raised very few questions during the discussion following the presentation.

The idea behind presenting a preliminary report was to give possibilities for the municipality and the general public to give their views as a basis for a final report. The municipal answer to SKB appeared more than two years later, in December 1999. SKB has announced that a final report is due for publication in late 2000.

Presence at meetings of the Reference Group was not as high as could have been expected. In late 1996 two of the most militant critics of SKB's activities chose to leave the group, claiming that participation was meaningless, as the elected politicians did not take their views seriously. Meetings with the Reference group became rare, but recently initiatives have been taken in order to revitalise the group.

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7. The interaction described in this section is designed to meet requirements under Council Directive 85/337/EEC on the assessment of the effects of certain public and public projects on the environment as amended by Council Directive 97/11/EC, as well as the Aarhus Convention (ECE/CEP/43) on access to information, public participation in decision-making and access to justice in environmental matters.

In practice, the members of the Information and Review Group played the key role. Municipal staff provided secretarial assistance to the group. After the presentation of SKB's preliminary report in May 1997, the group decided to ask independent consultant firms for an assessment of the report. According to the consultants, whose answers were presented in late 1997, the report held a good professional standard, but some additional studies were recommended.

Originally SKB had expected to be able to deliver a final report during the summer of 1998. But the municipality's Information and Review Group considered a broad and deep consultative process necessary as a basis for the municipality's reaction to SKB. The group asked local political parties and a broad range of local associations for business, trade unions, leisure activities, nature preservation and environmentalists etc. to present their views on the issue. Private citizens were also encouraged to give their views. This process took about one year. The Information and Review Group spent almost another year to draft a review statement, which eventually was presented to the municipal board. In December 1999 the board decided to adopt the draft as the municipality's answer to SKB. A major point in this statement was that SKB was asked to study more thoroughly alternatives to the location that had been considered as a main alternative in the study.

## *3.2 Oskarshamn*

### *3.2.1 A special position with regard to nuclear waste*

When the municipality of Oskarshamn was approached by SKB in 1995, the political leadership had to take into account some facts that made the situation for the municipality very special. Among these facts were:

- The municipality had already in 1979 agreed to host SKB's interim storage for spent nuclear fuel from all Swedish nuclear power plants (CLAB; in operation since 1985).
- In the late 1980s the municipality had agreed to host SKB's underground hard rock laboratory, provided that this laboratory would never be used as a repository in the future.
- SKB had presented plans in 1992 to enlarge the existing CLAB facility and to construct an encapsulation facility immediately adjacent to CLAB.

SKB's plans for enlargement of CLAB and for constructing an encapsulation facility led the municipality to decide to build up municipal competence to deal with the nuclear waste management issue. The municipal strategy was to create a situation in which municipal experts could match the experts of the company, at least by being able to discover possible weak points in arguments put forward by the company. After applying to the Government for economic support for this initiative, the municipality was given a grant in 1994 and started a project called Local Competence Development.

At that time, new rules concerning how to make environmental impact assessments (EIA) in connection with large projects had been enacted. An important part of these rules concerned the duty of the implementer of a big project to consult, at an early stage, with those who might be affected by the project and to take their views into account during the planning stages of the project. The municipal leadership meant that this new legislation should be used in order to give the municipality a thorough insight in SKB's plans and a possibility to influence the contents of those plans.

By initiative from the municipality a local/regional body called the EIA-Forum was formed. The forum was chaired by a leading civil servant from the County Administration and consisted of representatives from the municipality, SKB and the regulatory authorities (The Nuclear Inspectorate and the Radiation Protection Institute). The original aim was to be a forum for information exchange and discussions in connection with SKB's plans for enlargement of CLAB and the siting of the encapsulation facility, and to advise SKB on the contents of future EIA-documents. The key concept was openness. It was made very clear that this forum had no decision powers of any kind; the participating organisations were not bound by deliberations in the forum for their future considerations.

### *3.2.2 Interaction*

As a result of historical facts (see section 3.2.1) both elected politicians and their staff possessed thorough knowledge about nuclear waste management. Therefore they were prepared to cope with the situation when SKB approached the municipality in May 1995 about a feasibility study.

The municipal answer to SKB was prepared carefully. The elected municipal council started by arranging information meetings for the public during the summer of 1995. During the rest of 1995 and first part of 1996 two advisory groups of politicians representing all political parties (one senior group and one "youth" group) considered the issues and arranged meetings for the general public. At some of the meetings critics of SKB – coming from other parts of Sweden and from other countries – were invited to present their views. Household brochures were produced etc.

At a regular meeting of the municipal council in August 1996 the two advisory groups of elected representatives presented their conclusions. A broad and deep discussion, based on thorough knowledge and considerations, took place. The municipal council was ready for a decision in October 1996. SKB was "allowed" to carry out a feasibility study in the municipality provided that certain conditions were met. Some of these conditions were more directed towards the Government than towards SKB. The authority of the municipality to make its own decisions was stressed. It was quite clear from the decision document that only a feasibility study had been "allowed". Should the issue of a siting investigation be brought up by SKB later on, the municipality felt entirely free to make its own decision on that issue.

Based on considerations, which were allowed to take almost one more year, a municipal feasibility study organisation was set up. The municipal council and the municipal board head this. Experts within the Project Local Competence Development mentioned earlier should serve as resource persons to six separate working groups (about 6-8 members) for different subject matters. Four of these groups were set up to match SKB's feasibility study organisation, the fifth should focus on information issues and the sixth on connection points between the feasibility study and SKB's plans for an encapsulation facility.

A minority consisting of representatives of the Centre Party and the Environmental Party had voted against the municipal council's decision in October 1996 to "allow" SKB to carry out a feasibility study. But once the decision was made, the representatives of these two parties have also involved themselves actively in the municipal feasibility study organisation, and have contributed positively to the work.

The tasks of the six groups were to develop competence within the group and within the municipal council and to convey municipal views to SKB during the study. The chair and one of the members of each group were also members of the municipal council (all political parties had a

representative in at least one group). The municipal board selected the remaining group members among citizens who did not represent a political party but were considered to represent different sectors of society. Conscious efforts were made to ensure that women and the younger part of the population were well represented in the working groups. Members of the working groups were expected to have close contact with different parts of the population.

The work within these groups started in August 1997 with competence development. Detailed discussions took place during more than a year on a regular basis as SKB presented different draft reports.

The local/regional EIA-forum (see section 3.2.1) had expanded its mandate to also cover the feasibility study. The municipality raised many issues at frequent meetings (about six per year) with this forum. The expression "to stretch SKB" was used. It illustrated conscious efforts to obtain clear answers by the company on every issue raised at the EIA-forum meetings. It is obvious that SKB has worked with an ambition to respond positively to this "stretching".

In June 1999, SKB presented a preliminary feasibility study report to the municipal council.

The municipal review work was done with the help of the working groups described above, although in a somewhat changed organisation. No more outside experts were called upon to review the preliminary study. As a part of the review work the municipality invited some 100 different local organisations and associations to give their views. About 30 answers were received. Before the municipal answer to SKB was drafted, the municipality handed over all critical comments or questions to SKB demanding an explanation or a clarification.

Based on this interaction with different parts of the community, the municipal council decided on an official response to SKB's preliminary report in March 2000. Some clarifications and supplementary information were asked for. The municipality stated clearly that if SKB would wish to regard Oskarshamn as a candidate for an encapsulation facility or a site investigation, the municipality would demand a clear EIA-process, a clear decision-making process, and a solid basis for decision making.

### *3.3 Tierp*

As a close neighbour of Östhammar, the municipality of Tierp was well aware of the feasibility study that SKB was conducting. In April 1998, the municipal leadership was informed by SKB that it might be interesting to study some areas close to the border of Östhammar. Further discussions during the following weeks led to a formal letter, in which SKB asked Tierp about the municipality's attitude towards a possible feasibility study covering the entire municipality.

The elected representatives of Tierp acted quickly. As early as June 1998 the municipal council voted unanimously for a positive reaction. No conditions were attached to the decision.

During the rest of 1998, the municipality drafted a "plan of action" on the issue. In February 1999 the municipal council adopted the plan. The only critical voices came from the representatives of the Environmental party.[8] The plan of action stated that the municipality should have a high profile

8. The unanimous vote in June 1998 had included the representative of the Environment party. As a result of the municipal elections in September 1998, other persons represented the party.

and should also be prepared to accept a possible future request by SKB to carry out a site investigation, provided that the results from the feasibility study would justify such an investigation. This high level of ambition demanded, according to the plan document a deep and broad work with information and competence development, aiming at informed participation by the citizens and an ability to carry out a critical review of SKB's work.

A municipal "feasibility study organisation" was set up. It consists of the working committee of the municipal board, a political co-ordinator and a reference group of 14 members. This group is chaired by the political co-ordinator and consists of representatives of all political parties in the municipal council, and of local groups such as local associations for nature preservation, trade unions, business, parents of small children and a local opinion group (SOS-Tierp; a group with strong views on the municipal decision to let SKB carry out the feasibility study). The task of the reference group, which is assisted by a small municipal staff, is to follow SKB's work closely and to provide municipal input to the study.

As SKB produced a number of different reports during less than a year, intensive discussions took place between the reference group and SKB. The company's preliminary report from the feasibility study was published in February 2000 and the municipality was asked for comments.

The municipality asked two Swedish universities for review statements. However, the statements received covered only rather limited aspects of the issues. The municipality also invited a great number of different local associations to comment on SKB's preliminary report. About 35 more elaborate comments were received from organisations and associations, together with about ten from private persons. After an analysis, the reference group will draft a proposal for the municipal council's answer to SKB in November 2000.

It should also be mentioned that the three neighbouring municipalities of Tierp, Älvkarleby and Östhammar have recently agreed to regard the issue of siting a final repository for spent nuclear fuel as an issue of common regional interest and co-operation. The practical implications of this approach remain to be seen.

## 4. Municipal information and competence development[9]

### *4.1 Nyköping*

During the initial phases of the feasibility study the municipality invited the public to information meetings at different places, also in one adjacent municipality. Relatively few people attended these meetings (estimations say 50-150) and other measures seemed necessary in order to reach out to the public. A brochure was distributed to every household with information about SKB's plans and the role of the municipality. With the exception of a few loud critics (see section 5.1), the response from the public was weak. During 1998 the municipality tried to interest people to discuss the matter in study circles. The result was about 120 people attending the circles. Many of these became involved in the work of different local associations, which were invited to give their views on SKB's preliminary report to the Information and Review Group (see section 3.1). In advertisements,

9. Besides information and competence development organised by the respective municipalities, SKB has had an extensive information programme in all six municipalities. This paper focuses on activities organised by the municipalities themselves, although in some cases in co-operation with SKB.

signed by the municipality, all inhabitants were asked to give their views on the issue to the Information and Review Group. Between 1998 and 2000 a number of qualified lectures have been given for the general public on such different issues as relevant legislation, the decision-making process, transmutation, geology, safety after sealing, glaciations, groundwater problems, archaeology etc.

Together with SKB the municipality has arranged about 80 bus trips to SKB's installations in Oskarshamn (250 km away), particularly the interim storage for spent nuclear fuel (CLAB) and the Äspö underground rock laboratory. About 2000 people have participated in these visits. Special tours have been arranged for members of the municipal council. Members of the municipal Information and Review Group have also made study visits to other countries such as Finland, Germany, Switzerland and France.

The municipal web site has been used to make all protocols from meetings with the Information and Review Groups easily available. The general public has been encouraged to use the web site for questions and comments. Special efforts have been made to interest younger citizens of Nyköping for questions in connection with the feasibility study.

### *4.2 Oskarshamn*

Strong efforts have been initiated by municipal political leaders to make members of the working-groups and the municipal council aware of different aspects of problems connected with nuclear waste management. A deep insight into the problems has been regarded as a prerequisite for a well-informed decision making. However, as can be concluded from section 5.3, such insight has to be combined with factual knowledge and feelings among the general public.

In the annual report 1999 by the project Local Competence Development, some 400 municipal "activities" are listed for the 5-year period 1994-1999. Examples are meetings, seminars and exhibitions arranged by the municipality, participation in meetings and seminars arranged by others, participation in study trips within and outside Sweden, production of information brochures. A large number of people from the municipality have been encouraged to visit SKB's different installations in Oskarshamn. Extensive information is available on the municipal web site.

### *4.3 Tierp*

During the first part of 1999 the municipality arranged a number of public meetings in all major communities of the municipality. SKB, the regulatory authorities and the Ministry of the Environment provided basic information. Only a few persons attended the meetings. The municipality gave financial support to a meeting arranged by the opinion group SOS-Tierp (see section 3.3.). A panel debate on the issue in August 1999 attracted more visitors. More qualified arrangements took place during the autumn of 1999, directed specifically towards members of the reference group for competence development.

Much work was devoted to competence development among the members of the reference group, including study visits to Oskarshamn, France, Germany and Finland.

More active information work focussing on the general public started in connection with SKB's publication in February 2000 of the preliminary report from the feasibility study. The attendance at public meetings has varied. But people living close to areas which have been identified

as potentially interesting seem to have attended. A “school project” has been initiated together with the regulatory authorities, SKB and SOS-Tierp. Study tours by bus for the general public to SKB’s installations in Oskarshamn (about 500 km away) have been arranged. The tours include an overnight stay. Up to now, about 800 persons have participated. The municipal web site is an important medium where all relevant municipal documents concerning the feasibility study are easily available.

## 5. Elected representatives and “concerned groups”

### *5.1 Nyköping*

As mentioned in section 3.1 most of the elected representatives of the political parties in Nyköping saw no reasons to have the issue of SKB’s feasibility study under discussion in the municipal council. Their position seem to have been that the issue should first be put on the council’s agenda when and if SKB concluded that the company wanted to carry out a site investigation within the municipality.

The inhabitants of Nyköping have so far shown limited interest in SKB’s feasibility study. Some opposition has, however, been noticed from a couple of local organisations. The most active group – Rädda Fjällveden (Save the Fjällveden area) – was set up more than fifteen years ago in order to prevent SKB from exploratory drilling in the area. Another organisation, which has shown an active critical interest in SKB’s feasibility study, is a local regional historical society, based in one of the areas that have been pointed out as a possible candidate for a future siting. These groups are very critical towards both SKB’s siting activities and towards the municipality’s acting in this matter. Rädda Fjällveden chose in late 1996 to withdraw from participation in the municipal reference group (cf. section 3.1). The later group has requested comparatively extensive economic support by the municipality for their own information activities, but their requests have been turned down, with the exception of some minor funding in connection with meeting arrangements. They have made complaints to regulatory authorities and the Government regarding the decisions by the municipality, but neither the authorities nor the Government have found reasons to intervene. Representatives of these opinion groups have accused leading local politicians of handling the matter of the feasibility study in an undemocratic way by not putting the issue on the agenda of the municipal council. People from these groups have declared that they have no trust whatsoever in the established municipal politicians.

At present it is difficult for an outside observer to assess whether these very critical voices reflect the feelings of a substantial part of the population in the municipality of Nyköping. Obviously the fact of the existing deep mutual distrust between the municipal political establishment and these opponents must be considered by SKB as one factor when the company decides its strategy for site investigations somewhere in the country.

### *5.2 Oskarshamn*

When representatives of the municipality explain the motives for the deep municipal involvement in the nuclear waste management issue, their arguments can be summarised in three major points.

- The municipality has a very special situation, as the spent nuclear fuel from all Swedish reactors will be temporarily stored at CLAB. If no solution or site is found, the fuel will remain in the "municipality back yard". The problem cannot simply be voted away.
- Active participation will contribute to a better programme. The industry and the licensing authorities have numerous experts in *natural* sciences – but their understanding of public reactions and what forms this particular local society is limited. Local political leaders and the public itself are far better suited to evaluate their current and future needs. Only with the active participation of representatives of the municipality can this knowledge be shared by implementors and regulators, and thus included in the overall basis for future decisions.
- An important bonus effect is probably an increased respect for the political system in general and its ability to handle multi-facetted societal problems. According to the local politicians of Oskarshamn, a passive municipal strategy would be detrimental, as it might lead to mistrust of the ability of the representative democratic system.

In particular the last point illustrates a conscious intent to avoid a situation where "concerned" groups of citizens could argue that their arguments are not taken seriously or, even worse, they are not even listened to.

### *5.3 Tierp*

As mentioned in section 3.3, the critical opinion group SOS-Tierp was formed soon after the municipal decision to let SKB carry out a feasibility study. Inhabitants of a small community close to one of the identified areas of potential interest have also shown a critical attitude towards SKB's work.

The SOS-Tierp opinion group has kept a high profile from the beginning. In September 1999, the group applied to the municipal board for substantial economic support for a local information project on the nuclear waste management issue. After some considerations, the board granted the necessary funds to SOS-Tierp.

The written motivation for this decision can be summarised as follows: SOS-Tierp reviews SKB's plans for a disposal method and for the site selection process starting from a critical attitude. By doing so, the group is actively contributing to a comprehensive feasibility study. The group is guided by commitment and by knowledge, and is thus playing an important role in forming public opinion within the municipality.

It should be noted that one of the most elaborate review statements to the municipality on SKB's preliminary report was produced by SOS-Tierp in September 2000. However, it remains to be seen which impact these comments will have on the municipality's comments on SKB's preliminary report.

## 6. "True" representatives of the public – conclusive remarks

Discussions on public participation and public involvement in major projects frequently give raise to questions such as: Who is the public? Who should participate? Who are the "true" representatives of the public? Sometimes public participation is even regarded as something that has to take place outside the "ordinary" or "traditional" political system of a country.

All six Swedish “feasibility study municipalities” have made considerable and admirable efforts to tackle local problems connected with information and building up knowledge in issues relating to nuclear waste management and final disposal. There is a clear commitment to give both the elected representatives and the public a solid basis for making informed decisions.

Municipal efforts are facilitated by the fact that SKB is consciously sending top management and/or senior personnel to all meetings with the municipalities. Of equal importance has been SKB’s attitude in recent years to approach the municipal representatives – with no ready-made “solutions” but with ideas, which require common further discussions in order to find a solution. “Dialogue” seems to have replaced “information” as a key strategy for SKB’s relations with concerned municipalities.

The fact that the regulatory authorities gradually have realised that they have to be active and visible in the local arenas has probably also strengthened the position of municipal representatives. The activities of the authorities are not limited to occasional information, but mean current contacts on senior staff level. The regulators are actively demonstrating that they are in the service of the citizens and accountable to them.

The three examples from Sweden presented in this paper show that there are ways for the representative democracy on the local level to handle issues concerning nuclear waste management in a manner that also creates trust and respect from critical groups.

It seems clear that the elected politicians in Nyköping have worked with the intention to create an open decision-making process and to ensure that all views are carefully considered. But in Nyköping elected politicians have been met by more distrust by local critics of SKB’s activities than has been the case in the other two municipalities. A few of these local critics have chosen not to co-operate within the group set up for advisory purposes by the municipality. In stead they have forwarded their arguments through the local media. This seems to have resulted in a growing cleavage between them and the “established” representatives of the municipality. Requests for comparatively extensive economic support have been made, municipal representatives have decided to turn down such requests – and the gap has increased. At present, chances to improve the prospects for a dialogue seem to be limited.

How deep and how widespread this distrust is and why it exists can only be determined by a more thorough analysis. Recent opinion surveys indicate that three quarters of the population in Nyköping would accept further investigations (cf. section 2). But the attitude of elected representatives to refrain from having a public discussion in the municipality council about the involvement in a feasibility study, may be vulnerable to criticism.

In Oskarshamn there seems to be no debate at all about who should be considered to be the “true” representatives of the public. The deep involvement of the municipality does not seem to have been questioned by anyone.

A possible reason for this is the fact that the municipal attitude has been one of addressing the nuclear utilities with firm and distinct demands and of accepting only satisfactory responses to those demands. The municipal attitudes to the nuclear waste management issue is also characterised by a strong commitment to openness in the decision-making process. But commitment to openness and respect has also gradually become a characteristic of SKB’s attitude towards municipal representatives. This open attitude has given the elected representatives an opportunity to show their voters that views and opinions from the municipality in fact have influenced behaviour and decisions by SKB.

This fact may have contributed to a situation where the public has trust in their elected representatives. Another contributing factor may have been the fact that, once the decision of "allowing" a feasibility study in the municipality was made, all political parties have agreed not to make local party politics on this issue. The result seems to be that the matter of democratic legitimacy for elected representatives is a non-issue in Oskarshamn.

Representatives of the municipality have described the "Oskarshamn model" by the following seven points[10]:

- Total openness and participation – real influence.
- The EIA-process is our tool – we co-operate on discussing which material is needed for making decisions, but we make our decisions independent from other stakeholders.
- The municipal council is our reference group – members of the council are competent and are answerable to the voters.
- The general public is a resource – a distinct decision-making process and concrete proposals result in commitment and influence.
- Local environmental groups are a resource – these groups and their experts are giving important contributions to the work.
- SKB is "stretched" for clear answers – we must have knowledge in order to be able to formulate the difficult and relevant questions.
- The regulatory authorities are *our* experts – the authorities participate during the whole process and we make *our* decisions after listening to their views.

Relations in Tierp are characterised by the existence of two fields of forces. One is the elected politicians who are anxious that their municipality continues to be concerned by SKB's site selection process. The other is a dedicated opinion group, which questions both the municipal involvement in SKB's site selection process and basic parts of SKB's scientific work. But these two fields of forces seem to have succeeded in having a working relationship.

It seems clear, in the case of Tierp, that the "concerned" group so far feels that the elected representatives have treated it fairly and with respect. The issue of the legitimacy of the elected representatives has therefore not been on the agenda.

10. It should be noted that this approach has been applied to an actual licensing case: In 1998, the municipality of Oskarshamn gave its formal consent (required under Swedish law) to the extension of the CLAB interim storage facility, after an EIA-process that was more extensive than required by the legislation in force at that time.

*Appendix*

## Roles and responsibilities in Swedish nuclear waste management

The current Swedish process for siting a deep repository for spent nuclear fuel has evolved during a period of many years, through inputs by the nuclear industry, Government, regulatory authorities and concerned municipalities. The basis for this process is "the polluter pays principle", which is reflected in all legislation regulating nuclear activities in Sweden. Applying this principle on the case of nuclear waste means that the nuclear industry, represented by the Swedish Nuclear Fuel and Waste Management Co (hereafter referred to as SKB), has the full responsibility to find a solution to the waste management problem, to implement the solution and to carry the costs – and to do this under the supervision of Government and regulating authorities.

But, given the strong tradition of local self-government (including the rights for municipal councils to impose municipal taxation), the concerned municipalities, the local population and their political representatives are holding the key role in the siting process.

It is thus the task of SKB to find the necessary and suitable technical solutions and to convince the Government and the regulatory authorities that these solutions should be accepted. SKB is expected to apply for the necessary permits for the siting of a certain type of facility at a certain place in one of the 289 municipalities in Sweden, and the Government and the regulatory authorities will eventually decide if such permits will be granted.

There are legal provisions to make sure that regulators and the Government have insight into and influence over the general direction of the work of SKB. According to these provisions, SKB is every third year obliged to present to the Government its programme for research and development. These programmes are thoroughly reviewed by the competent authorities, primarily the Swedish Nuclear Inspectorate and the Swedish Radiation Protection Institute. As a part of the review, these authorities ask for advise from other government authorities and from universities. Comments are also invited from environmental organisations and from municipalities, which are directly concerned by the work of SKB.

Based on recommendations by the nuclear regulatory authorities and ministerial advice, the Government states its opinion about the general direction of SKB's work as described in the RD&D-Programme. These recurrent government statements have an important influence on the work of SKB. The statements mainly concern the general direction of this work. But the Government may also state its opinion on various details of SKB's programmes and plans.

The latest Government statements on SKB's RD&D-Programmes were issued in May 1995, December 1996 and January 2000. These statements, together with current legislation, have helped to clarify the roles for implementers, regulators and concerned municipalities respectively.

The current siting process may be described as a step-by-step approach with identifiable phases.

These phases are termed general siting studies (covering the whole of Sweden or different regions of the country), feasibility studies (in five to ten municipalities), site investigations (at least two) and one detailed site characterisation. Given that the result of the detailed site characterisation is

favourable, that site will step by step be developed into an operational repository. At present SKB is in a phase where feasibility studies are being carried out, as well as regional siting studies.

It should be noted that SKB does not need any formal permits by any government authorities or by any concerned municipality to carry out the general siting studies, the feasibility studies and the site investigations. Only when the siting process reaches the phase of detailed site characterisation, an application to the Government will be needed. From that phase on, the decision-making process is regulated in detail.

# THE CHALLENGE OF INTERACTING WITH THE PUBLIC ON NUCLEAR EMERGENCY PREPAREDNESS AND IODINE PROPHYLAXIS

**L. Van Bladel**
Ministry of Social Affairs, Public Health and the Environment
Belgium

**A. Pauwels**
Federal Agency for Nuclear Control
Belgium

**P. Smeesters**
Ministry of Social Affairs, Public Health and the Environment
Belgium

## Introduction

In 1999 the Belgian federal authorities launched a large-scale campaign on nuclear emergency preparedness. The main objective was to inform the public at large of the whole territory on all aspects of radiological accidents and more specifically on the possible countermeasures, some of which they might be asked to take an active part in. At the same occasion, people living within the 10-kilometre zone surrounding the major nuclear sites were invited to collect a household stock of iodine tablets from their local pharmacy. Some well-defined target groups were offered specific and more extensive information. This was done for intervention workers, medical doctors, pharmacists and persons carrying responsibilities in schools, like principals and teachers. This paper first discusses the objectives of the campaign and the content of the information, explains the organisational set-up and practical execution, and finally gives some preliminary results of a recently conducted study on the perception of this campaign by members of the public.

## Campaign objectives

In general, the aim of this campaign was to offer information that enriched people's general knowledge on radiological accidents, thus bringing them in better conditions to assume, in the long term, their proper responsibility as well-informed citizens. But most and for all the concrete and short-term goal was to ensure, through a better public awareness and understanding, a more efficient and easier execution of countermeasures, if ever they might be necessary.

The information that needed to be disseminated to members of the public at large therefore had to offer basic information on the phenomena of radioactivity and ionising radiation as well as on radiation risks. It further had to treat subjects such as plant security, both accident probability and

severity and radiation detection and monitoring. Most attention was to be paid to the ways in which accident-related information would be spread in case of a radiological crisis and on the different countermeasures that could be applied. Finally, further sources of information on these and related matters were to be indicated. Obviously, this information needed also to be in accordance with article 5, on prior information, of the Council Directive 89/618/Euratom "on informing the general public about health protection measures to be applied and steps to be taken in the event of a radiological emergency".

People living within a distance of 10 kilometres in any direction around major nuclear installations were to receive further information with regard to the stable iodine countermeasure and were to be explicitly invited to pick up free boxes of stable iodine tablets at the local pharmacy of their personal preference. This kind of passive distribution of iodine tablets via pharmacies was considered to be presenting certain advantages over the absence of predistribution up to the household level as well as over any other way of predistribution. Predistribution in itself should allow the simultaneous application of both the sheltering and stable iodine prophylaxis countermeasures, without having to deal with the risks – run either by members of the public or by intervention workers or both – linked to organising the distribution in the pre-release or release phase of a radiological accident. Dispensation via pharmacies would stress the fact that iodine tablets are medicinal products and would make them readily accessible to everyone, since the density of pharmacies is such that there is one pharmacy for every 1800 inhabitants, they are well spread over the territory, and that they have a low psychological threshold. The involvement of pharmacists would allow professional advice at the time of pick-up, which is particularly useful for cautioning people for whom the use of iodine tablets is not at all or less indicated. In this way, the risks of applying the stable iodine countermeasure could be reduced, an advantage that could be translated into a lowering of the intervention levels. A major drawback being the fact that the success of any passive distribution campaign is very dependent on the response by the public, the quality of the information campaign is of the utmost importance: a good information campaign should incite a large proportion of the target population to pick up their tablets, while carefully avoiding to cause any useless anxiety or even panic.

For people living at a distance of in between 10 and 20 kilometres from any major nuclear site, iodine tablets were also available at the local pharmacy. However, these people were not to be invited to pick them up, but to leave them at the pharmacy. Nevertheless they were also to be told that, if so desired, they could collect the tablets intended for the members of their household free of charge, and keep them at home.

Iodine tablet stockpiling was also to take place at schools, factories, workplaces, shopping centres, etc. up to 20 kilometres in all emergency-planning zones. For emergency services such as fire departments, police offices, etc., this was to be done up to 30 kilometres. Since the same distribution way was chosen, a passive distribution via the local pharmacies, additional specific information and invitations for picking up tablets were needed.

Specific information to health professionals like medical doctors and pharmacists, apart from being undoubtedly useful in extending their professional core of knowledge on the subject, was also considered very useful – if not indispensable – in supporting the campaign directly aimed at the general public. Therefore, all Belgian pharmacists and medical doctors would not only receive practical and technical information, but also a lot of scientific and "background" information on all aspects of nuclear emergencies. This way, the health professionals would have a frame of reference and even some kind of expertise on the subject, which would allow them to act as a secondary source of information for their clients and patients. The information to the public would explicitly indicate these health professionals, amongst others, as a possible source of additional information.

Pharmacists might, apart from their role as a safeguard in the preventive distribution of iodine tablets, have to play an important practical role in any radiological crisis actually happening, since throughout the country every pharmacy has a compulsory stockpile of stable iodine in the form of KI-powder and solutions containing iodine. This would also ask for specific practical information on possible ways of preparing and dispensing large numbers of suitable doses in a limited time.

With respect to medical doctors, they would invariably intervene as the secondary information sources mentioned earlier and, in addition to the pharmacists, play the role of safeguards. Doctors involved in school medicine or in occupational medicine however would be the primary safeguard when considering the stable iodine stockpiles in schools, factories and workplaces.

It is rather self-evident that intervention workers, who themselves could be called upon in the event of a radiological emergency, were to be briefed in advance on all elements of the information campaign. Although they were not explicitly mentioned as secondary information sources, their role as such was considered to be a useful spin-off. Since emergency services could, in accidental circumstances, serve as iodine tablet dispensers, they needed adequate information on that subject as well.

Information campaigns to principles, teachers and school children were also considered to be useful in more than one respect. First of all, the children's high susceptibility to radiation-induced adverse health effects was seen to be calling for a particular attention that could be met by a specific campaign to this target group. Secondly, the use – especially by underage children – of the iodine tablets stockpiled at school, and its possible legal consequences, also asked for information to headmasters and teachers. Thirdly, introducing concepts like radioactivity, radiation risk, nuclear accidents and countermeasure strategies was thought to sensitise these young to very young people for these subjects, thus offering major long-term opportunities. And finally, the secondary sensitisation of the adult population via the children was looked upon as a most profitable side effect.

**Organisation and practical execution**

Since health professionals were to be informed well before starting the information campaign for the general public, already in 1997 and 1998 lectures for these groups were organised at the vicinity of all major nuclear installations. These lectures, open to anyone showing interest, were publicly announced in those publications that are widely distributed amidst and read by the members of the pharmaceutical and/or medical corps. Pharmacists and medical doctors living up to 20 kilometres from the considered sites received a nominative invitation to participate in these lectures. At each site, several possibilities were offered at different dates in order to allow a maximum of interested people to fit these lectures into their schedules. On demand, additional lectures could be organised for given subgroups, like for doctors working in school or occupational medicine for instance.

The lectures destined to medical doctors consisted of two evening sessions of approximately three hours each. The first session covered topics such as nuclear physics, radiobiology and the possible treatments for irradiated or radiologically contaminated victims. The second session focussed on nuclear accidents, nuclear emergency planning and countermeasure strategy with special emphasis on stable iodine prophylaxis.

Pharmacists were invited to participate in one evening session of about three hours and a half. The same topics were covered, albeit somewhat less in depth than what was being done for medical doctors, except for the information with regard to the stable iodine countermeasure.

A few weeks before the onset of the public information campaign, together with practical information on this campaign, a set of three scientific articles was sent to all Belgian physicians and pharmacists (a total number of approx. 50 000 persons). One article was on radiobiology, another on urgent measures in case of irradiation and radioactive contamination, a third one on nuclear emergency countermeasures and more particularly on stable iodine prophylaxis.

Together with the iodine tablets themselves, pharmacies situated in the 20 kilometre planning zone received an abstract of former information and some last practical details at the time of delivery.

Throughout the campaign, these health professionals were offered the possibility of obtaining further information at a specific contact point within the Ministry of Public Health.

As for the information aimed directly at the general public, actions were initiated with a national press conference. There, journalists could learn what kind of actions towards the public were to be expected for the days and weeks to come, and why these actions were undertaken. From that moment on, a call centre was activated to deal with questions of both press and public. The following days, press conferences were organised at the provincial level. In these, the same information was repeated, although some tailoring was done in order to adapt it to the needs and specificity of the local situation. During the same week, large advertisements were put in all national newspapers. They announced that the federal authorities had information on nuclear emergency planning and response available. They explained why this information could be useful for people throughout the country, and where and how this information could be obtained. Written information in the form of folders was available at every post office, and brochures containing more comprehensive information could be freely obtained on simple request at the Ministry of the Interior or at the Federal Information Services. The same information and more was available on the Internet site of the Ministry of the Interior.

The 1 600 000 people living within 20 kilometres of major nuclear industrial or research facilities automatically received the brochure in their mailbox at home. Those within the 10-kilometre zone (a total of about 300 000 people) received an additional explanatory leaflet on the prophylactic use of stable iodine that also invited them to pick up one box of potassium iodide tablets per person in the household at a local pharmacy of their personal preference.

People in charge of factories, schools, emergency services, etc., received, together with an explanatory brochure, a specific invitation for collecting an iodine stockpile corresponding to half a box of iodine tablets per person.

The Ministries of the Interior and of Public Health offered financial and/or logistic support (materials, teaching aids, lecturers) for further organisation of oral information sessions throughout the country set up either by local authorities or by all kinds of organisations, provided the presence of a minimal number of people (at least one hundred) could reasonably be expected and attendance was free. This formula proved to be very successful during the first weeks after the onset of the campaign and even now, one and a half year later, we still get requests.

As for intervention workers, they received, besides the usual content of the education and training courses that are continuously organised for these target groups by the Ministry of the Interior, fully written and/or oral information on the campaign.

For different reasons (conflicts of competence between authorities, budgetary restrictions…) the project on a specific information campaign for schools could only very partially be put into practice: In the province of Namur, several oral information sessions were organised for school

principals and for a limited number of teachers. Some logistic support was offered for further spreading of the information in school communities.

**Preliminary results**

In order to find out if this campaign has been successful in getting across the information as planned for, we contracted the Faculty of Social and Political Sciences of the Antwerp University (D. Mortelmans, A. Bergmans) to study this subject for and with us.

The study was conducted in the spring of 2 000, thus one year after the onset of the information campaign to the general public. Over 5 000 questionnaires were randomly sent to the heads of the households living up to 20 kilometres of the major nuclear installation sites. Analysis of the results is still going on and a full report of the findings can only be expected for January 2001. Therefore, the results presented here should only be seen as a sketch in broad outlines.

Some 1 407 people (28%) responded to the questionnaire. The respondents seem to correspond well with an average population on the basis of socio-demographic parameters such as, age distribution, level of education and level of income, number of children. There were exceptions in that most respondents were males (61%) and that over 80% owned the house they lived in, which is well over average.

Prior to the information campaign, most people did not have any or only very little knowledge on the subjects treated by the campaign, and never or hardly ever gave these subjects a thought, and this independently of the distance between their homes and sites with major nuclear activities. These findings are in very good agreement with the results of a very limited study conducted by the Federal Information Service, just before the onset of actions in the spring of 1999.

Most respondents (78%) seem to be well to very well pleased with the campaign elements (brochure, leaflet, accompanying ministerial letter). The brochure, for instance, was evaluated 7 to 8 on a scale of 10 by most respondents. These values apply for content as for presentation.

The most important messages on emergency preparedness that were in the written information seem to have been well understood by a lot of respondents. On questions regarding the application of countermeasures, between 67 and 80% still come up with correct answers one year after the campaign was launched. About 78% of the people tried to get additional information, most frequently (74%) turning to their pharmacist and/or physician. Apparently, our counting on an important role to be played by health professionals in acting as secondary sources of information turned out to be legitimate.

Some 76% of the residents of the 10-kilometre zone declare to have picked up their iodine tablets. On questions with respect to the implementation of other countermeasures, the sheltering countermeasure is well understood and acceptable to most (96%). Up to 23% of people say they would “pack up and go” if possible. Although they was very strongly discouraged to do so, 43% of people would start making calls (to family in particular) in case of a radiological emergency, and 30% would pick up their children at school before acting on whatever recommendation of the authorities.

The perceived risk of occurrence of a severe nuclear accident in Belgium is high, with only 28% of people evaluating it as “small” or “very small”. Women tend to be more afraid than men: 9% of men perceive the risk as “big”, but 16% of women do so. And 20% of the male population think this risk is “very small”, but only 10% of women share this idea. The risk of occurrence of a severe

nuclear accident in other Western European countries is perceived to be of the same size, but severe nuclear accidents happening in Eastern Europe are considered probable (48%) to very probable (32%) by many.

A large proportion (50%) of the population remains convinced that, in case of a severe accident at a nuclear power plant, it would explode exactly the way an atomic bomb does. That may, together with perceived problems for the future generations (67%), be responsible for their wish to cut back energy production by nuclear power plants (76%). Most protagonists of power plant closure say they would be willing to pay the higher energy price that would most probably be the consequence (85%).

**Conclusions**

The 1999 campaign conducted by the Belgian Federal Authorities aimed at informing the general public on nuclear emergency preparedness and more specifically on iodine prophylaxis. Apart from the actions undertaken directly to the public at large, a lot of effort was put into the prior information of some specific target groups, especially medical doctors and pharmacists. Preliminary results show that overall, this information campaign was quite to very successful and that people could live with future campaigns to be conducted in a similar way. Nevertheless, if we don't want to jeopardise the possible implementation of countermeasures, a lot of work still needs to be done in order to gain or reinforce public confidence and to root out persisting misconceptions.

# NUCLEAR INSTALLATIONS INSPECTORATE
# A PUBLIC OPINION SURVEY

**S.E. Lennie**
Associate Director
Simpson Carpenter Ltd.

**A.G. Davies**
HM Principal Inspector of Nuclear Installations, HSE, UK

***Abstract***

HM Nuclear Installations Inspectorate (HMNII) is the regulator responsible for the safety of licensed nuclear sites in the UK. Recognising the need for public approval on future policy with respect to nuclear waste management, the NII commissioned a public opinion research programme amongst the UK general public. Opinion was sought on a number of issues including attitudes towards the industry in general, perception of nuclear waste and its management, tolerability of risk and attitudes towards current decommissioning plans.

In response to the primary objectives of the survey the main findings are:

- Current spontaneous level of concern over the industry in general is low (7%), and lower still for nuclear waste (3%). However, on prompting, 47% of respondents were very concerned about nuclear waste.
- Top of mind issues of concern about the industry are:
  - nuclear waste;
  - risk of accidents;
  - health risks.
- Personal risk from nuclear waste is not of overt concern and is significantly less worrisome to respondents than risk from diseases like meningitis or cancer, smoking or road accidents.
- On being presented with a statement describing current UK decommissioning plans, the sample was generally in favour. However, this issue will require further research.

## Background

The Nuclear Installations Inspectorate (NII) is the arm of the Health & Safety Executive responsible for the national monitoring of nuclear installations including the management of nuclear waste. Whilst the Inspectorate recognises that the industry is familiar with its role, it is aware that the public may have different perceptions about the industry in general and about its role specifically. This is especially true when considering risk which is defined as "the chance that something adverse will happen", and the 'tolerability of risk' which the industry has accepted at a level of 1 in $10^6$ per annum i.e. a chance of one death in a million. To place this finding in context, the general level of risk regarded as negligible[1] for death by road accidents is 1 in$10^4$ per annum and for lightening strike 1 in $10^7$ per annum. However, such criteria may not be readily understandable or acceptable to the general public.

With the rejection of the Nirex planning application at Sellafield in 1997, the Government set up a House of Lords Select Committee on the Management of Nuclear Waste, the findings of which were published in March 1999[2]. Amongst its conclusions was a recommendation that future policy for nuclear waste management should require public acceptance. The report highlighted the fact that in other arenas it is frequently the case that people may support an idea in principle e.g. a large construction project, whilst also arguing that it should not be placed in a certain location i.e. "not in my backyard".

Previous research has shown that the public in Britain has less trust in government scientists than in those working for environmental agencies[3] and any research programme should capitalise on the fact that the HSE, through the Nuclear Installations Inspectorate, has responsibility for safety standards within the industry. UK CEED has commissioned a Citizen's Panel on Radioactive Waste Management[4], the findings of which were reported in 1999. The panel concluded, *inter alia*, that waste must be stored underground and be capable of being monitored and recovered; a national site should be selected; national standards should be set for safety; public awareness must be raised and future policy should be one of openness. Whilst the panel comprised members of the public, they were informed on the relevant issues by a panel of experts and their conclusions should therefore not be seen as representing the public at large.

The French Nuclear Barometer Study[5] is a tracking survey amongst the general public and the most recent results showed that two-thirds saw the industry as a source of jobs; one third agreed that nuclear power is less harmful to the environment than other sources; two-thirds considered that dependence on nuclear energy would increase in the forthcoming 10 years; and the risk from nuclear waste was no greater than that from crime, air pollution and Aids.

An opinion study amongst Swedish[6] politicians, public health officials and the general public has shown that the three groups ranked environmental health risks in a similar order but that the

1. New Scientist: 21 February, 1998. P6.
2. House of Lords Select Committee on Science and Technology Third Report, 1999.
3. Market and Opinion Research International (MORI) 1997, Business and the Environment 1997. Attitudes and Behaviour of the General Public. August 1999.
4. Radioactive Waste Management, 1999. UK CEED National Consensus Conference, May 1999.
5. The French Nuclear Barometer 1997 Study. CEA press release, February 1997.
6. Society for Risk Analysis – Europe. 1997 Annual Meeting**.** Environmental Health Risks – Do Politicians, Experts and the General Public Have the Same Concerns? Ned Carter, Maria Hellbom, Björn Hellman, Kenneth Nilsson and Christer Edling.

degree of concern varied. The majority of the general population expressed concern for risks associated with radiation, air pollution, ozone depletion and carcinogenic substances whilst officials charged with evaluating such risks and reaching decisions about exposure tended to be less concerned. The authors concluded that there existed a need for regular and repeated surveys which could help to identify any discrepancies between concerns and calculated health risks thereby providing a useful basis for determining policy related to environmental health risks.

The U.K. Inspectorate wishes to both develop and refine future guidelines as for the industry, and obtain an appreciation of public perception of such matters. Using qualitative and quantitative methodology, Simpson Carpenter and *TNS Harris* were commissioned to carry out a programme of research designed to address these issues.

## Survey objectives

In essence, the survey seeks to establish:

- current level of public concern about nuclear related issues;
- the identification of specific issues of concern e.g. energy production, waste management, reprocessing spent fuel etc.;
- the "tolerability of risk" with respect to these specific issues and in comparison with other industries e.g. chemical, mining industries.

## Methodology

### *Qualitative phase*

Because the subject matter is both sensitive and previously untested the qualitative research programme identified the salient issues, which were then incorporated into the quantitative phase.

The objectives of the group discussions were:

- to establish level of concern, if any, on nuclear issues;
- to further explore the nature of these concerns;
- to introduce the concept of "tolerability of risk" – using other issues e.g. smoking, CJD etc.;
- to ascertain the level of trust placed in current legislation and information procedures;
- to provide feedback for the quantitative questionnaire.

The research comprised:

- Four focus groups over the period 7-9 September 1999:
  - 6-8 respondents per group
  - 2 hours duration.

- Sample:
  - mix of male & female
  - BC1C2 age 21-30 urban London
  - C1C2 age 25-45 rural London
  - BC1 age 46-60 rural Manchester
  - C1C2 age 25-45 urban Manchester.

***Quantitative phase***

*Telephone interviewing*

Interviewing was carried out by telephone, from the TNS telephone units in Manchester and Richmond over the period 21st February – 3rd March 2000. Immediately prior to the commencement of fieldwork the first instances of irregularities at Sellafield appeared in both television and newspaper reports. No such negative media coverage happened or was recalled during the qualitative phase.

*Sample*

The sample was selected by random digit dialling, and half was drawn from the towns nearest to 5 individual nuclear installations (the Near Sample), and half from regions with no installation in their conurbation (the Remote Sample). A target sample of 1 000 interviews was set, 100 for each of the 10 locations and 1 006 were achieved.

***Statistics And Scoring Techniques***

A variety of numeric and semantic scales were used to quantify respondent views on various issues. E.g. where a 1- 10 numeric scale was used for concern over an issue, the mid-point (neutral) was 5.5 and scoring interpretation was as follows:

- = not at all concerned
- 3-4 = fairly concerned
- 5-6 = neutral
- 7-8 = fairly concerned
- 9-10 = very concerned.

Statistically significant differences have been reported at 95% confidence levels.

## Results

### *Qualitative phase*

- Nuclear waste was not a top of mind issue for respondents:
  - they were fully occupied with more inward, and immediate issues.
- Nuclear waste was also not seen to offer a high risk. It was seen as:
  - something far removed, both physically and psychologically;
  - an issue which most preferred not to think about.
- There was a degree of confidence in nuclear waste management:
  - no recent negative media coverage could be recollected;
  - "no news" was seen as "good news".
- Once debate of the issues was established, key questions arose and anxieties surfaced. However, it is an issue that people do not want to be confronted with, but any information given must address key concerns. Information was required on:
  - benefits of nuclear fuel v. other sources;
  - what is nuclear waste? How much is produced other sources?
  - what is radioactive life?
  - rationale for choice of storage procedures;
  - safety of storage procedures;
  - potential risk day-to-day; major incident.

***Quantitative phase***

*Sample composition*

| **TABLE 1 : SAMPLE COMPOSITION**<br>**Base : All (1006 )** | | | |
|---|---|---|---|
| | | **Proximity To Nuclear Installation** | |
| | **All** | **Remote** | **Near** |
| | **1006** | **507** | **499** |
| **Sex** | **%** | **%** | **%** |
| Male | 47 | 47 | 48 |
| Female | 53 | 53 | 52 |
| **Age** | | | |
| 15-19 | 6 | 6 | 7 |
| 20-29 | 17 | 20 | 14 |
| 30-39 | 20 | 19 | 20 |
| 40-49 | 18 | 16 | 20 |
| 50-59 | 16 | 16 | 15 |
| 60-64 | 8 | 7 | 9 |
| 65+ | 16 | 17 | 15 |
| **SEG** | | | |
| AB/C1 | 45 | 47 | 44 |
| C2/DE | 55 | 53 | 56 |
| Length of Time Lived in Area | | | |
| Up to 1 year | 5 | 7 | 3 |
| 1-2 years | 5 | 4 | 5 |
| 3-5 years | 9 | 10 | 8 |
| 6-10 years | 8 | 8 | 8 |
| 11-20 years | 19 | 21 | 17 |
| 21+ years | 54 | 49 | 58 |
| DK/NS | # | # | # |
| **Home Location** | | | |
| Town | 42 | **23** | **62** |
| Suburb | 24 | **31** | **17** |
| Rural | 17 | **14** | **19** |
| City | 16 | **31** | **2** |
| DK/NS | # | 1 | - |
| **Proximity To Site (Self Classified)** | | | |
| Very near | 15 | **1** | **29** |
| Near | 20 | **7** | **33** |
| Not near | 61 | **86** | **36** |
| Don't know | 4 | **6** | **3** |
| **Employment Status** | | | |
| Employed | 50 | 48 | 51 |
| Self employed | 4 | 6 | 4 |
| Education/training | 7 | **9** | **5** |
| Unemployed | 6 | 5 | 7 |
| Retired/sick | 26 | 26 | 25 |
| Houseperson | 6 | 6 | 7 |

***# =<1% mentions: Bold = significant difference @ 95% confidence level: Remote v. Near Sample***

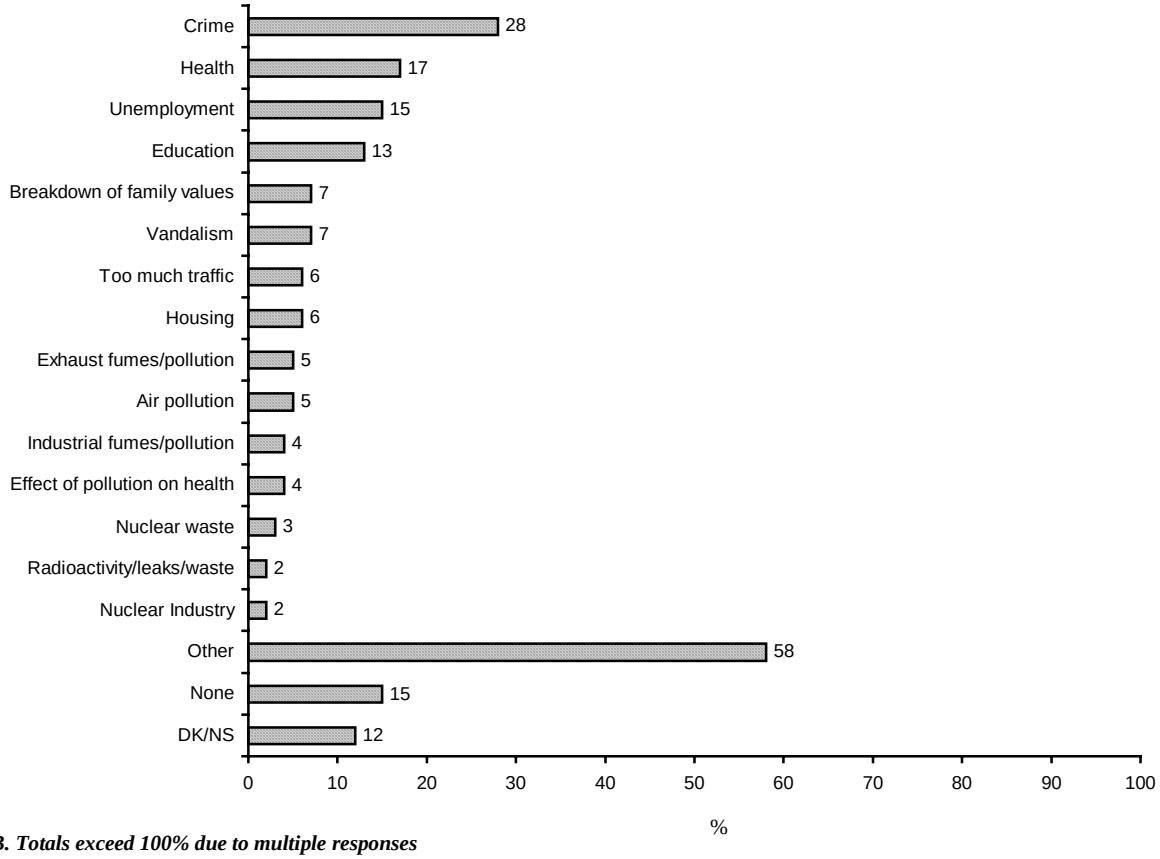
In more detail, the sample profile shows:

- a sample of respondents who are reasonably well established in their local area, with the Near Sample significantly more settled than the Remote Sample;
- men are more likely (49%) than women (30%) to be in full time employment, and women are more likely (18%) to be employed part time (4% for men);
- the Near Sample is more likely to live in a rural location;
- More than a third (36%) of the Near Sample do not themselves consider they live near a nuclear installation, and 9% of the Remote sample consider they live either very near (1%) or near (8%) a site.

*Living in Britain today*

As a prelude to more in depth probing about the nuclear industry and nuclear waste management, respondents were asked what issues concerned them most about life in the UK today.

Figure 1. **Main issues of concern (spontaneous)**
**Base: all (1006)**



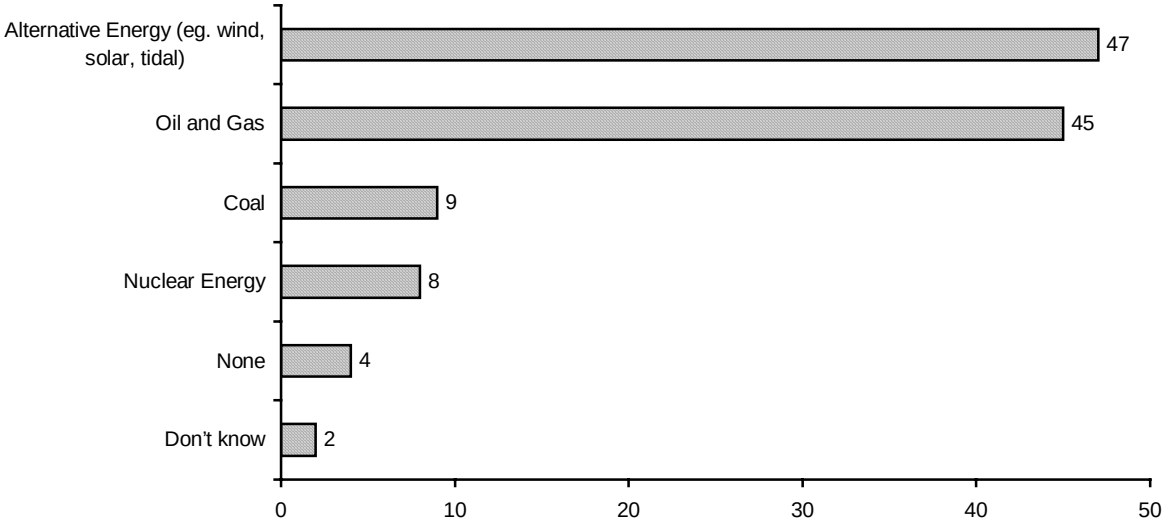

***NB. Totals exceed 100% due to multiple responses***

Top of mind issues are crime, health, unemployment and education. Overall, the nuclear industry accounted for 7% of mentions, with nuclear waste specified by only 3%. Furthermore, those

living close to a nuclear installation were no more likely to be concerned about nuclear issues than those living further away.

*Preferred energy source*

Figure 2. **Preferred energy source**
**Base: all respondents (1006)**




Those who specified a preference for nuclear energy plus any other source, were asked which **one** of these they preferred.

| | **26** |
|---|---|
| | **n** |
| Alternative | 15 |
| Nuclear Energy | 7 |
| Oil & Gas | 3 |
| Coal | 1 |

Although there is equal pre-disposition towards nuclear energy between the Near and Remote Samples, preference is significantly higher amongst those who **classify themselves** as living very near a site (13% v. 6% amongst those living near a site and 8% amongst those living far from a site). This is perhaps nor surprising given the fact that 36% of the Near Sample do not themselves consider they live near a site.

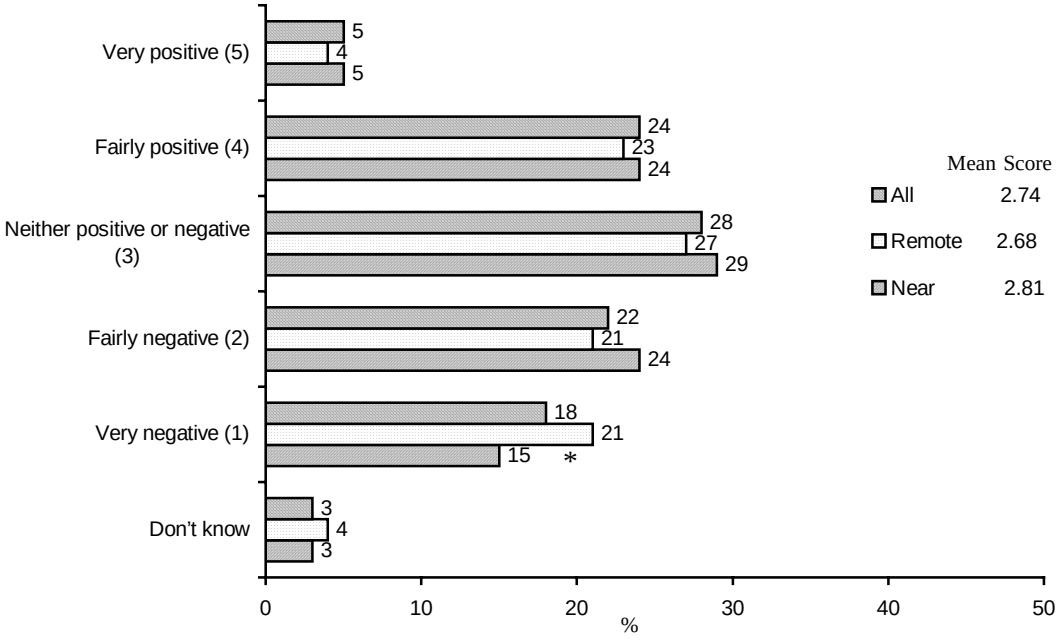
Preference is highest amongst those with a positive view of the industry (20% v. 6% for those neutral and 1% for those negative); and higher amongst those agreeing with decommissioning (10% v. 5% for those who are neutral and 4% for those who disagree).

Those aware of NII are more likely (12%) than those without this awareness (6%) to prefer nuclear energy.

*Perception of nuclear industry*

Using a 5 point semantic scale, where a mean score of 3 or greater is positive, attitude towards the industry was established. With mean score for all groups less than 3, attitude overall is fairly negative. However, almost 30% are either very positive (5%) or fairly positive (24%) about the industry.

Figure 3. **Attitude towards nuclear industry**
**Base: all respondents (1006)**




***= significant difference @ 95% confidence level: Remote v. Near sample***

Men and women have similar views (women 26% positive v. 31% for men) and those aged 60-64 are less well disposed (18% positive) than the overall sample (29% positive).

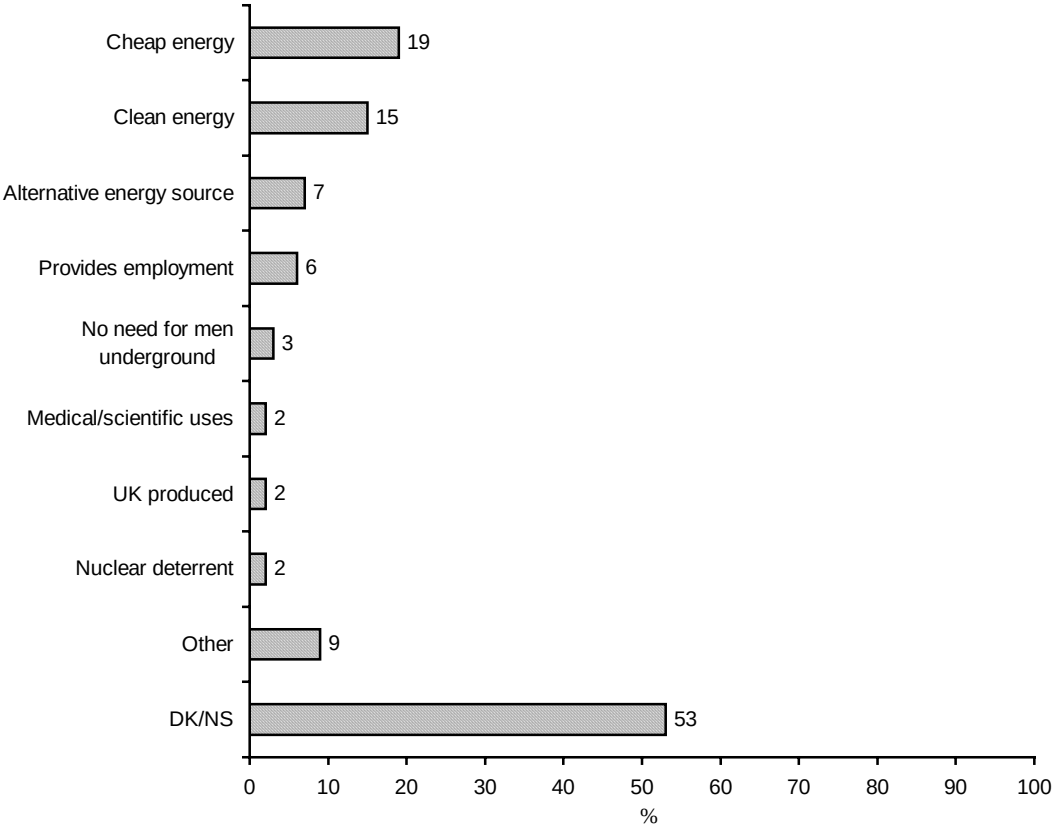
Those classifying themselves as living very near or near a nuclear site are significantly more likely (34%) then those living further away (27%) to have a positive attitude towards the industry. This in part may be due to the influence of the industry on employment potential in rural. Similarly, those agreeing with decommissioning are more likely (35%) than those who do not (23%) to see the industry in a positive light.

Respondents who are aware of NII are more likely (9%) than those not aware (3%) to have a very positive perception of the industry.

*The industry: Pros and Cons*

The benefits and drawbacks of the industry as provided spontaneously by the sample are summarised in Figures 4 and 5 respectively.

Figure 4. **Benefits of nuclear industry**
**Base: all respondents (1006)**

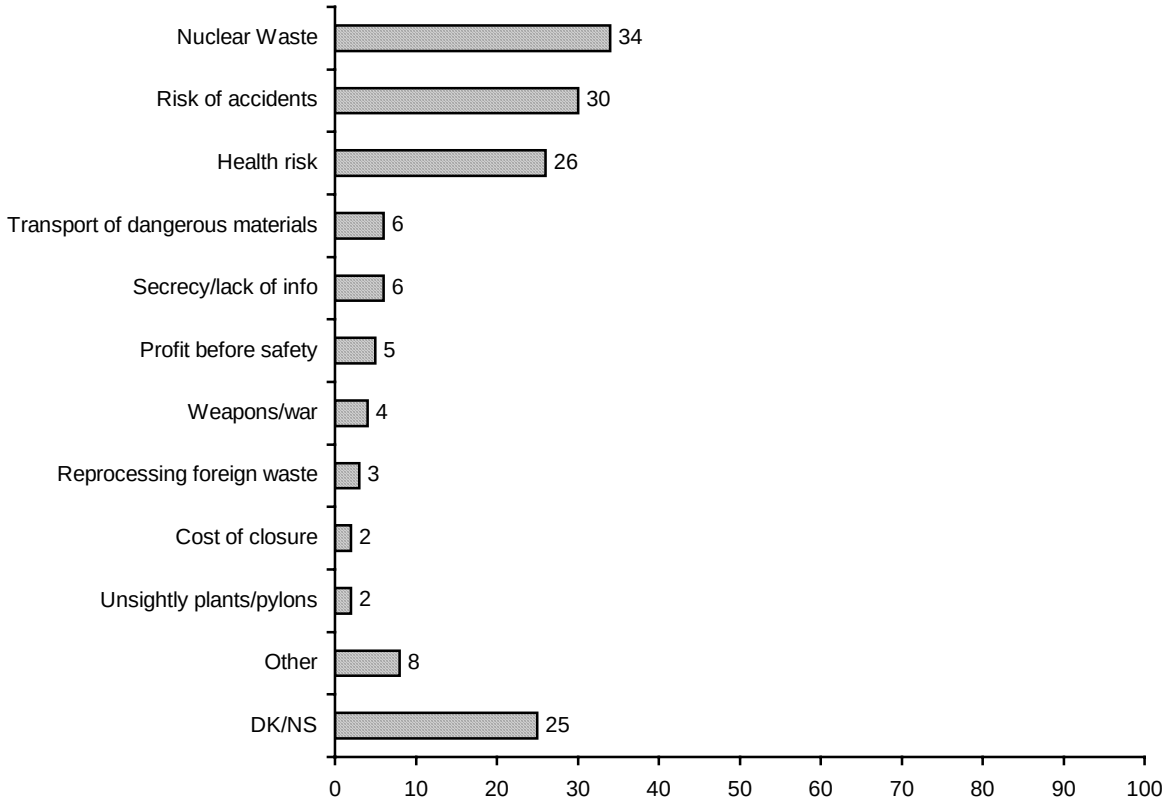



***NB: Totals exceed 100% due to multiple responses***

Cheap (19%) or environmentally clean energy (15%) are seen as the main benefits of the industry. However, more than half could not specify any benefits and this is particularly so of:

- women (65% don't know v. 39% for men);
- those with a negative view of the industry (62% don't know or neutral, 54% v. 35% for those with a positive view);
- those unaware of NII (60% don't know v. 35% for those aware).

Figure 5. **Drawbacks of nuclear industry**
**Base: all respondents (1006)**




***NB. Totals exceed 100% due to multiple responses***

At 34%, nuclear waste is seen as more significant a drawback than all others except risk of accidents.

It is significant that only 25% could not specify a drawback compared to 53% for the benefits of the industry.

Nuclear waste is more of a drawback for:

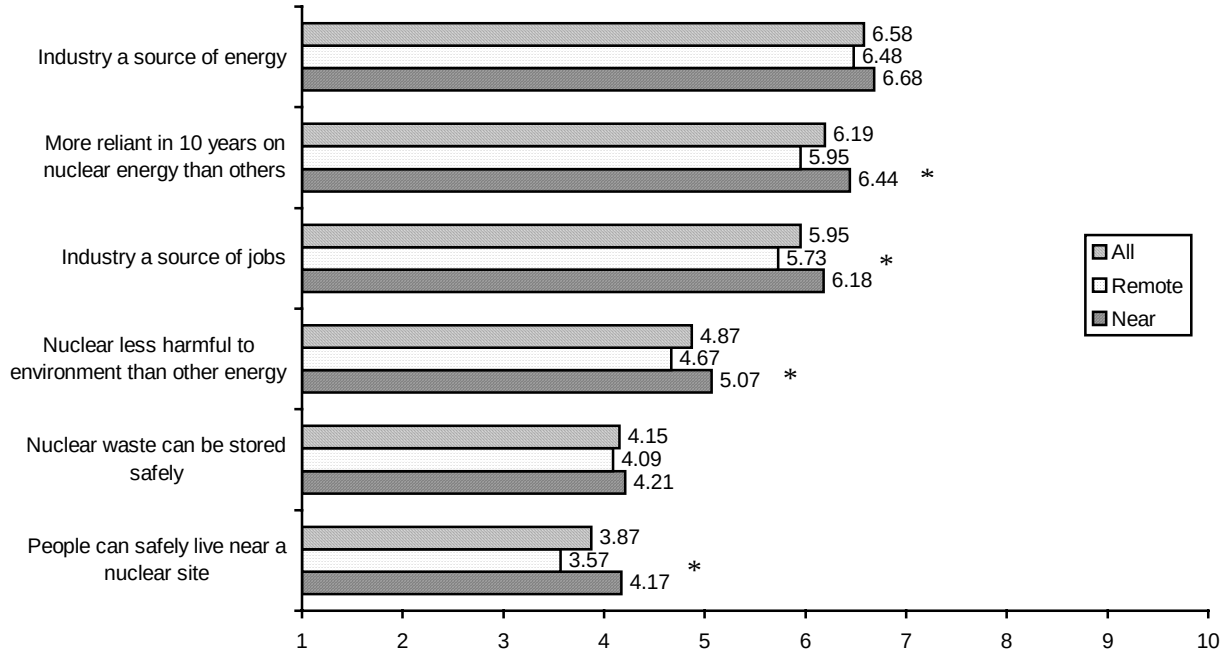
- men (38% v. 30% for women);
- those aged 65 + (25%).

*The impact of the nuclear industry*

Respondents were presented with a series of statements on the industry, including a statement on nuclear waste, and asked their level of agreement with these. A 1-10 scale was used where 1 = "I entirely disagree" and 10 = " I entirely agree". A score of 5.5 or above denotes agreement with the statement in question.

Figure 6. **Agreement with statements on nuclear industry**
**Base: all respondents (1006)**
**Mean score: 1 = entirely disagree; 10 = entirely agree**

Truncated Statements




***= significant difference @ 95% confidence level: Remote v. Near Sample***

Overall, the sample agrees that:

- the nuclear industry is a source of energy;
- in 10 years time we will be more reliant on nuclear energy than other sources like coal, gas and oil;
- the nuclear industry is a source of jobs;

but not that:

- people can safely live near a nuclear site;
- nuclear waste can be stored safely;
- nuclear energy is less harmful to the environment than other sources.

Agreement amongst men is higher (6.91) for the industry being a source of energy (6.27 for women), and those aged 16-35 agree more (6.40) than the overall sample (5.95) that the industry is a source of jobs.

Figure 6 shows that the Near Sample is more positive than the Remote Sample about:

- being more reliant in 10 years time on nuclear energy than other sources;
- the industry being a source of jobs;

- nuclear energy being less harmful than other sources;
- people being able to safely live close to a nuclear site.

Further analysis on the basis of self-classification of home location reveals that level of agreement is significantly lower for those living very near a site for:

| | **Very Near** | **Not Near** |
|---|---|---|
| • being able to safely store nuclear waste | 3.76 | 4.26 |

Those aware of NII agree more that:

- the industry is a source of energy (6.96 v. 6.41);
- people can safely live near a nuclear site (4.30 v. 3.70);

and less that:

- being more reliant in 10 years time on nuclear energy than other sources (5.85 v. 6.35).

Respondents were asked to choose one of two concerns which they felt caused "people the most worry". Table 2 suggests that when people talk about such concerns, they are most likely to be thinking of one off accidents rather than long term pollution.

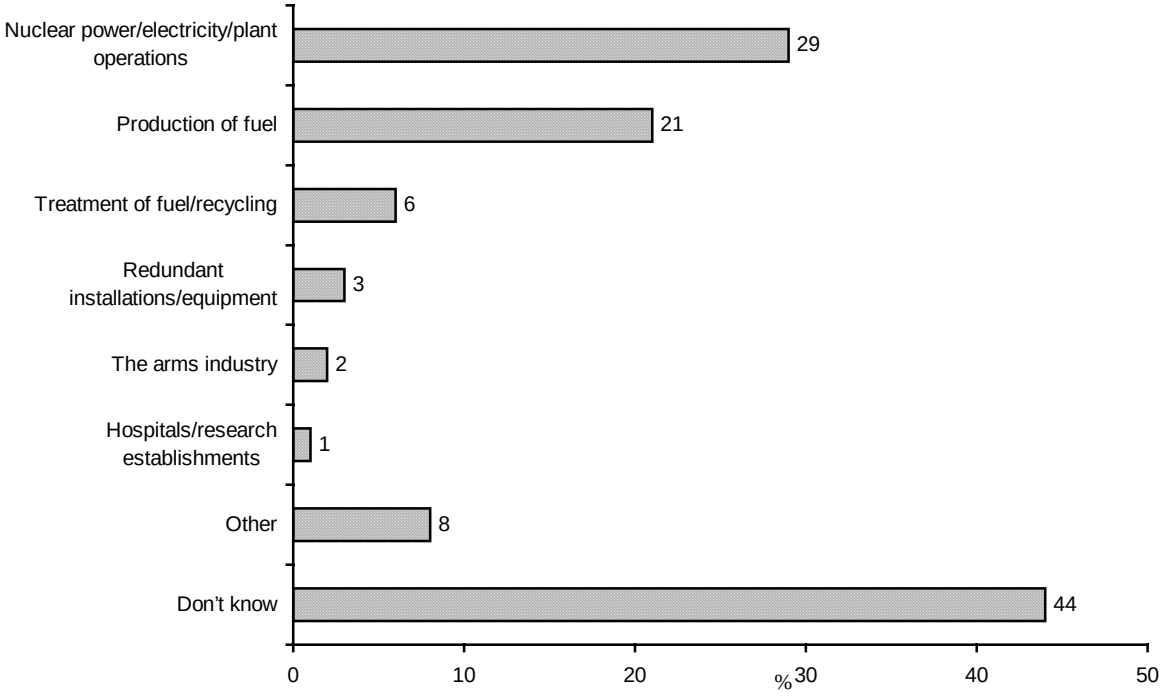
**Table 2. Issue to cause the most worry**
**Base: all respondents (1006)**

| | **All 1006 %** |
|---|---|
| The possibility that a nuclear plant might have a major accident and release deadly or dangerous radioactivity | 53 |
| The possibility that over time a nuclear plant might be adversely affecting the health of the local population | 42 |
| Don't know | 5 |

*Source of nuclear waste*

Having been informed that, like all other industries, the nuclear industry produces waste material, respondents were asked how they thought this waste arose.

Figure 7. **Source of nuclear waste**
**Base: all respondents (1006)**




Although half mentioned power or fuel as the main source, more than two fifths could not specify any source for nuclear waste. Analysis of the percentage specifying "don't know" throws some light on where gaps in information lie:

- men are more likely (29% don't know) than women (56% don't know) to have some idea about the source of nuclear waste, as are the middle age groups (36% don't know);
- whilst the Remote and Near Samples are equally as likely to have some knowledge, there is more ignorance amongst those classifying themselves as not living near a site (46% v. 35% very near and 41% near);
- residents of suburbs are more likely (37%) to have some knowledge than the overall sample;
- those aware of NII are more likely (24% don't know) to know about the sources of waste than those without this awareness (52% don't know).

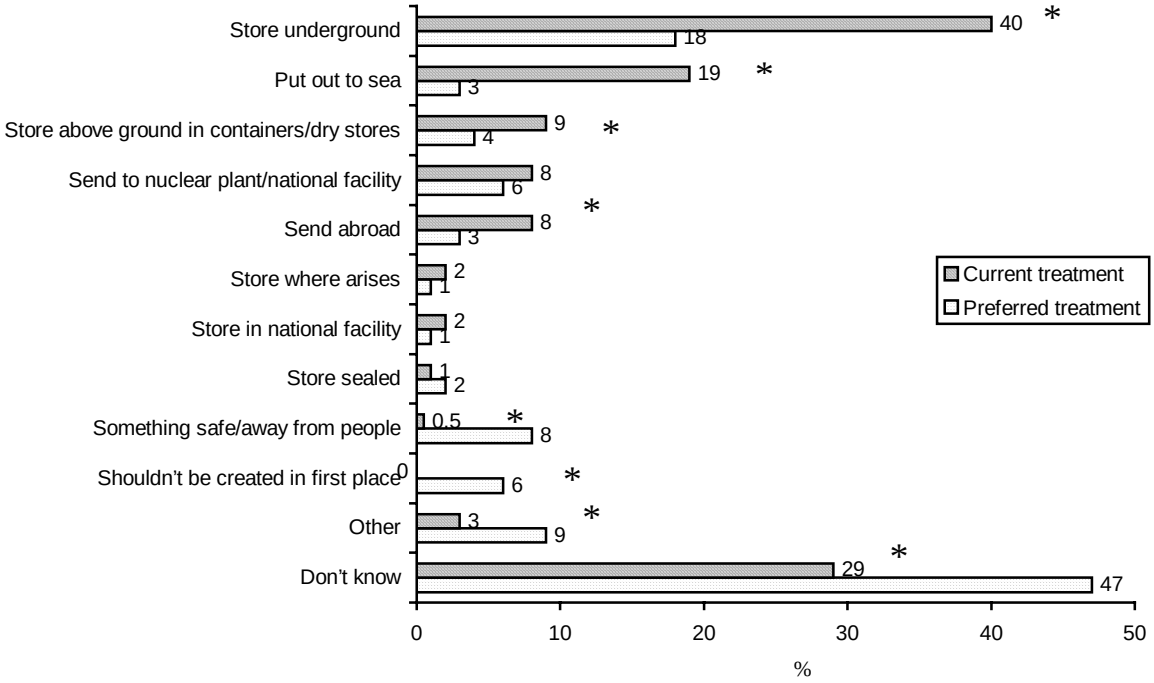
*Treatment of Nuclear Waste*

Currently, nuclear waste is disposed of in 3 ways:

- low level waste is disposed of in shallow burial;
- intermediate level waste is stored in purpose built steel drums;
- high level waste is converted into glass blocks and sealed in stainless steel containers which are stored above ground in purpose built dry stores.

The NII is keen to discover how well respondent **knowledge** of current treatment of nuclear waste matches their own **preference** for its treatment. To this end, the sample was asked both what **is** done with waste at the moment and what they consider **should** be done with it.

Figure 8. **Treatment of nuclear waste (spontaneous)**
**Base: all respondents (1006)**




***= significant difference @ 95% confidence level : current v. preferred treatment***

Overall, storage as a management solution accounted for:

- 54% of responses on current treatment;
- 26% of responses on preferred treatment.

Furthermore, although the majority (71%) of the sample were able to cite some current treatment for waste, only 53% expressed a preference, and one fifth could not provide a response to either question.

On both counts, women are less likely than men to have any knowledge or preference.

The Remote and Near Samples have similar levels of knowledge/preference.

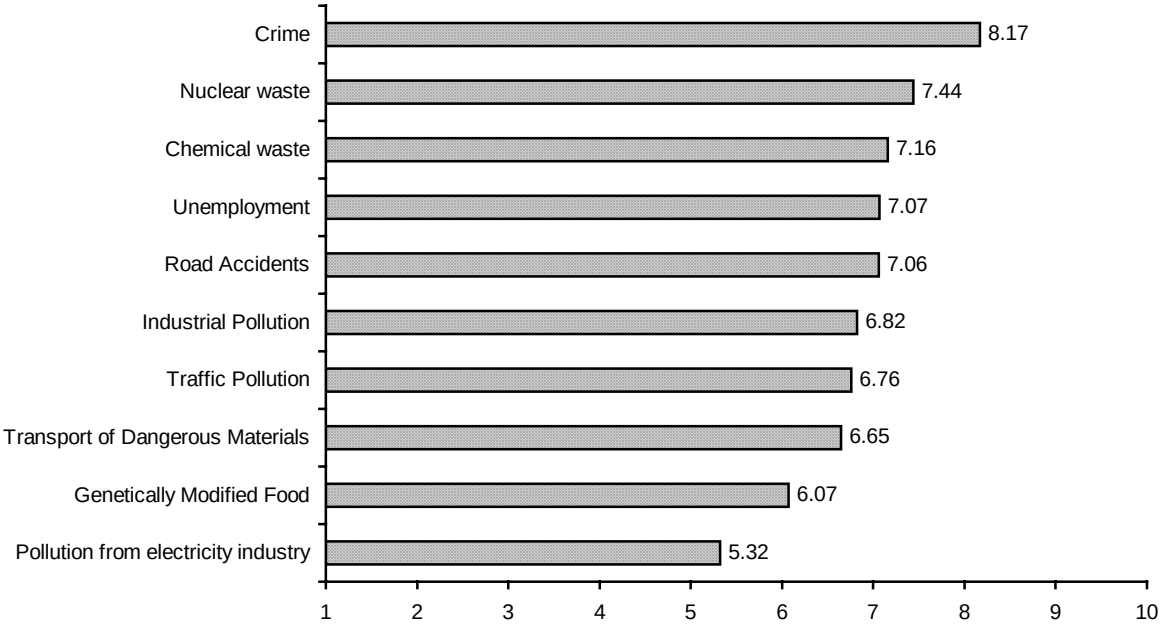
Again, those considering they live very near a site are more likely to have proffered a response on both current practices and preferred methodology.

For both questions, those aware of the NII were more likely to provide a response.

Nuclear Waste: Concern In Context (Prompted).

Having established in Section 4 that the nuclear industry and nuclear waste in particular are not top of mind concerns for respondents, they were presented with several issues and informed that some people in Britain today had expressed concern over these. Using a 1-10 scale where 1 = "I am not at all concerned" and 10 = "I am extremely concerned", they were asked their own level of concern on these issues. A score of 5.5 or above denotes concern, scores of 7-8 indicating that the sample was "fairly concerned" scores of and 9-10 "very concerned".

Figure 9. **Concern over nuclear waste (prompted)**
**Base: all respondents (1006)**
**Mean scores: 1 = not at all concerned, 10 = extremely concerned**



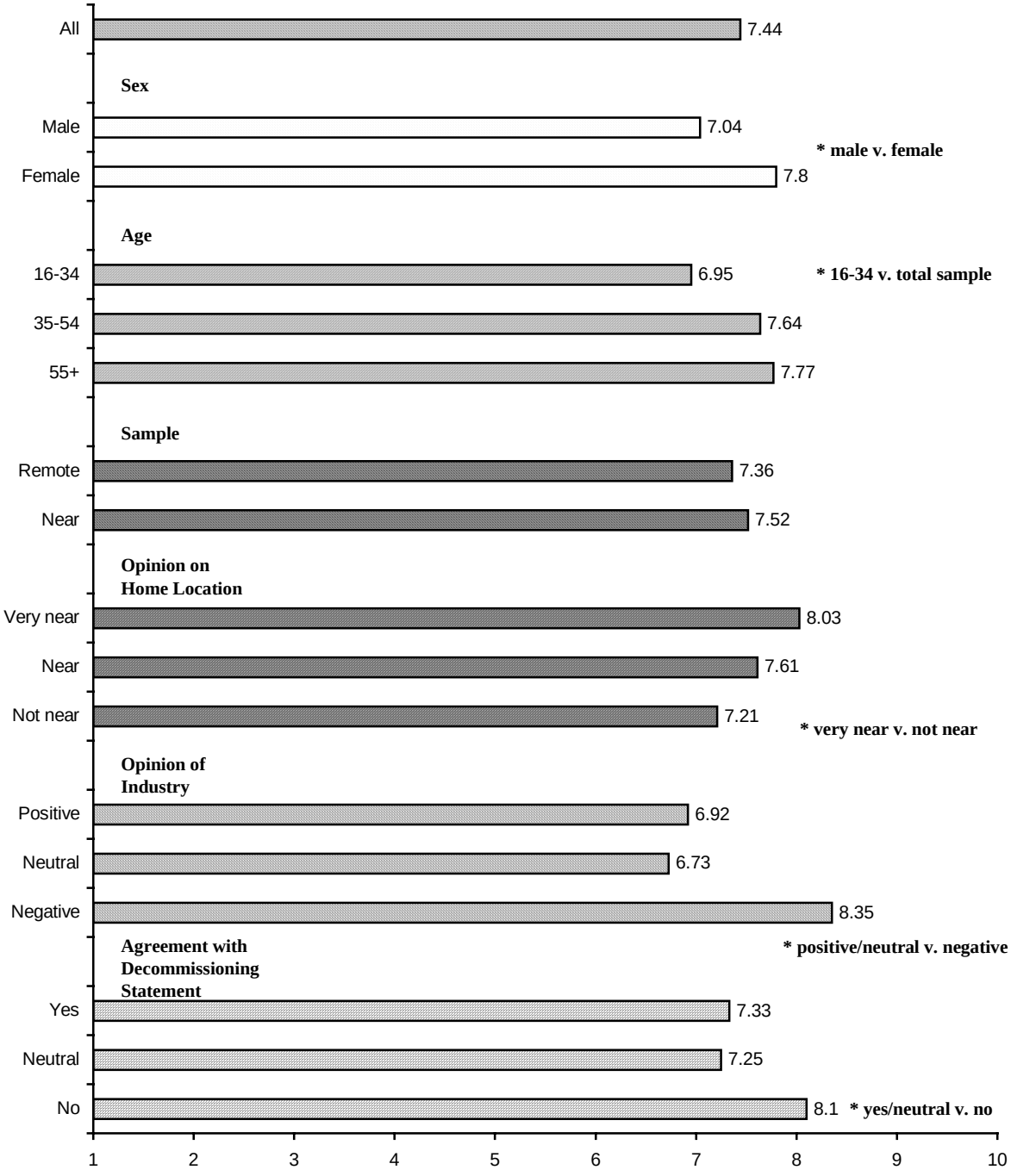

At 8.17, concern over crime is significantly higher than all other issues, including nuclear waste. The Remote Sample is more concerned than the Near Sample about:

- traffic pollution (6.91 Remote v. 6.60 Near);
- genetically modified food (6.33 Remote v. 5.81 Near).

With respect to environmental issues, respondents are significantly more likely to be concerned over nuclear waste than any other issue.

Further analysis of the results on Nuclear Waste is presented in Figure 10.

Figure 10. **Concern over nuclear waste (prompted)**
**Base: all respondents (1006)**
**Mean score: 1 = not at all concerned; 10 = extremely concerned**




***= significant difference @ 95% confidence level***

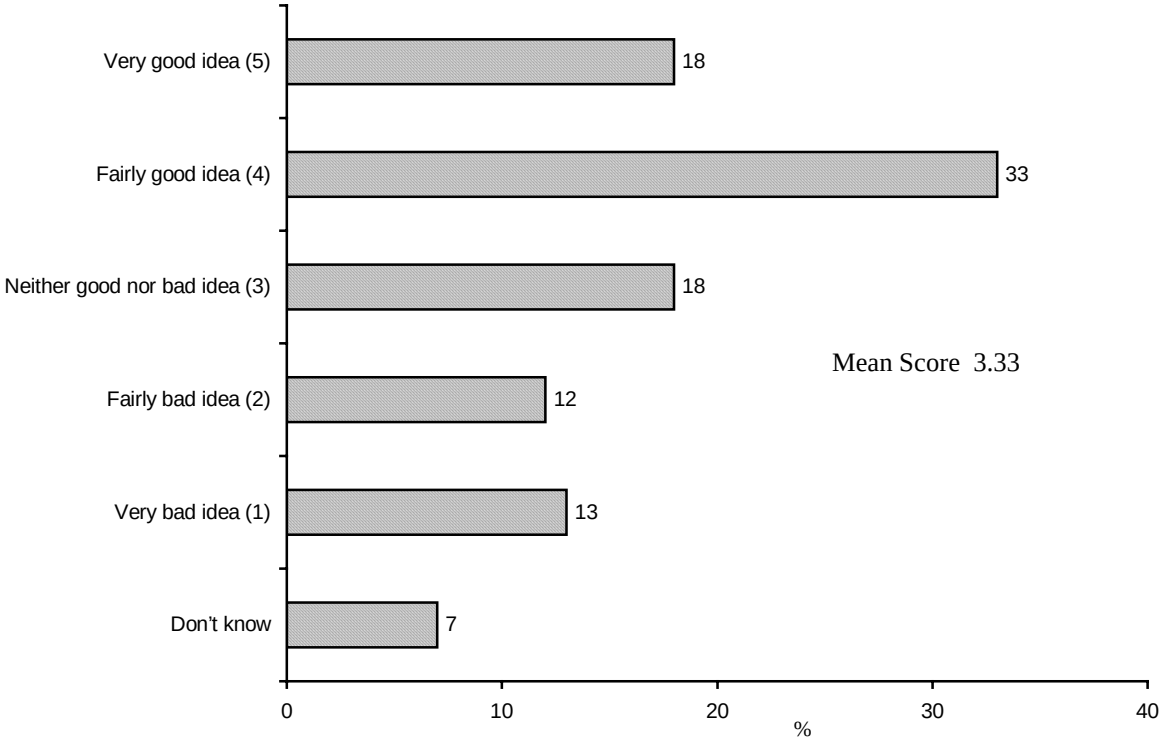
*Decommissioning plans: a good idea?*

As an introduction into the concept of decommissioning, respondents were provided with the following information on nuclear waste:

"Some of this waste comes from power stations that have been shut down. At the moment the nuclear industry plans to close down these stations and maintain and monitor them for 135 years, after which they will be dismantled."

Using a 5 part semantic scale where 1 = a very bad idea and 5 = a very good idea, they were asked to record their reaction to the statement. A score of 3 or more indicates that the plan for decommissioning is a good idea.

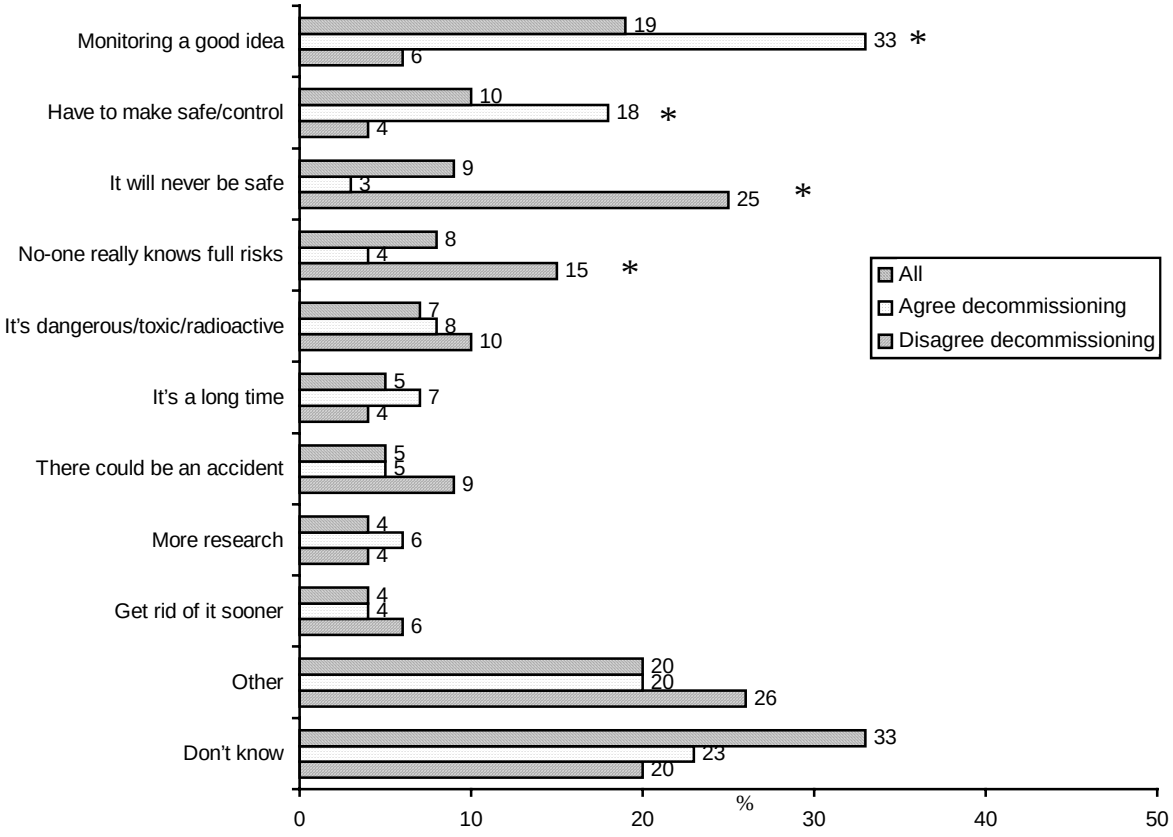
Figure 11. **Decommissioning: a good idea?**
**Base: all respondents (1006)**




It appears that the sample is generally in favour of this approach. Although there was some difference in degree of agreement amongst some of the groups, mean scores overall show very little disparity.

The main reasons (>5%) for attitude towards decommissioning are summarised in Figure 12.

Figure 12. **Reasons for attitude towards decommissioning**
**Base: all respondents (1006)**




***= significant difference @ 95% confidence level: agree decommissioning: yes v. no***

That is, the decommissioning plan's strengths are seen to be in its offering to monitor what will inevitably be a hazardous exercise. Those against the plan consider that whatever is done will simply not be enough.

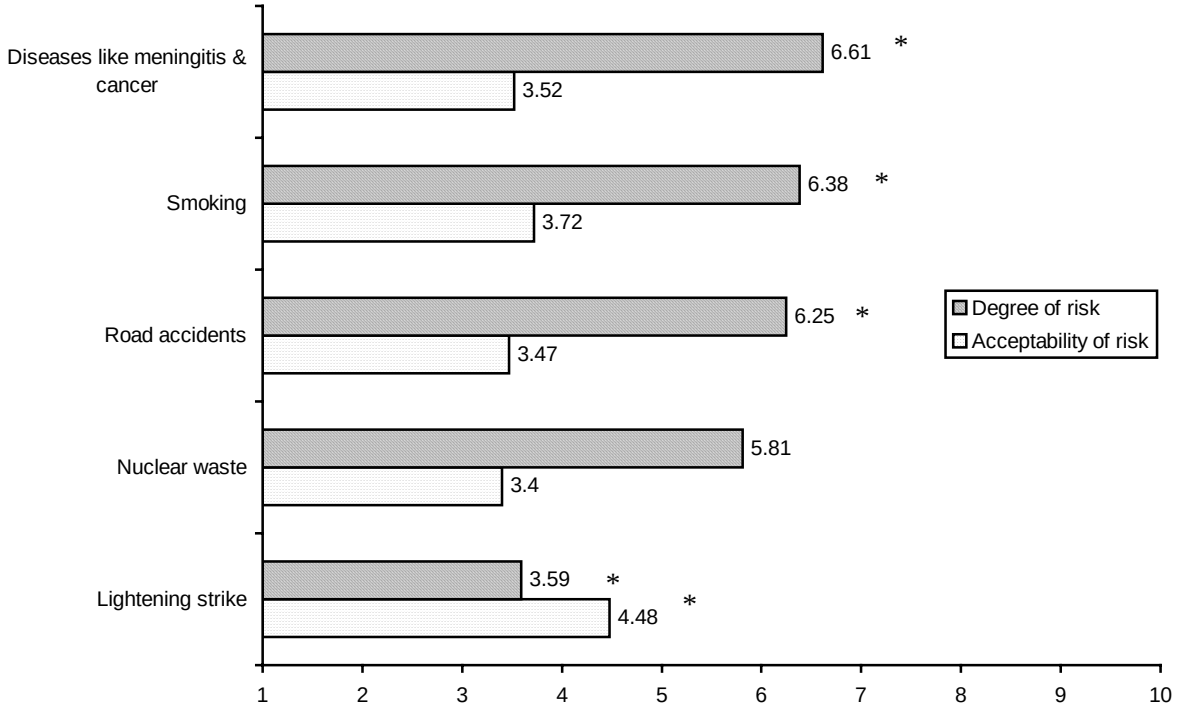
Whilst the sample is generally in favour of current decommissioning plans, no alternatives were presented and it could well be that public **preference** may have to be further investigated in future.

*Tolerability of Risk: Personal Risk Factor*

Concern was probed further by introducing the issues of safety and risk. Respondents were asked to rank various scenarios in terms of their risk to them and their level of acceptance of these risks. To maintain a consistent and logical scoring regime, where 1 = "bad" and 10 = "good", the risk level scale was 1 = "high risk", 10 = "low risk", and the acceptable scale was 1 = "not at all acceptable", 10 = "very acceptable". For ease of presentation however, the risk level scale is reversed in Figure 13 ie. 1 = "low risk" and 10 = "high risk".

Figure 13. **Tolerability of risk**

**Base: all respondents (1006)**
**1 = Low risk, 10 = High risk**
**1 = Not at all acceptable, 10 = Very acceptable**




***= significant difference @ 95% confidence level: other risk v. nuclear waste***

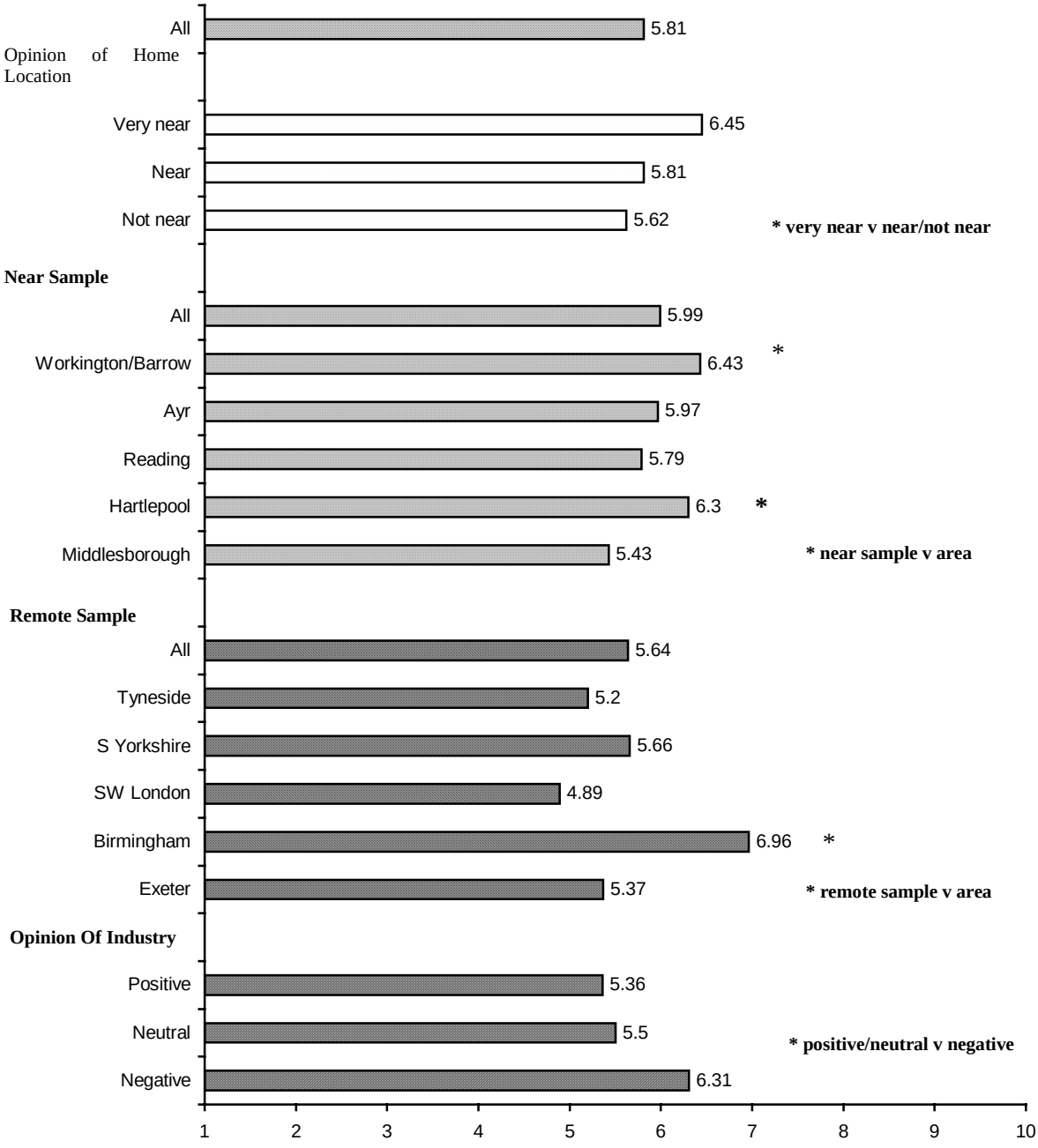
At 5.81, respondents do not appear to consider themselves to be at high risk from nuclear waste, and it is seen as significantly less of a risk than meningitis or cancer, smoking and road accidents. However, for all issues, there is a low tolerance of risk.

Overall, it is encouraging to note that man-made risks (smoking, road accidents, nuclear waste) are deemed to be less acceptable than "acts of god": though very high expectation is placed on medical research.

Further analysis of the tolerability of risk from nuclear waste is presented in Figure 13a.

Figure 13a. **Tolerability of risk from nuclear waste**

**Base: all respondents (1006)**
**1 = Low risk, 10 = High risk**




***= significant difference @ 95% confidence level***

Those considering they live very near (6.45) are significantly more concerned about risk from nuclear waste than those living near (5.81) or not near (5.62) a site.

Residents of Workington/Barrow (6.43) and Hartlepool (6.3) see nuclear waste as significantly more of a risk than the Near Sample as a whole (5.99). This is not entirely surprising given that these two groups are most likely to consider that they actually do live close to a site.

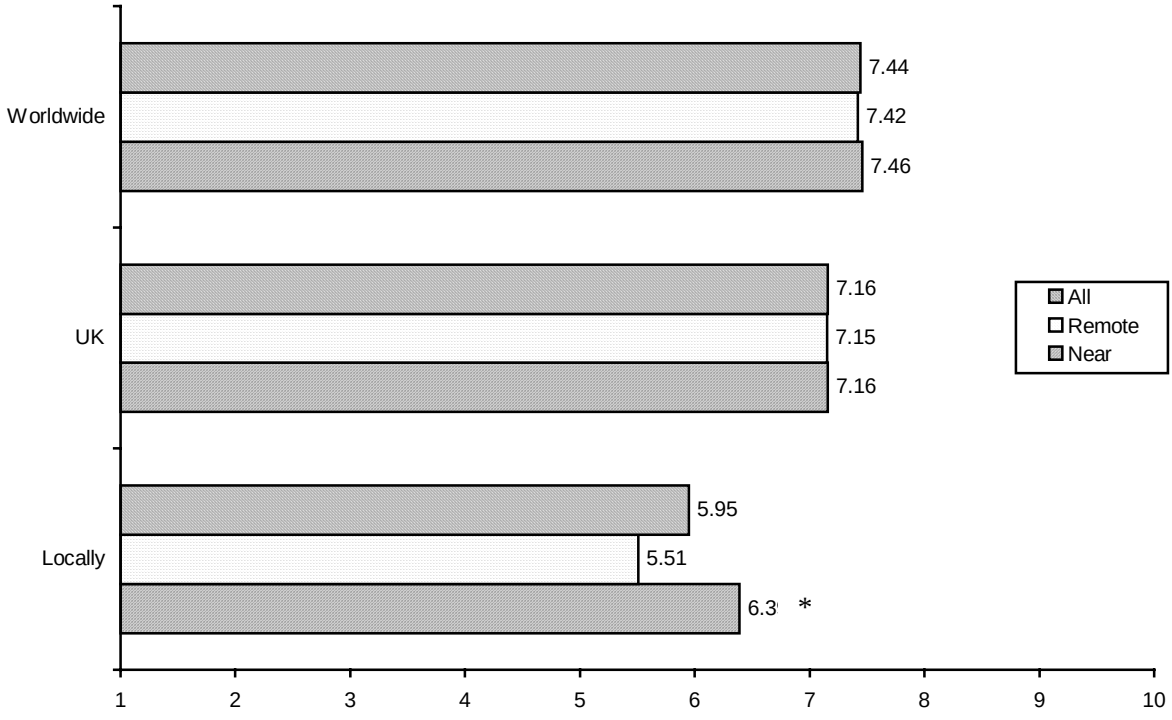
With respect to the Remote Sample (5.64), residents of Birmingham (6.96) are significantly more likely to see nuclear waste as risk, and a possible explanation for this is their proximity in general to the U.K. industrial heartland and the attendant implications on pollution.

Respondents with a positive (5.36) or neutral (5.50) attitude towards the industry do not consider themselves at risk whilst those with a negative view (6.31) are concerned.

*Concern over nuclear waste: local or global*

To place concern in context, respondents were asked their level of concern locally, in the UK as a whole and world-wide.

Figure 14. **Extent of concern over nuclear waste**
**Base: all respondents (1006)**



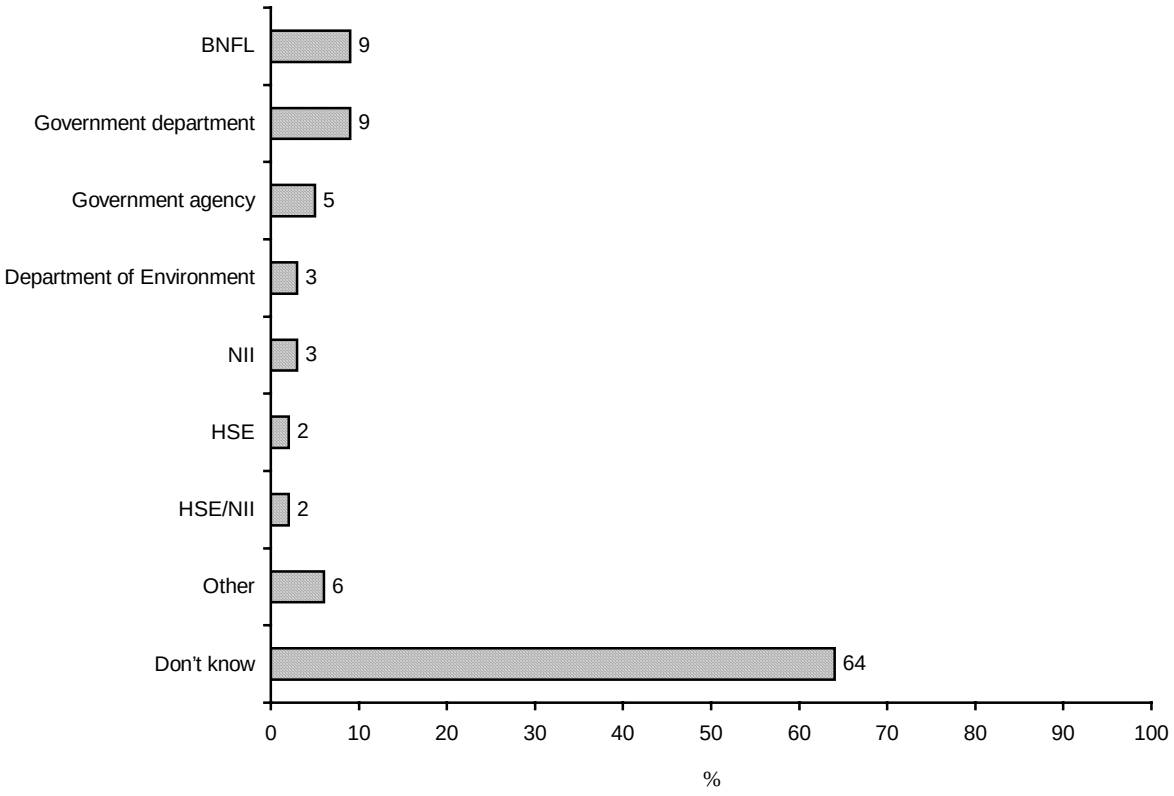

***= significant difference @ 95% confidence level: remote v. near sample***

Overall, the sample is more concerned about the global impact of nuclear waste than on either national or local implications.

*Awareness of organisation responsible for regulating the management of nuclear waste*

To gauge the level of spontaneous awareness of the NII, respondents were asked which organisation is responsible for monitoring the management of nuclear waste. Main responses are presented in Figure 15.

Figure 15. **Agency responsible for regulating the management of nuclear waste**
**Base: all respondents (1006)**



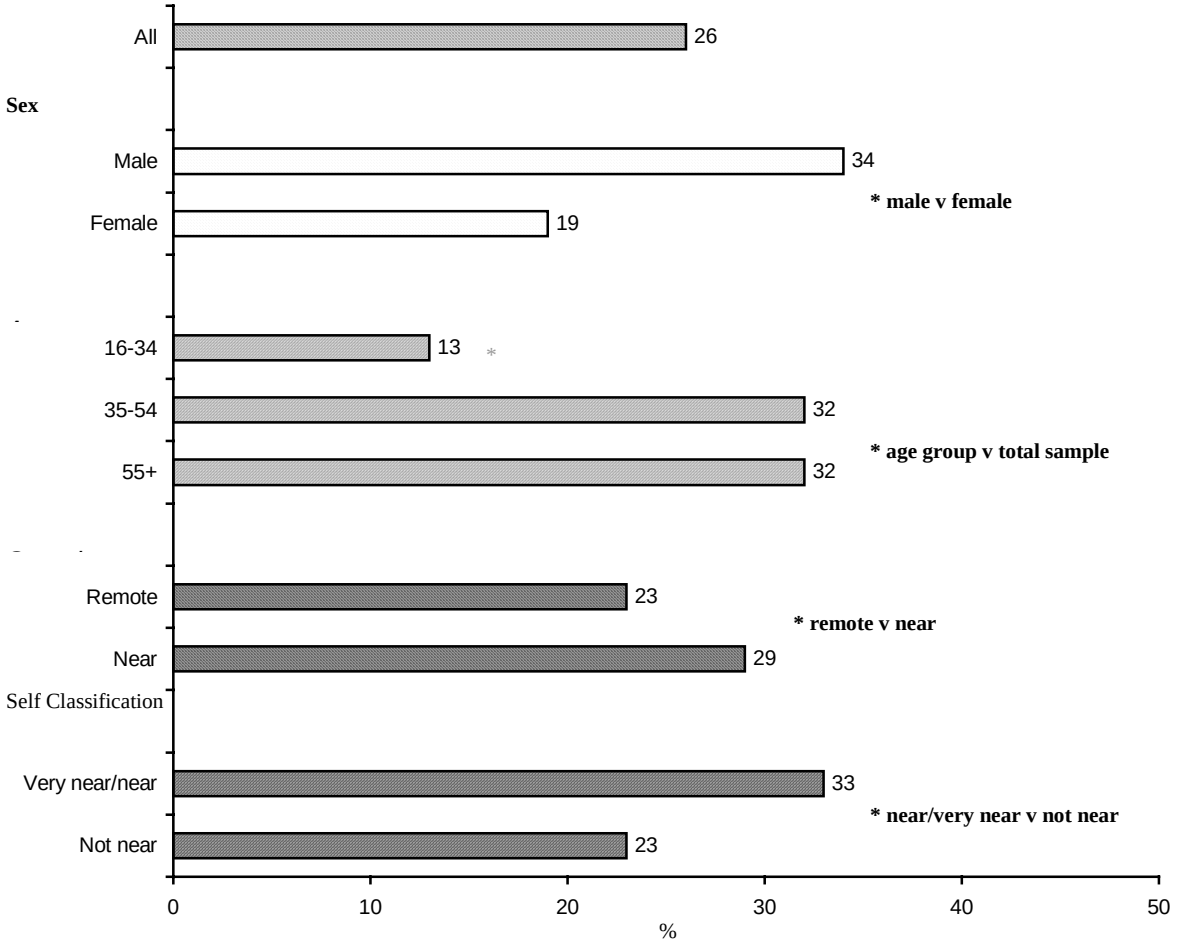

There is some recognition of Government supervision, at 7%, and overall spontaneous awareness of HSE/NII stands at 5%. However, the Near Sample are more likely (6%) than the Remote Sample (3%) to have this awareness, and this is also true of those considering they live very near or near a site (8% v. 2% for not near).

Those agreeing with the statement on decommissioning are more likely (6%) to know about NII than those disagreeing (2%).

Prompted awareness of NII

Those with no spontaneous awareness of NII were asked if they had heard of it, thereby increasing overall awareness to 31%.

Figure 16. **Prompted awareness of NII**
**Base: all with no spontaneous awareness (962)**




Those aware of NII were asked how they had learned about it. The most common sources are summarised below:

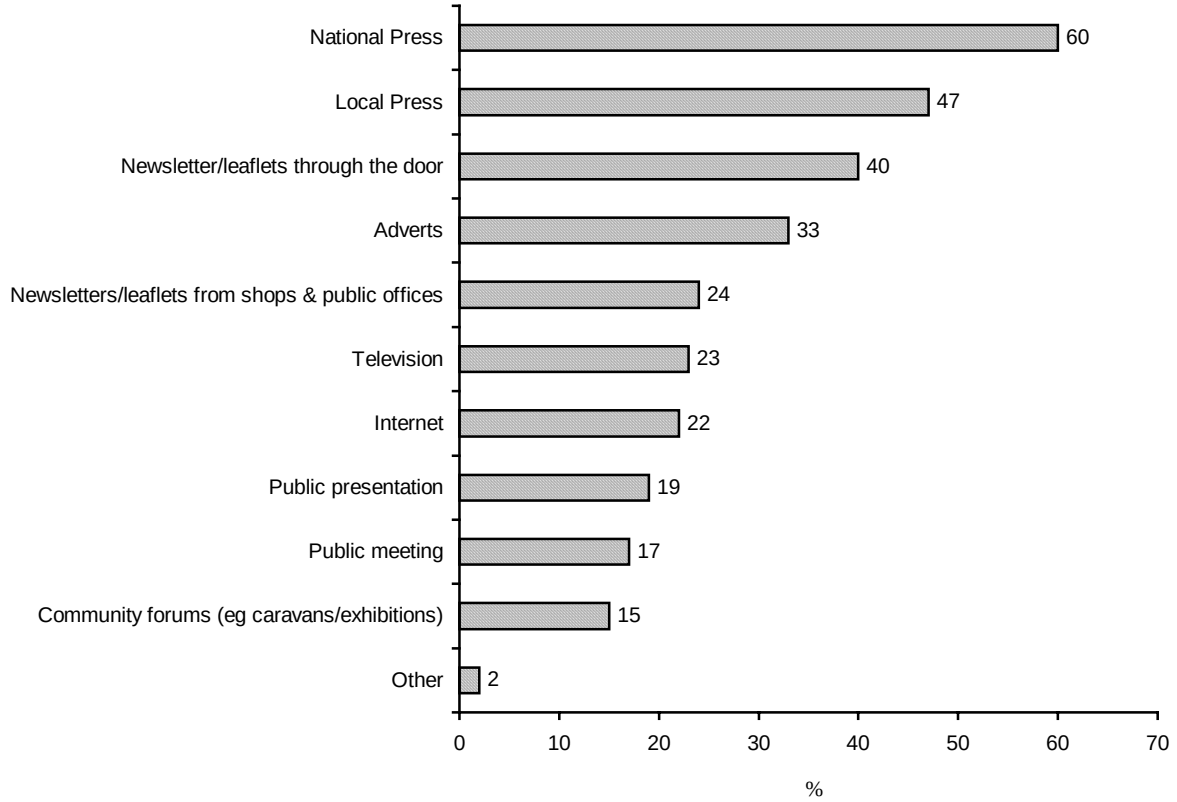
| | **291** |
|---|---|
| | **%** |
| Newspaper article | 41 |
| Television | 38 |
| Word of mouth | 10 |
| Through my job | 10 |
| Newspaper advert | 6 |

*Keeping me informed*

The majority of the sample (85%) think NII could do more to keep them informed about its activities.

A number of sources were presented and respondents were asked to consider if they would like these to be used to provide relevant information.

Figure 17. **Preferred information sources (prompted)**
**Base: all (1006)**




Although most sources are at least reasonably attractive, the preferred information channels are national and local press, both passive as far as the recipient is concerned. However, with just over half (51%) indicating an interest in public presentation of information and more than a fifth (22%) wishing to access such information via the internet, there appears to be a willingness towards more active involvement.

**Discussion**

In response to the main objectives of the survey:

- current spontaneous level of concern over the industry in general (7%) is low, and lower still for nuclear waste (3%). On prompting, concern over nuclear waste scores 7.44 on a 1-10 scale;

- the specific issues of concern about the industry are:
  - nuclear waste (34% of responses);
  - risk of accidents (30% of responses);
  - health risks (26% of responses).
- personal risk from nuclear waste is not of overt concern, scoring 5.81 on a 1-10 scale, and is less worrisome to respondents than risk from diseases like meningitis or cancer, smoking or road accidents;
- at 5%, spontaneous awareness of NII is poor, but increases to 31% on prompting. The majority (85%) of the sample consider that NII could keep them better informed about its activities.

Although the quantitative fieldwork coincided with the negative publicity surrounding Sellafield, the overall results largely mirror the qualitative findings, with the industry in general and nuclear waste in particular not top of mind concerns either for the sample as a whole or for those living close to sites. Although respondents showed concern over nuclear waste on prompting, there is no evidence that they feel particularly at risk from it, and this is equally true for those living near and further away from sites. Furthermore, respondents aware of NII were generally more positive than those without this awareness, and increasing awareness could do much to enhance the image of the industry. The implication for the NII is that better publicity will not only heighten awareness, it may also stimulate interest and hence reduce concern.

## SESSION 4

## Drawing the Line

*Chairman: T. Varjoranta*

# THE ROLE OF THE NUCLEAR SAFETY AUTHORITY AS A SUPERVISOR AT THE SERVICE OF THE PUBLIC

**A.-C. Lacoste**
Director of the French Nuclear Safety Authority

## WHY COMMUNICATE ?

- **Part of the NSA mission**

Decree of March 27, 1973 instituting the Safety Authority:

" ***propose and organize the information of the public on problems related to nuclear safety*** "

- **Establish the NSA's credibility:**

☞competence
☞independance
☞authority

- **Fulfill its role as a supervisor at the service of the public**

AUTORITE DE SURETE NUCLEAIRE

## SCOPE OF COMMUNICATION

- **« Enlarged » vision of nuclear safety:**
  - ☞ radiation protection
  - ☞ the environment
  - ☞ health
  - ☞ Information of the public

- **Information on:**
  - ☞ safety (as defined above) of nuclear installations
  - ☞ NSA's action (regulation, inspection, decision)
  - ☞ authority

AUTORITE DE SURETE NUCLEAIRE

## TARGET AUDIENCE

- **The public in general**

- **Focus on the « enlighted citizens »:**

**those who, because of their responsibilities, experience or personnal interest, have a minimum of culture on nuclear safety issues (e.g., elected representatives, national and local government representatives, journalists, teachers, professors, members of associations for the protection of the environment, counterparts from foreign authorities)**

AUTORITE DE SURETE NUCLEAIRE

## COMMUNICATION TOOLS

- « Contrôle » news bulletin
- Annual report on nuclear safety in France
- MAGNUC viewdata magazine
- Press releases
- Periodic meetings with the media
- Interviews
- Information at regional level by « field supervisor »
- NSA Website:

**www.asn.gouv.fr**

AUTORITE DE SURETE NUCLEAIRE

## TODAY's COMMUNICATION CHALLENGE

- **Results from a legitimate demand from specific publics:**

  **have access, directly, with no transformation, to information on nuclear safety issues**

- **Affects all the actors interested in nuclear safety issues (licensees, nuclear safety authorities, technical supports ...)**

AUTORITE DE SURETE NUCLEAIRE

## TODAY's COMMUNICATION CHALLENGE (continued)

**The NSA's response:**

**spontaneously and systematically make available to the public the following documents:**

- ☞ NSA's decisions (approvals, autorisations ...)
- ☞ NSA's formal notifications
- ☞ findings on the safety of nuclear installations (incidents, inspection...)

AUTORITE DE SURETE NUCLEAIRE

## TODAY's COMMUNICATION CHALLENGE (continued)

### Implementation of the NSA's response:

- ☞ privilege NSA's website
- ☞ make available « raw » documents (no transformation)
- ☞ Accompagny « raw » documents with explanations if necessary
- ☞ Select the information to be made available (focus on the « value » of the information, not on the quantity)

## CONCLUSIONS

**Nuclear safety is the public's business**

**Therefore NSA's decisions and actions have to be transacted publicly and candidly**

**Clearness and openness are conditions of the NSA's credibility as a regulator:**

- ☞ competent in nuclear safety matters
- ☞ independent from the licensees
- ☞ autonomous with respect to the politics
- ☞ **at the service of the public**

AUTORITE DE SURETE NUCLEAIRE

# MAINTAINING PUBLIC CONFIDENCE IN UK NUCLEAR SAFETY REGULATION

**L. Williams**
Director, Nuclear Safety Directorate
HM Chief Inspector Nuclear Installations, UK

## Introduction

Her Majesty's Nuclear Installations Inspectorate (NII) has been responsible for regulating the UK nuclear industry for 40 years, with 25 years within the Health and Safety Executive (HSE) as its parent organisation. NII's regulatory remit is extensive, covering a wide range of civil and military sites which span the length and breadth of Great Britain. These range from operating nuclear power stations of a variety of designs and ages through to large complex nuclear fuel reprocessing plants, fuel fabrication facilities, radioactive waste management facilities, radioactive waste disposal sites, nuclear submarine facilities, atomic weapons production establishments as well as a myriad of plants often of novel design that have to be decommissioned safely. NII's mission remains as it was 40 years ago, to regulate the nuclear industry such that the industry ensures safety now, avoids complacency and maintains a commitment to achieve the highest standards of safety into the future. NII also has a duty to reassure the public, on whose behalf it is acting to ensure nuclear safety, that it is discharging this function effectively.

## Regulatory framework

The majority of sites regulated by NII are subject to the requirements of the Nuclear Installations Act 1965 (as amended) (NI Act). The NI Act prevents anyone from building or operating a prescribed nuclear installation without a licence granted by the HSE and allows HSE to attach conditions to the licence in the interest of safety at any time. HSE's licensing powers are delegated to HM Chief Inspector of Nuclear Installations. This Act allows HSE to recover the costs of licensing from the licensee. Operators of nuclear plants in the United Kingdom must also conform to the general health and safety standards in the Health and Safety at Work etc. Act 1974 (HSW Act). This Act places a fundamental duty on employers to ensure, so far as is reasonably practicable, the health, safety and welfare of all their employees. It also imposes a duty to ensure, so far as is reasonably practicable, that persons not in their employment (which includes "the public") are not exposed to risks to their health or safety as a result of the activities undertaken.

### Standard conditions attached to each nuclear site licence

In 1990, NII introduced the standard licence for all licensed nuclear installations. This licence had 35 standard conditions but the goal setting intent allowed each licensee to develop

compliance arrangements which best suited its business so that, whilst the conditions were the same for each licensee, the detailed arrangements varied from licensee to licensee. The licence conditions are wide ranging, including requirements for compliance arrangements on, for example:

- marking of the site boundary;
- licensee's responsibility for safety on the whole licensed site;
- transfer of nuclear material or radioactive waste on to or off the site;
- storage of nuclear material or radioactive waste on the site;
- retention of records for demonstrating compliance with the licence;
- control of construction, plant installation, modification to plant design during construction, commissioning, modification of existing plant, decommissioning;
- documentation to justify safety during design, construction, manufacture, commissioning, operation and decommissioning;
- periodic review and reassessment of safety cases;
- examination, inspection, maintenance and testing of plant which may affect safety;
- training of staff with responsibilities for safety;
- suitably qualified and experienced people to carry out safety functions;
- control and supervision of operations;
- emergency arrangements;
- establishment of an advisory nuclear safety committee;
- quality assurance;
- radiological protection.

As of 1 April 2000, a new licence condition 36 (control of organisational change) came into full effect. This requires licensees to have arrangements for assessing the safety significance of proposed organisational or staffing changes. In effect, it plugs a gap in the previous licence in that it makes explicit the requirement to treat organisational changes with the same caution as changes to plant or procedures.

**Credibility**

The nuclear licensing system evidently intrudes significantly into the business operations of the licensee. To be an effective regulator, NII needs to have credibility with the public and with its licensees, to maintain its independence by ensuring that responsibility for safety remains firmly with the licensee, and to ensure that the decisions it makes are defensible and transparent. Since nuclear safety is a highly political issue, NII also needs to give the Government confidence that it is making sound decisions.

The skills, experience and dedication of NII's staff are significant contributors to NII's standing as a regulator. NII typically recruits experienced staff from the nuclear or other high hazard industries with on average, twelve years industrial experience prior to joining NII. We have experts in structural integrity, criticality, radiological protection, reactor physics, human factors, control and

instrumentation as well as nuclear, chemical, civil, mechanical and electrical engineers. A number of our inspectors are leading experts in their particular fields.

**Independence**

The UK Government organisation for nuclear safety gives HSE independence from Government Ministers. Her Majesty's Chief Inspector of Nuclear Installations has regulatory control on nuclear sites; this means that NII can take licensing and enforcement decisions without the approval of Ministers. HSE reports to the Health and Safety Commission (HSC) which includes members from organisations representing employers, employees, local authorities and others. The Commission advises Ministers on health and safety matters in the UK. On nuclear matters, the Commission receives advice from the Chief Inspector of Nuclear Installations and from its Nuclear Safety Advisory Committee (NuSAC) whose members are a balance of people nominated by employer and employee organisations, and technological and professional experts. NuSAC also scrutinises the work of NII. The nuclear industry can appeal against NII's decisions to the HSE three person Executive. HSE has heard two such appeals over the last twenty years concerning specific activities at Trawsfyndd and Sellafield respectively: in one case the Executive supported the Industry case and in the other found in favour of NII.

Although nuclear inspectors guard their independence jealously as a matter of course, NII has additional measures in place to ensure demonstrable independence from the licensees it regulates. Managers are moved at regular intervals and the nominated site inspectors are moved every three to four years; this avoids the potential for the regulator/licensee relationship becoming too close. NII illustrates its independence through being open about what it does and how it does it.

**Public scrutiny**

Three Public Inquiries (Sizewell B – 1986, Hinkley Point C – 1988 and the Torness Dry Store for Spent Nuclear Fuel – 1993), have examined the work of NII and found the Inspectorate to be effective. The Sizewell B Inquiry did however consider that more public information needed to be provided to allow understanding of the basis for the regulation of nuclear safety. HSE subsequently published its document on the Tolerability of Risk, (TOR) in 1988 and subsequently revised it in 1992[1]. At the Hinkley Point C Inquiry, TOR was accepted as a clear and accurate exposition of the risks, and of the standards applied by NII. NII also revised its Safety Assessment Principles[2] in 1992 taking account of the Sizewell B and Hinkley Point C Inquiries.

**Openness**

The HSC/E policy has always been to be as open as possible with health and safety information and the work it does. The HSC/E believes, as does NII, that public access to health and safety information improves public understanding and helps to strengthen public confidence in the regulator.

1. HSE (1992) The Tolerability of Risk from Nuclear Power Stations ISBN 011 886368 1.

2. HSE (1992) Safety Assessment Principles for Nuclear Plants ISBN 011 882043 5.

The UK Government "Code of Practice on Access to Government Information" (1994), the Citizen's Charter (1991) and the Environmental Information Regulations 1992 set down Government policy on access to government information by members of the public. The Code of Practice sets a common set of standards for the disclosure of information. The Code is not statutory, and in setting down the principle that information should be released to the public recognises that a number of safeguards are necessary. The availability of information should not for example:

- undermine the willingness of employers, employees and others to provide HSC/E with information;
- restrain the regulator's ability to take the most appropriate action; or
- place an excessive call on HSE's resources at the expense of other priorities.

There are a number of exemptions in the Code, including defense, security, legal, commercial-in-confidence and statutory. The Environmental Information Regulations require release of environmental information on request, subject to exemptions which are similar to those categories of information in the Code of Practice.

The Freedom of Information (FOI) Act which is expected to become law by 2002 will be legally binding. There are fewer exemptions than in the Code of Practice, and an overide which provides that information shall be released where this is in the public interest. The Act is expected to repeal some existing statutory restrictions.

This will be a marked change from the present situation in which Section 28 of the HSW Act restricts the release of certain information which is either:

- "relevant" information which must be notified to NII under HSW legislation, provided under other statutory provisions; or
- information obtained by inspectors through use of inspectors' powers.

This information cannot be released:

- without consent from those from who it was obtained;
- unless it is in the public interest;
- unless there is anonymity for those from who the information was obtained.

Currently, therefore, NII staff would be committing a criminal offence if they disclosed such information in breach of Section 28. Although, there will be significant changes under FOI, there will still be exemptions such as commercial confidentiality which will mean such information still cannot be released.

The Commission's policy statement on access to health and safety information by members of the public is published in a booklet and is on the HSC/E Internet Web site. The booklet explains:

- the legal basis for the policy;
- the type of information HSC/E makes available and where it is available;
- information which cannot be made available;
- how to appeal against HSE decisions not to release information;
- HSE charging policy for the release of information.

The policy statement will be revised when the FOI Act comes into force.

NII continues to make its work more and more transparent, explaining what it does and why. One of is primary means of communication with the public has been, since 1993, the provision of quarterly reports on inspection and regulatory activities to each site's Local Liaison Committee. This was a major initiative and was aimed at making the public aware of the activities inspectors were undertaking on its behalf to ensure that licensees were maintaining nuclear safety. At the time, this was a major step toward removing the perceived "veil of secrecy" surrounding the day to day regulation of the UK nuclear industry. Licensees have established Local Liaison Committees, although there is no legal requirement to do so, for the purpose of informing the local community of the site's activities. Liaison Committees can comprise, for example, representatives from the nuclear site, local councils, emergency services, pressure groups. Liaison Committee meetings are generally held twice a year. The NII site inspector attends Liaison Committee meetings as an observer and he/she presents the quarterly reports and answers any questions members of the Committee may have. The quarterly reports are also put onto the HSE's Nuclear Safety Directorate (NSD) Internet Web site.

**Press briefing**

NII is keeping the Press more and more informed of its work through giving interviews on topical issues and through Press Releases. Considerable time is devoted to answering questions from the "public". NII publications, which are all on the HSE-NSD Web site, are further examples of the openness policy. Also since 1993, NII has been publishing progress reports on a four monthly frequency ("the HSE Nuclear Safety Newsletter") of its regulatory and international activities. NII distributes the Newsletter to a wide audience including: nuclear site staff, public libraries, colleges and universities (both in the UK and abroad) and foreign regulators. As a further example of its commitment to openness, NII has started holding Press briefings to accompany publication of the Newsletter, giving the Press the opportunity to discuss with senior NII staff current nuclear safety issues, both those referred to in the Newsletter and any other issues which may be of concern to them. Initial Press feedback has been positive following the first briefing session in October 2000.

NII has put reports on its significant regulatory decisions into the public domain, the most recent reports being those concerning the safety audits of Dounreay in 1998 and of Sellafield in 1999 and their respective follow ups. NII media interviews accompanied publication of the Dounreay and Sellafield reports. Comments in the Press (both home and abroad) and from UK Ministers indicate that NII is perceived to be a strong and independent nuclear safety regulator.

**Stakeholder involvement**

Evaluation of stakeholder confidence is vital to ensure that regulatory actions and policy are being targeted in the right areas. NII, as part of its drive towards regulatory excellence is using the European Quality Foundation Business Excellence Model to evaluate its performance. The model requires analysis of stakeholder views and expectations and NII is carrying out a research project, currently in its early stages, to evaluate how stakeholders see NII and what they expect. This project aims to interview key stakeholders and to develop a plan to improve NII's performance in this area.

At NII's 40th anniversary celebrations in November 1999, NII's key stakeholders, including representatives of the pressure groups Friends of the Earth and Scotland against Nuclear Dumping, were invited to give their views on NII. Senior officials from other government departments, representatives from the nuclear industry and a representative of the media (stakeholders who can

portray key messages to the public) were also invited to participate in the event. The purpose of the day was to inform NII's key stakeholders of the regulatory challenges NII was facing, outline its plans for a continuous improvement programme and to listen to views of stakeholders. The event was successful enabling those involved to get an better appreciation of each others' priorities.

**Difficulties with openness**

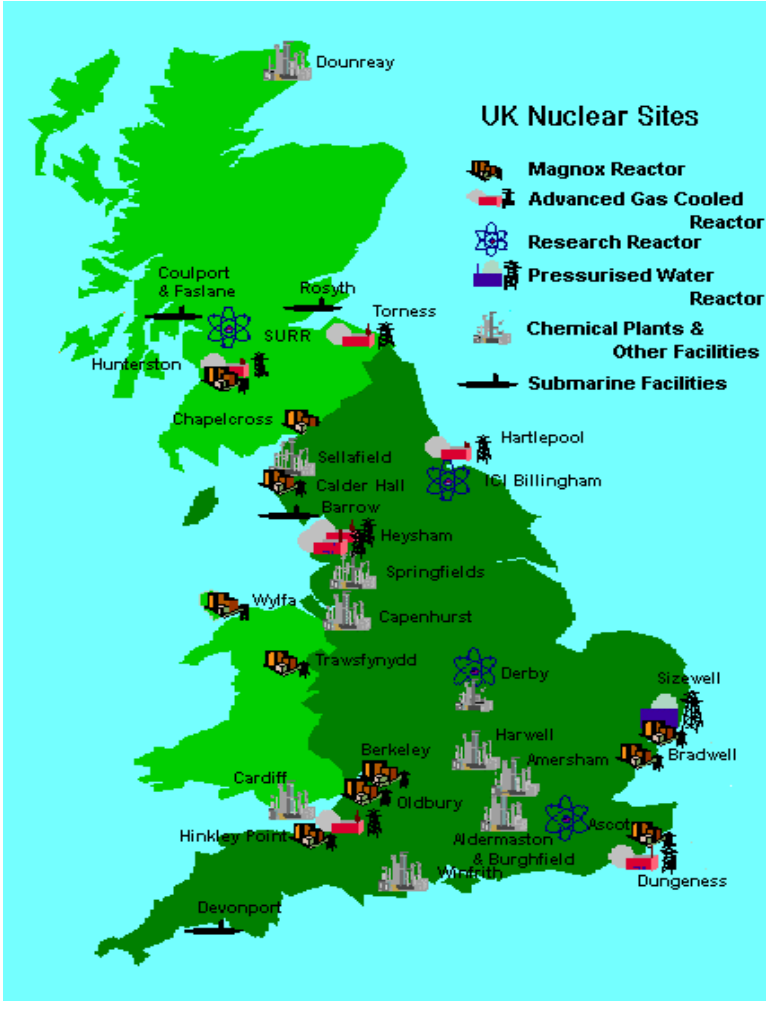
Openness has of course also presented NII with some difficulties as well as some opportunities. Attendance at Local Liaison Committees, publicity events, publication of reports, press releases, media interviews, answering questions from the public etc. all require use of scarce resources. NII invests considerable time to ensure its staff are appropriately trained to discharge their duties with respect to openness. It has a continuous stream of correspondence from members of the public and various pressure groups with interests in specific nuclear sites. Over the past few years NII has made a great effort to be as open as possible with these groups. However, these groups have the potential to put significant demands on NII's resources and they do not always appreciate that their requests for information can have an adverse effect on NII's ability to carry out its primary function of regulating safety on nuclear licensed sites.

**Conclusions**

Maintaining public confidence in the effectiveness of NII to regulate the safety of the nuclear industry is essential. The public, politicians and the media need to have confidence that NII is properly resourced to carry out its regulatory oversight responsibilities, has technically competent and experienced inspectors to exercise judgement on the adequacy of the licensee's safety cases and has the independence to take the necessary regulatory and enforcement actions. Over the years, NII has demonstrated that it has been able to provide the key stakeholders with this necessary confidence. However, the challenge for the future is to maintain this confidence in a world where there is an increasing demand for openness and transparency in regulatory decision making. The key to maintaining stakeholder confidence is competence and having the resources necessary to not only carry out regulatory functions effectively, but also to keep the public informed and respond to their questions. This does not come cheap but it is a price well worth paying.

# Content

- Introduction
- UK Regulatory Framework
- Credibility
- Independence
- Public Scrutiny
- Openness
- Conclusions


UK Nuclear Sites
Magnox Reactor
Advanced Gas Cooled Reactor
Research Reactor
Pressurised Water Reactor
Chemical Plants & Other Facilities
Submarine Facilities
Dounreay
Coulport & Faslane
Rosyth
Torness
SURR
Hunterston
Chapelcross
Hartlepool
Sellafield
ICI Billingham
Calder Hall
Barrow
Heysham
Springfields
Wylfa
Capenhurst
Trawsfynydd
Derby
Sizewell
Harwell
Berkeley
Amersham
Bradwell
Cardiff
Oldbury
Ascot
Hinkley Point
Aldermaston & Burghfield
Winfrith
Dungeness
Devonport

# UK Regulatory Framework

- Nuclear Installations Act 1959
- Health and Safety at Work etc Act 1974 puts general duty on employers to do all that is reasonably practicable to reduce risk
  - to workers
  - to public

# UK Regulatory Framework

- Under Nuclear Installations Act 1965 (As amended)
  - all prescribed nuclear sites require a licence
  - HSE through HM Chief Inspector Nuclear Installations grants licence
  - HSE through HM Chief Inspector Nuclear Installations attaches condition to the licence
  - HSE can attach, amend or delete conditions at any time

# Nuclear Site Licence

- NII introduced standard licence in 1990
- Currently 36 licence conditions
- Conditions place duties on licensee
- Conditions encompass the management of safety
- New Licence Condition 36 (Control of organisational change) came into full effect on 1 April 2000

# Requirements for Effective Nuclear Safety Regulation

- Credibility
- Independence
- Defensible and transparent decision making

# Credibility

- Regulator must be seen to be competent
- Clear responsibilities
- Transparent accountabilities
- Appropriate regulatory structure
- Adequate resources
- Must command trust and confidence of its key stakeholders

# Credibility

- NII's credibility rests on its competence
- NII's structure focussed on Sectors
- Nuclear Sectors regulated by multi disciplinary teams

**Director's Office Secretariat**

**HM CHIEF INSPECTOR NUCLEAR INSTALLATIONS & DIRECTOR NUCLEAR SAFETY DIRECTORATE**
**Laurence Williams**

**Structure at 1 August 2000**

## DIVISION 1 BRITISH ENERGY

**Dr Dick Pape**

Division Support Office
(Mrs Sandra Cheetham)

1a Reactor Inspection
(Mr Eric Dixon)

1b Reactor Inspection
(Dr Andy Hall)

1c Engineering Assessment
(Dr Janet Wilson)

1d Systems Assessment
(Mr Bob Jennings)

1e Quality Assurance, General Site & Conventional Safety Inspection
(Mr Peter Gardner)

## DIVISION 2 BNFL

**Dr Mike Weightman**

Division Support Office
(Mrs Claire Lyons T/P)

2a Reactor Inspection
(Dr Len Creswell)

2b BNFL Plant Inspection
(Mr Bill Ascroft-Hutton)

2c BNFL Projects
(Dr Miles Tew)

2d Structural Integrity Assessment
(Dr Andy Cadman T/P)

2e Engineering Assessment
(Mr Colin Waker)

2f Systems Assessment
(Mr Geoff Vaughan)

## DIVISION 3 DEFENCE & UKAEA

**Mr Jim Furness**

Division Support Office
(Miss Sue O'Neill)

3a Nuclear Submarine/Dockyards Inspection
(Mr Rob Gray)

3b Nuclear Weapons Sites Inspection
(Dr Mike Jeal)

3c UKAEA Sites
(Mr John Sandford)

3d Engineering Assessment
(Mr Phil Bradford)

3e Systems Assessment
(Mr Ian Robinson)

## DIVISION 4 RESEARCH & STRATEGY

**Mr Gordon MacDonald**

Division Support Office
(Mrs Elaine Dearden T/P)

4a Nuclear Safety Research
(Dr Peter Storey)

4b Operational Strategy
(Mr Paul Woodhouse)

4c Radioactive Waste & Decommissioning Strategy
(Miss Frances Taylor)

4d Directorate Business Systems
(Dr Steve Dolan)

4e Finance & Planning
(Mr John Lack T/P)

4f Human Resource Management
(Mr Alan Sabberton T/P)

# Credibility

- NII's Inspectors all have science/engineering backgrounds
- Most recruited from nuclear industry
- only experienced people recruited

# Independence

- Neutrality and objectivity is the key to independence
- Political process should ensure independence of Regulatory Body
- Regulatory Body should be separate from the promotion or ultilisation
- Regulatory Body should have sufficient funding to perform its regulatory function effectively.

# NII's Independence

- Government Ministers not responsible for nuclear safety regulation
- HSC does not involve itself in operational/ enforcement matters
- Scrutiny of NII work by HSC's Nuclear Safety Advisory Committee (NuSAC)
- HSE (3 person executive) can hear appeals from industry against NII's decisions
- Only two appeals in last twenty years

# NII Independence from Licensees

- NII independent of sponsoring Departments
- NII Staff guard their independence  jealously
- Managers moved at regular intervals
- Site Inspectors moved every 3 or 4 years
- Issue independent quarterly reports to Local Liaison Committees

# Public Scrutiny

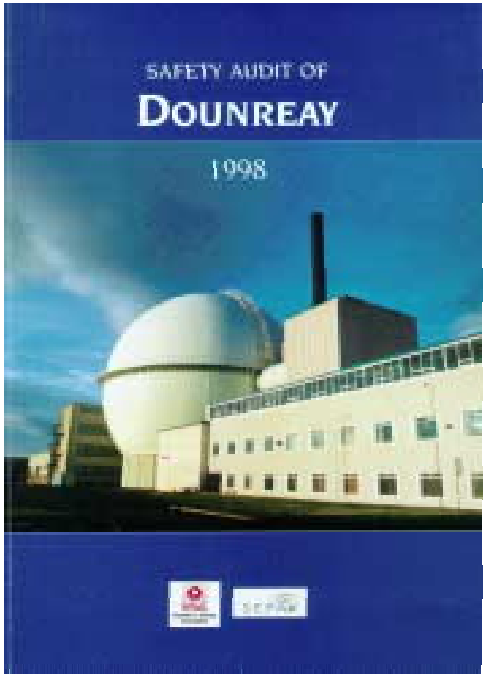
- Scrutiny of the performance of the Regulatory Body essential
- Done via Government review, public accountability, international review
- NII subject to three public inquiries over last 20 years
- Inquiries found:
  - nuclear regulatory framework appropriate for UK
  - NII to be a competent and effective regulator

# Openness

- Openness and Transparency the key to public confidence
- HSE/C policy is to be as open as possible
- Restriction on openness
  - Legal (Section 28 HSW Act)
  - Defence
  - National Security
  - Commercial

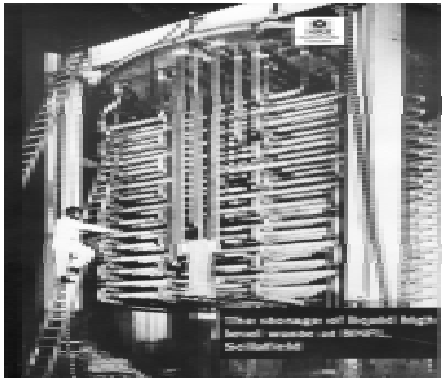
# NII Openness

- Open reporting of major investigations
- Site Inspector quarterly reports
- Site Inspector attendance at Local Liaison Committee meetings
- Extensive use of web site



# Press Briefing

- Interviews on topical issues
- Answering questions from public
- Publications, for example,
  - Dounreay/Sellafield safety audits



# Press Briefing

- Newsletter
  - 4 monthly frequency
  - national/international audience
  - on HSE-NSD web site

- Press briefing to accompany Newsletter publication


NUCLEAR SAFETY
newsletter
Editorial

# Stakeholder Involvement

- NII using European Foundation Business Excellence Model (BEM) to evaluate performance
- NII project on BEM analysis of stakeholder views

# NII 40th Anniversary Celebrations


- Stakeholders invited included representatives from:
  - Media
  - Pressure Groups
  - Government Departments
  - UK nuclear industry

# Difficulties with Openness

- Diversion of scarce resources from regulatory activities
- Staff training
- Encourages excessive questioning
- Dashed expectations can lead to accusations of secrecy

# Conclusions

- Maintaining public confidence is essential
- Confidence must be earned
- Regulator must be seen to be independent
- Regulator must be seen to be competent
- Regulator must be adequately resourced
- Openness and transparency do not come cheap
- Regulator must keep in touch with the expectations of its stakeholders

# CONSIDERING PUBLIC CONFIDENCE IN DEVELOPING REGULATORY PROGRAMS

**S.J. Collins**
Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission, United States

## Introduction

In the area of Public Trust as in any investment, planning and strategy are important. While it is accepted in the United States that an essential part of our mission is to leverage our resources to improving Public Confidence this performance goal must be planned for, managed and measured.

Similar to our premier performance goal of Maintaining Safety, a strategy must be developed and integrated with other processes and programs to achieve desired results. These challenges exist not only with our external stakeholders but with internal regulatory staff as well.

## Defining success

It is important to put the goal of Public Trust or Public Confidence into the context of the regulatory program and those influences which define success. In the United States success for the performance goal of Public Confidence is investing budgeted resources to define and implement our programs in a manner which improves the Public Confidence in the NRC as a strong, credible regulator. This definition is important in that it differs from the promotion of nuclear power.

## Planning considerations

In planning to define strategies and allocate resources to improving Public Confidence the following areas are defined for each program:

- Identify stakeholder and individual contacts. (Who)
- Integrate stakeholder awareness/involvement in program definition. (Why)
- Gather and disposition public and stakeholder comments on program. (How)
- Implement program and measure success against established criteria. (Performance Goals-What)

- Perform post implementation lessons-learned and periodic program reviews. (Continuous Improvement)

**Methods**

- Conduct business in an open environment.
- The basis for regulatory decisions is available through public documents and public meetings.
- Freedom of Information Act.
- Published inspection and Licensing Program documents and individual decisions.
- Communication initiatives such as “plain English”, NRC Web site, periodic stakeholder meetins and Press Releases. Use clear, consistent terms.

**Measures**

- Establish measures against success criteria.
- Public, stakeholder feedback via survey focused on individual programs. (Public meeting evaluation form, licensee feedback survey, allegation feedback form, annual Regulatory Information Conference).
- Broad based feedback from stakeholders, more informal and less specific. (NEW survey, DOE initiatives, usually measure acceptance of nuclear power vs. credibility of regulator).
- Health and performance of industry determine ability to invest in Public Confidence initiatives vs. Maintain Safety.
- Incorporate measures into Performance Plans and use to achieve Strategic Goals. (Consideration of input to Regulatory Effectiveness).

**Challenges/lessons-learned**

- Success measures different amongst shareholders.
- Receiving stakeholder input and dispositioning issues is not the same as resolving concerns.
- Philosophical alignment of stakeholders in approach to nuclear power technology is not a goal; the main focus is agreement on the role of the regulator.
- Stakeholders should not be “leveraged” by regulator to justify or legitimise actions.
- The independent role of each stakeholder must be preserved in order to maintain effectiveness.
- Regulator must define and follow a recognised process to implement methods to maintain a predictable, open approach to developing programs.
- Internal regulatory staff change management must be addressed.

**Conclusion**

Improving Public Confidence is one of the four NRC Performance Goals. To be successful, strategies must be developed, funded with resources and measured. Success definitions and success measures will vary amongst stakeholders. Dispositioning stakeholder issues and concerns is different than achieving resolution. Independent role and credibility of stakeholders must be preserved in order to be effective. Invest in internal stakeholder regulator change management with similar initiatives as external.

# REACHING OUT TO MULTIPLE STAKEHOLDERS EPA'S PUBLIC OUTREACH AND COMMUNICATIONS PROGRAM FOR THE WASTE ISOLATION PILOT PLANT

**R. Ferguson, C. Malina**
U.S. Environmental Protection Agency

***Abstract***

In October 1992, Congress enacted the Waste Isolation Pilot Plant (WIPP) Land Withdrawal Act which gave the U.S. Environmental Protection Agency (EPA) significant new responsibilities for overseeing the U.S. Department of Energy's (DOE) activities at the WIPP. The WIPP, which is designed to safely contain radioactive waste for at least 10 000 years, is located near Carlsbad, New Mexico, and is the world's first geological disposal facility for transuranic waste. In May 1998, EPA determined that the WIPP will safely contain transuranic waste, which is generated as a result of the U.S. nuclear weapons program, because DOE demonstrated that the facility will comply with the Agency's radioactive waste disposal standards. EPA's decision allowed the DOE to begin disposing radioactive waste in the WIPP. As of October 2000, the WIPP has received over 75 shipments of transuranic radioactive waste.

In implementing its new responsibilities, EPA committed to conducting an open public process that includes interaction with all interested parties. EPA believes that a successful communications and consultation program facilitates the regulatory oversight process and promotes sound public policy decisions. As a first step in meeting its commitment to an open public process, EPA conducted a public consultation and communication "needs assessment." The purpose of this assessment was to obtain input from citizen and environmental groups and the public on their key concerns about EPA's role and responsibilities at the WIPP, as well as to determine the best methods for communicating with them. Throughout the WIPP certifi-cation process, EPA provided opportunities for public involvement beyond those required in typical U.S. regulatory programs. Doing this, we believe, increased the public's understanding of EPA's role and responsibilities with respect to the WIPP project, enabled the public to make informed decisions about the project by increasing their knowledge about radiation and it's risks, and enhanced the overall decision-making process. The final step in our public consultation and communications process is to evaluate the effectiveness of our WIPP public outreach program. We expect to have the results of this evaluation by the end of the year.

This presentation describes the importance of public involvement in EPA's WIPP oversight role and how the findings and recommendations of the communications needs assessment influenced the way in which the Agency developed and implemented its WIPP communications program with the citizens of New Mexico.

**Public consultation and communications needs assessment**

The Agency undertook a needs assessment as the first step in establishing its WIPP public outreach program for several reasons. First, although the WIPP project had been underway for quite a while, EPA involvement was new. So the Agency needed to learn about the public and its communications needs quickly and efficiently. Second, given the controversy surrounding this project, and EPA's awareness of the public's impressions of the federal government, the Agency could not afford to make mistakes in its outreach program if it was to establish credibility with the public in New Mexico. Third, given the public's involvement and familiarity with the program, the Agency recognized that the New Mexicans would have valuable insights and make useful contributions to EPA's WIPP regulatory oversight program.

***The Process***

EPA hired a New Mexico/Washington, DC-based consulting firm that specialized in public interaction and planning to assist in developing and conducting the needs assessment for this project. EPA began the process by interviewing New Mexicans who represented a wide range of interests and opinions regarding both the WIPP project and EPA's oversight of DOE's WIPP activities. Those interviewed included representatives of citizen and environmental groups, civic organizations, business groups, Native American groups, and private citizens. The results of these interviews provided EPA with information on the basic knowledge, understanding, and perceptions of a cross-section of residents and organized interest groups regarding DOE's WIPP project and EPA's WIPP oversight role and responsibilities.

***Findings***

General Public Perceptions About the Federal Government – Interviewees described a history of poor communication and lack of consultation between the federal government and the public in New Mexico about the WIPP.

Public Knowledge and Understanding About EPA's Role in the WIPP Project – Although most individuals were well informed about the WIPP and knew that EPA had a regulatory oversight role**,** virtually no one interviewed had a good understanding of that role or the specific tasks EPA was responsible for carrying out, nor a good idea about time frames, schedule, or key decision points in the WIPP oversight program.

Issues of Concern to New Mexicans – Interviewees raised issues that EPA could address, as well as some that were outside EPA's authority. Many interviewees were concerned about how EPA would make its decision on the safety of the WIPP and how the public would be involved in the rulemaking process. They also stressed that EPA should be sensitive to the needs of New Mexico's culturally diverse population in formulating its communications and consultation program.

***Recommendations***

Recommendations from the interviewees regarding EPA's public outreach and communications program all revolved around the theme of ensuring active and extensive public involvement in the WIPP regulatory oversight decision-making process. Overall, the needs assessment

participants felt that EPA should focus its outreach and communications efforts on the identified needs of New Mexicans instead of on the Agency's needs. They made six recommendations:

- Provide Full Disclosure of Information Related to the WIPP – New Mexicans wanted to receive extensive information on the WIPP project, on EPA's WIPP role and responsibilities, other federal and state agencies' roles and responsibilities, updates on the status of EPA actions, and the relative risks and hazards of radiation and the safety of geologic disposal of radioactive waste. Participants also requested that communications between EPA and DOE be documented and made available to the public and that meetings between the two agencies be open to the public.
- Ensure Integrity and Independence of EPA's Decision-Making Process – Participants voiced concerns that political considerations might outweigh public health and safety considerations. They felt that DOE might not provide accurate data to EPA and requested that EPA explain its approach to incorporating public participation into its decisions.
- Include the Public in Meetings – The public requested access to events such as EPA's consultations with its National Advisory Council for Environmental Policy and Technology (NACEPT) WIPP Review Committee. In addition, they requested in-person contact with Agency officials and a method by which individuals could contact EPA for the latest information on upcoming events and activities.
- Conduct Activities Openly and Consult the Public When Making Decisions – It was particularly important to many interviewees to have some involvement in EPA's decisions about the WIPP because they thought they had been excluded from participation by the federal government in the past.
- Provide Early Notification of WIPP Meetings – New Mexicans suggested that EPA publicize its WIPP events widely and well in advance. New Mexico is made up of culturally diverse populations, including Hispanics and Native Americans, who wanted EPA to make a genuine effort to reach out to them and others in geographically remote communities. The geographically dispersed and culturally diverse population made it particularly important for the Agency to make special efforts to notify the public early.
- Respond Promptly to Public Inquiries – Participants requested timely responses to inquiries, requests for information, and suggestions.

**EPA's response**

***Development of public information documents***

EPA developed a number of outreach documents for the public. The first, "EPA's WIPP Implementation Strategy", explained in detail the Agency's plan for carrying out its WIPP role and responsibilities. Another publication, "EPA and the WIPP" described EPA's regulatory oversight role and responsibilities. "EPA's Communications Plan for the WIPP" set forth the Agency's commitment to conducting business in an open and public manner, outlined its public outreach program, including the needs assessment findings and recommendations, and provided a listing of public information documents and resources as well as opportunities for public involvement throughout the rulemaking process. Because the Agency wanted to keep as many New Mexicans as possible informed about and involved in EPA's WIPP-related activities, the Agency also made some of its documents and materials available in both English and Spanish.

***Partnership with the National Safety Council***

In 1996 EPA entered into a cooperative agreement with the National Safety Council's (NSC) Environmental Health Center to perform activities to improve public awareness of the health risks associated with the WIPP and increase the understanding of the various federal and state agencies with WIPP-related regulatory responsibilities. NSC, a nonprofit, non-governmental public service organization with state- and community-based chapters and offices throughout the United States, is a recognized source of worker, public safety, and environmental health information.

In September 1996, the NSC, in conjunction with the University of New Mexico's Institute for Public Policy, conducted three focus groups in New Mexico and a series of statewide public interviews. The purpose of these interviews was to determine the public's knowledge of the WIPP and the oversight and regulatory process surrounding it. In response to the questions New Mexicans posed during the focus groups and interviews, the NSC developed public information materials to address their concerns. These materials ranged from fact sheets and a booklet on frequently asked questions about the WIPP, to poster displays on EPA's public participation opportunities and on EPA's WIPP certification decision. NSC also published "A Reporter's Guide to the WIPP" – a guide for the media on WIPP issues that includes a listing of contacts and resources.

EPA also worked with the NSC to develop their WIPP Web Site. The address is http://www.nsc.org/ehc/wipp.htm.

EPA continues to work with the NSC to identify radiation issues of concern to the public and to develop additional, appropriate informational materials to address these concerns. For example, because trucks will transport the waste from the generator sites to the WIPP for disposal, New Mexicans and residents of other states along the waste transportation routes are concerned that a trucking accident will result in human exposure to radioactive material. In response to their concern, EPA collaborated with the NSC to develop a packet of informational materials including a fact sheet about transuranic waste generator sites and transportation issues and a transuranic waste generator site state contact list. NSC distributed these materials in March 1999, prior to the WIPP's receipt of the first shipment of transuranic waste.

***Development of public information resources***

In response to the public's request to keep them informed and involved in EPA's WIPP activities, EPA established these resources:

WIPP Information Line – A toll-free telephone line, 1-800-331-WIPP, with a recorded message (in English or Spanish) provides updates on EPA's WIPP activities. Callers can ask to be added to the mailing list, request publications, or leave questions for EPA staff.

WIPP Stakeholder Mailing List – The stakeholder list includes members of the general public, interest groups, the media, tribes, environmental groups, private industry, and members of Congress, as well as staff from federal, state and local government agencies interested in receiving information concerning EPA's WIPP activities.

WIPP Home Page – EPA provides on-line information about WIPP program activities including announcements, updates on public outreach activities, and publications such as EPA's WIPP-related standards and rulemakings. The address is http://www.epa.gov/radiation/wipp.

WIPP Dockets – Documents supporting EPA's WIPP rulemaking decisions, such as reports, meeting notes, and correspondence, are available for public inspection at libraries in Albuquerque, Santa Fe, and Carlsbad, New Mexico, and at EPA Headquarters in Washington, DC.

Consultation with Experts and the Public – EPA consulted frequently with experts and the public on the many issues involving its oversight of the WIPP.

NACEPT WIPP Review Committee – In 1992, EPA established an advisory committee of independent technical experts under the National Advisory Council for Environmental Policy and Technology (NACEPT) to provide advice and counsel on technical and policy issues associated with the Agency's WIPP activities. These meetings were open to the public and provided opportunities to comment on the issues addressed by the advisory committee.

Technical Exchange Meetings and Workshops – Since 1992, EPA has held 23 technical exchange meetings with DOE on issues associated with the Department's program for demonstrating WIPP's compliance with EPA's radioactive waste disposal standards. The public was invited to attend these meetings and summary reports were filed in the WIPP dockets. EPA also invited national and international experts and representatives from other federal agencies and from New Mexico, including citizen groups, to participate in a three-day Technical Workshop on WIPP Compliance Criteria issues. The Workshop included time for audience comments and questions.

Public Hearings – Public hearings with significant advance notice are official parts of EPA WIPP rulemakings. They offer the public a forum where individuals can personally testify and present their opinions to the Agency. Some 815 people testified at EPA's WIPP hearings and EPA staff reviewed and addressed more than 1,450 oral and written public comments in developing its WIPP rulemaking decisions.

Stakeholder Meetings – EPA held frequent, informal meetings with interested stakeholders to keep then informed and to receive their feedback on WIPP oversight issues.

Meeting Information and Notices – Information about public meetings, hearings, and requests for written comments were published in the "Federal Register", announced on the WIPP Information Line, and advertised in local and major newspapers in New Mexico in both English and Spanish.

Media Relations – The Agency issued press advisories and conducted audio teleconferences with the media to announce key EPA decisions about WIPP. The NSC developed "A Reporter's Guide to the WIPP", that was well received by the news media.

Congressional Relations – EPA conducts briefings before members of Congress to keep them informed of EPA's WIPP activities and publishes an annual Report to Congress on the Agency's WIPP activities and resources.

Conferences and Meetings – EPA participates in international, national, state, and industry-sponsored conferences on radioactive waste management issues and in quarterly meetings of the National Academy of Sciences' WIPP Panel.

**Lessons learned**

Know the Affected Public and Stakeholders – Conducting the public consultation and communications needs assessment was useful in identifying members of the affected public and stakeholder groups. Recognizing the controversial nature of the WIPP project, the Agency obtained important information regarding the public's attitudes, needs, and concerns needs before developing a comprehensive communications plan.

Involve the Public and Stakeholders Early in the Regulatory Process – EPA's regulatory process was lengthy and complex. Although EPA was not required to conduct public hearings under the WIPP Land Withdrawal Act, the Agency wanted to conduct its business openly and provide the public with as many opportunities as possible to comment and participate in the regulatory process. In conjunction with the rulemaking hearings process, the Agency established seven public comment periods, a total of 495 days, for the public to submit written comments. Since 1992, EPA has held 23 technical exchange meetings, three NACEPT meetings, one technical workshop, three public meetings, and 12 public hearings. All 42 events were open to the public and the summary reports and transcripts were placed in the dockets. Frequent meetings and teleconferences also provided opportunities for all stakeholders to better understand the issues.

Educate the Media – Because the media is the major conduit for transmitting information to the public, EPA worked hard to educate reporters on its regulatory role and responsibilities and on the process that would be used for certifying the safety of the WIPP. Agency officials traveled to New Mexico and met with television, print, and radio journalists throughout the State to prepare them for EPA's final certification decision for the WIPP. A key benefit of working closely with the media before a major announcement is that articles and broadcasts following the event are more accurately reported.

Be Open and Responsive to Public Concerns – Encouraging public and stakeholder participation and keeping them well informed is an ongoing process at EPA. The Agency will continue to meet with the public and stakeholders to discuss and address their concerns about the WIPP and EPA's continuing role and activities.

Be Realistic With the Public About the Extent of Their Role and Involvement – Say up front what you can and cannot do for them. EPA was careful not to give the public false expectations about the extent of their involvement and role in the regulatory rulemaking process.

**EPA's continued oversight role and future public participation opportunities**

When EPA certified WIPP, the Agency included the condition that DOE waste generator sites may not ship waste to WIPP until two things happen: (1) EPA approves the site's quality assurance program for transuranic waste characterization activities and assumptions; and (2) EPA approves the transuranic waste characterization processes used at the site. The public may submit comments to EPA about any site the Agency inspects. Once an inspection is scheduled, EPA announces it in the "Federal Register", posts it on the WIPP Home Page, the WIPP Information Line, and simultaneously opens a 30-day public comment period on the site's quality assurance and waste characterization plans. These plans, as well as EPA's final inspection reports and letters of decision, are placed in the dockets. Throughout its operation of the WIPP, DOE must apply for re-certification by EPA every five years. EPA will consider public comments as part of its review.

EPA may also conduct inspections of activities at the WIPP and at other WIPP-related contractor, laboratory, and waste generator site facilities to verify continued compliance with EPA's radioactive waste disposal standards.

The Agency will continue to keep the public informed about its WIPP-related activities by recording WIPP Information Line announcements; by publishing notices in the "Federal Register", fact sheets, and the "EPA WIPP Bulletin" – a newsletter; and by submitting inspections reports and other pertinent documents to the dockets for public review.

**Conclusion**

The success of EPA's WIPP public outreach program is largely due to the amount of information that the Agency received before developing its comprehensive communications plan. By seeking this information, EPA avoided potential communications pitfalls that could have jeopardized the Agency's credibility and integrity. Although the Agency obtained more recommendations for its outreach program than it had resources to develop and implement, the findings and recommendations from the needs assessment enabled EPA to develop a responsive and cost-effective communications program. In addition, EPA staff has established a network of expert advisors with whom they can continue to work to help anticipate public concerns and attitudes before problems arise.

EPA highly recommends the program that we have described here. It is important to learn as much as you can about your audience. Focus communications and outreach efforts around the identified needs of the public instead of around the needs of your organization.

# COMMUNICATING WITH THE PUBLIC ON RADIATION ISSUES

**J. Edwards**
U.S. Environmental Protection Agency
Office of Radiation and Indoor Air

# Overview

- Communications Needs Assessment
- EPA Responds
- Lessons Learned
- Public Outreach:  Our Continuing Role
- Outreach Program Evaluation
- Your Success:  Improving the Odds
- Conclusion

US EPA

WAH!
LOOK AT THE MESS I MADE!
THERE, THERE, CHILD! WE'LL HAVE SOME POOR, MINORITY SOUTHWESTERN COMMUNITY TAKE CARE OF IT.
NUCLEAR INDUSTRY

# Communications Needs Assessment

- Process
  - Hired NM/Washington, DC-based Firm that Specialized in Public Interaction and Planning to Help Develop Needs Assessment
- Purpose
  - Learn Key Concerns of Citizen and Environmental Groups and the Public About EPA's Role and Responsibilities Regarding the WIPP

US EPA

# Communications Needs Assessment

- Findings
  - Perceptions About Federal Government
    - Poor Communication; Lack of Consultation
  - Public's Knowledge/Understanding of EPA's Role/Responsibilities in the WIPP Project
    - Poor
      - role, tasks, schedule, timelines, key decision pts
  - Issues of Concern to New Mexicans
    - Issues Within and Outside of EPA's Authority
    - How EPA Would Make Safety Decision and How the Public Would Be Involved
    - Be Sensitive to Communications Needs of NM's Culturally Diverse Population

US EPA

# Communications Needs Assessment

- Recommendations
  - Full Disclosure of WIPP Information
  - EPA Must Ensure Integrity and Independence of Decisionmaking Process
  - Include the Public in Meetings
  - Conduct Activities Openly and Consult the Public When Making Decisions
  - Notify the Public Early About Meetings
  - Respond Promptly to Public Inquiries

US EPA

# EPA Responds

- Public Information Documents
  - "EPA and the WIPP"
  - "EPA's Communications Plan for WIPP"
  - Many Available in English and Spanish
- Established Partnership with the National Safety Council (NSC) in 1996
  - Nonprofit Non-governmental Public Service Organization
  - Unbiased Source of Worker, Public Safety, and Environmental Health Information

US EPA

# EPA Responds

- Partnership Objective
  - To Improve the Public's Awareness of the Health Risks Associated with the WIPP
  - To Increase the Public's Understanding of Federal and State Agencies with WIPP Roles and Responsibilities
- NSC/University of New Mexico's Institute for Public Policy
  - Conducted Focus Groups and Statewide Phone Interviews to Determine Public's Understanding of WIPP Oversight and Reg Rulemaking Process

US EPA

# EPA Responds

- NSC
  - Developed Public Information Materials to Address Concerns Raised During Focus Groups and Phone Interviews Conducted by UNM's Institute for Public Policy
    - Federal/State Agency Roles Handout
    - Frequently Asked Questions Booklet (FAQs)
    - Fact Sheets (Trans Issues/Int'l Geo Repositories)
    - Posters (WIPP Cert Process/Opps for Public Part)
    - Reporter's Guide
    - Internet Website

US EPA

# EPA Responds

- EPA Public Information Resources
  - WIPP Information Line: 1-800-331-WIPP
  - Stakeholder Mailing List: 2100 members
  - Website: www.epa.gov/radiation/wipp
  - Dockets: Carlsbad, Albuquerque, Santa Fe
- Consults with Experts and the Public
  - 42 Events: 1500 Cmts, 7 PCPs; 495 Days
    - NACEPT WIPP Review Committee - 3
    - EPA/DOE Technical Exchanges - 23
    - Technical Workshop on Compliance Criteria - 1
    - Public Hearings - 12
    - Public Meetings - 3

US EPA

# Lessons Learned

- Know the Affected Public/Stakeholders
  - Needs Assessment Gave EPA Information on Public's Attitudes, Concerns, and Communications Needs
- Involve Them Early in the Reg Process
  - Hearings Not Required by Law in this Case
  - Regulatory Rulemaking Process Lengthy, Complex, Not Ideal for 2-Way Dialogue
- Educate the Media
  - Editorial Board Meetings
  - Reporter's Guide
    - Print /TV More Accurate

US EPA

# Lessons Learned

- Be Open and Responsive to Public's Concerns
- Be Realistic with the Public About the Extent of Their Role and Involvement
  - Say What You Can and Cannot Do Up Front
  - EPA Careful Not to Give False Expectations to Public About Their Role in the Regulatory Rulemaking Process
    - Access to DOE Facilities During DOE/EPA Interactions
    - OMB Interagency Review Process

US EPA

# EPA's Continuing Role

- Continue Working With NSC to Identify Radiation Issues of Concern to the Public and Develop Appropriate Materials
- Provide Opps for Public Participation During Continuing Compliance Activities and Recertification Process
- Continue to Provide Public Information Services: Website, Info Line, Bulletin, Mailings, Dockets

US EPA

# Program Evaluation

- Purpose
  - Measure Effectiveness of Public Outreach Program and Apply Lessons Learned to Other Programs
- Approach
  - Hired Independent, Expert, Public Participation Consultants
- Process
  - Reviewed Needs Assessment
  - Identified Key Stakeholder Groups
  - Interviewees Were a Culturally Diverse Cross-section of Stakeholders

US EPA

# Program Evaluation

- Process
  - Conducted Interviews
    - Telephone Survey
    - Face-to-Face with Internal & External Stakeholders
    - Focus Groups with the Public
  - Develop Draft Report
  - Obtain Peer Review
  - Issue Final Report:  January 2001

US EPA

# Your Success: Improving the Odds

- Consult Your Stakeholders: Conduct A Needs Assessment
- Consult Communications Experts
- Plan Communications and Outreach Efforts Based on Needs Assessment Findings and Recommendations
- Partner with Organizations that have Credibility with the Public
- Put the Public's Needs First--Not Your Organization's

US EPA

# Conclusion

- Ask...Listen...Respond
  - Based EPA's Outreach and Communications Program on Needs Assessment Information
  - Helped Us Avoid Potential Communication Pitfalls That Could Have Jeopardized Our Credibility and Integrity
  - Enabled Us to Develop a Responsive, Cost-Effective Public Outreach and Communications Program
  - Highly Recommend This Approach

US EPA

## SESSION 5

## Sharing Experience

***Chairwoman: S. Copeland***

# FOOD AND AGRICULTURE – WHO TRUSTS WHO?

**P.S. Gray**
Former Director, EU Environment, Climate and Marine Science and Technology Research Programmes, Member of the Scientific Council of the Belgian Royal Institute for the Environment and Sustainable Development of Natural Resources – Belgium

## Public perceptions in food safety

Any examination of the relationships between the various stakeholders in a sector of economic activity must be founded on their perceptions of the product or service that is being traded. Underlying this is the general social context embodied in the cultural and ethical values, beliefs, and criteria of society, which are derived from their social environment and their experience. According to De Marchi and Tessarin,[1] experience may embody "beliefs that may be derived from experiences that have little or nothing to do with the object of the belief … and beliefs about technologies may be held even in people that have no contact with them". Although modern society is founded on science and the population at large can use and manipulate highly technological devices they have become distanced from fundamental science and fail to understand that the very strength of science is the refutability of any hypothesis and the consequent progression in knowledge.

Scientists are more certain about what they do not know than what they know, so that their statements are necessarily couched in conditionals such as *"the evidence that we have so far indicates that the product is safe"* whereas the public looks for definitive statements such as *"the product is safe to eat"*. The fact that the scientific method cannot give total assurances leads to distrust rather than confidence in science and a turning towards those who are prepared to make definite statements based on limited, little or in some cases no experimental results or observations. Thus in food the general perception is held that natural equals safe, despite the fact that all our foods are derived from plants that have inherent natural toxins that have been reduced to "safe" levels by careful selection. They occur at significant levels in food products such as potatoes, beans, lettuce, apple juice, wine, black pepper, spinach, peanut butter and many others. The report of International Food Biotechnology Council[2] lists over 200 natural toxicants in food not including contaminant pathogenic microorganisms and their toxins.

Krewski[3] states that basing risk judgements on "objective" scientific evidence using the standard risk analysis pattern "fails to consider the subjective elements of risk perception". It is

1. De Marchi, B. and Tessarin, N. in Chernobyl a Policy Response Study, ed Segerståhl, 1991; p.118 Springer Verlag, Berlin.
2. Biotechnologies and Food, J. Regulatory Toxicology and Pharmacology Dec. 1990, 12, 3 Part 2 PS29-S74.
3. Krewski, D., E. Somers, and P.L. Birkwood. 1987. "Risk Perception in a Decision Making Context". Environmental Carcinogenesis Reviews, C5, pp. 175-209.

therefore important "for decision makers to be aware of public concern for health risks in order that risk management decisions properly reflect such concern and ultimately receive public acceptance". The problem is that of scientists and technologists base their beliefs, and consequently their approach to the evaluation of risk, on experimental evidence, scientific theories, models, controls systems etc. whereas the public have to rely on the interpretations of this information by spokesmen of public bodies, interest groups such as industrial and consumer organisations and media reports. In either case attitudes are no less real since decisions that are taken in the public domain are taken in a social rather than technological context. The veracity attributed to a statement therefore depends on the public's view of the reliability of the spokesman. The fact that a scientist may have spent his whole career working in a particular field and is an international expert in a particular topic may even detract rather than add credibility to his statements, since he may be regarded as tainted. Although the availability of background scientific information to the public through formal education or the media is considerable the complexity of our modern technological society is such that it is unlikely that the public at large have more than a smattering of general ideas on the topic in question and thus have difficulty in situating an event within this background.

Food safety has a long history, the earliest food law the Codex Hammurabicus dating back to 1780 BC. Modern food law based on a scientific approach was first put in place in the United Kingdom (UK) in 1855 followed rapidly by other industrialised European Countries[4] thus both the concepts of legislation on food safety and that of enforcement are deeply embodied in the public consciousness in developed countries. Attitudes to food safety questions are strongly influenced by national food culture, the development of commerce in the country concerned and the organisation of its implementation by government. In the United States (US) the setting up of the Food and Drug Administration (FDA) in 1931 has led to a homogenous approach to food law. The FDA and to a lesser extent the US Department of Agriculture, which has responsibility for agricultural products, is widely trusted as an independent arbitrator on food safety questions. Commerce is also much more homogeneous throughout the US, as is the variety of foods on offer.

In contrast Europe is in a state of gradual but continuous change. The 1992 Single Market initiative set a target of harmonising food law at European level that was largely achieved[5]. Alert procedures for managing food crises have been operating successfully for many years and the Scientific Committee for Food (SCF) have carried out evaluations on food safety at European Union (EU) level since 1974. Nevertheless various crises and temporary problems have proved to be very fertile ground for national restrictions on food trade between EU Member States. Some regard these restrictions as manoeuvring to protect national trading interests rather than ensuring consumer safety, thus stimulating inherent food xenophobia. As Samuel Johnson put it "Patriotism is the last refuge of a scoundrel." It is no surprise that the attitudes of individual consumers are very diverse between EU Member States since cultural attitudes to food vary so much across the EU. Nevertheless consumer organisations strongly support action at EU level for improved safety, extended consumer choice and economic reasons.

In 1998 the European Commission (EC) carried out a survey of the attitudes to Food Safety of 16,165 people in 15 Member States.[6] As expected responses varied markedly between EU Member States but the weighted average data is very informative about consumer attitudes and is a useful background to the case studies discussed later.

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4. Gray, P.S. The Regulation of Food Safety, International Food Safety Handbook, Marcel Dekker, New York 1999 p.598.

5 Gray, P.S. Subsidiarity and EC food law, Food Control, 1993, Vol 4, No2 61-66.

6. INRA Europe – European Coordination Office, Eurobarometer 49, The safety of foodstuffs, 1998 EU Publications Office Luxembourg.

Table 1. **Which product is safe and which unsafe?**

| | **Safe** | **Unsafe** |
|---|---|---|
| Bread | 86 | 11 |
| Fresh fruit | 80 | 17 |
| Cheese | 80 | 15 |
| Fresh milk | 79 | 19 |
| Fresh Vegetables | 77 | 18 |
| Eggs | 73 | 22 |
| Fresh Fish | 69 | 25 |
| Fresh meat | 60 | 30 |
| Frozen Foods | 58 | 34 |
| Tinned or bottled products | 52 | 40 |
| Other Pre-packed Products | 42 | 43 |
| Prepared Dishes | 39 | 49 |

The false concept that unprocessed products are safer than processed products persists despite the fact that over 80% of food borne disease derives from animal products and the major food crises have occurred in unprocessed food (salmonella in eggs and BSE in beef). This strong bias against processed food expressed in the survey is not borne out by trends in eating habits.

Table 2. **Which factors are most important for safety? ***

| | |
|---|---|
| Total absence of pesticides | 56 |
| Total absence of hormones | 54 |
| Product controlled by an authorised body | 49 |
| Total absence of additives | 36 |
| Preservatives present | 35 |
| Additives present | 33 |
| Good packaging | 29 |
| Total absence of preservatives | 28 |
| Pesticides and hormone residues limits imposed by scientists | 21 |
| Don't Know | 3 |
| None of these factors | 1 |
| Other factors | 1 |

* Several factors may be cited

This survey is not very informative because of the closed and equivocal nature of some of the questions. For example pesticide and hormone levels are never "imposed by scientists"; authorities impose them on the recommendation of scientists. When products are "controlled" by authorised bodies the process is preventative i.e. the manufacturer is responsible for routine control and the control body can carry out spot checks. The author has questioned a number of consumers who all thought that "official control" meant that primary control was exercised by official bodies on the

actual product they were purchasing. However it is interesting to note the strong dislike of pesticides by the consumer, which is at odds with the previous table where fruit and vegetables, most of which contain some pesticide residues, are regarded as very safe. This dichotomy goes part way to explaining the Alar crisis. (See below)

Table 3. **Where are the safest products for sale? ***

| | |
|---|---|
| Supermarkets | 47 |
| Farmers | 46 |
| Markets | 24 |
| Small shops | 20 |
| Don't Know | 7 |
| Nowhere | 6 |
| Other | 3 |

* Several sources may be cited

Supermarkets have an even higher rating in countries where they are more developed such as the UK and markets are rated highly in Mediterranean countries where they are more prevalent.

Table 4. **Who tells the whole truth about food? ***

| | |
|---|---|
| Consumer Associations | 52 |
| National Authorities | 26 |
| European Institutions | 21 |
| Small shops | 19 |
| Supermarkets | 18 |
| Market traders | 16 |
| Producers | 12 |

* Several sources may be cited

**Food versus agriculture – openness and trust**

A quirk of the EEC (now EU) Treaty divided all products of the soil into two groups; "agricultural products" and "food". All primary and secondary products fall under agricultural policy and further transformations are regarded as a food. For example wheat, flour and malt are agricultural products and bread, beer and whisky are considered to be food and fall outside the regime of agricultural policy. The objectives of agricultural policy are to be found in Article 39 of the EU treaty. The first objective is "to increase agricultural productivity" and consumer interests come fifth in a list of five. For example questions of hygiene in production and animal disease, even if transferable to man (zoonoses), were dealt with by the veterinary legislation and committees of veterinarians. Inevitably the approach became producer oriented and the reports and opinions of these committees were not in the public domain.

The Scientific Committee for Food (SCF) was set up by the European Commission (EC) in 1974 with the task of providing advice on "…any problem related to the protection of the health and

safety of persons arising from the consumption of food…". Later, in 1995, the scope was broadened to cover nutritional issues. In contrast to the agricultural committees the reports of the SCF were published from the outset, albeit with some delay because of translation, and the results of discussions communicated to the social partners and interested partners including consumers. The administrative unit responsible for free circulation of foods, which was outside the agricultural policy area, serviced the SCF and during the period that the author was head of that unit compulsory declaration of interest was introduced and summary minutes were made public the day after each meeting.

Although it is a EC committee, the SCF came to be regarded as a body that could be trusted by the legislative institutions of the EU. The European Parliament and the Council of Ministers requires the SCF to be consulted in food legislation that they have adopted e.g. in the 1989 Food Additives directive "Provisions that may have an effect on public health shall be adopted after consultation with the SCF".[7] The European Court of Justice has cited the SCF in a number of judgements saying that trade in food within the EU could not be obstructed on health reasons if the SCF had given a favourable opinion on the product in question.[8]

The EC has always followed the opinion of the SCF except in the case of the safety of gelatine derived from bovine bones. This rebounded on the EC in the Parliamentary report on Bovine Spongiform Encephalopathy (BSE) that accused the Commission of "flying in the face of the scientific reports counselling prudence"[9]. The SCF is also trusted as an independent arbiter of safety by all of the social partners. In 1991, at the height of an acrimonious debate in the European Parliament over a number of detailed food hygiene regulations prepared by the agricultural directorate general of the EC, European consumer and trade organisations wrote to the EC president Jacques Delors requesting that food policy should uniquely dealt with by the unit responsible for free circulation of foods.[10] Later the Commission used the SCF as a model in its reforms of food safety management consequent on the BSE crisis.

**Food additives – a non-problem looming large**

In 1850 in the United Kingdom, Wakely, the editor of the medical journal "the Lancet", set up an unofficial body of scientists called the Analytical Sanitary Commission. Their report, published in the Lancet, described more than 3 000 adulterants used in food including poisons such as arsenic. As a result a Parliamentary Select Committee was established in 1855 that led to the passing in 1860[11] of "An Act for the Prevention of the Adulteration of Articles of Food and Drink".

Additives are only accepted for use in food in the European Union if they are needed and present within the limits defined by the stringent toxicological requirements embodied in the Acceptable Daily Intake (ADI), which are regularly reviewed. The ADI is calculated by dividing the No Effect Level (NOEL), established by animal testing, by a factor of 10 for transfer of results between species and another factor of 10 for variability in human response. Special considerations such as the metabolic fate and behaviour of the additive and its metabolites may be taken into account by the SCF to restrict the ADI to a figure below that given by the standard calculation. Studies of

7. Council Directive on the approximation of the laws of the Member States concerning food additives authorised for use in foodstuffs intended for human consumption (OJ No L 40, 11.2.1989 p.33).

8. European Court of Justice ECR 1213 and 1262 Judgement of 12 March 1987 in Cases 176/84 and 178/84 (Beer).

9. European Parliament 1997 BSE Inquiry report (A4-0020/97/A).

10. Open letter from BEUC, EUROCOOP, CECD, FEWITA and GEDIS 10 June 1991.

11. Gray, P. S. in International Food Safety Handbook 1999 p. 597, Marcel Dekker, New York.

toxicokinetics and toxicodynamics[12] show that this overall factor of 100 is a good working hypothesis and is currently accepted by most regulatory bodies. Many natural foodstuffs would be regarded as unacceptable if the same criteria were applied.

The process of setting up the European system that was mandatory for all Member States focused a lot of attention on food additives and their use and consumers rightly campaigned for the minimum use of additives. To improve consumer information on labels and to facilitate choice the "E" numbering system was developed. Instead of a complex name each additive that had been assessed scientifically and found to be safe for use "…so far as can be judged on the scientific evidence available…",[13] is allocated an "E" number and allowed in certain foods by the legislator.

Perversely this simplification led to the E number itself becoming the target, no doubt amplified by underlying anti-European feeling in some EU Member States. Despite information campaigns by the authorities the belief grew that food with E numbers on the label were "bad foods". A list of dangerous additives alleged to be drawn up by the famous Villejuif research hospital in France was circulated and despite repeated statements by the hospital that the list was false resurfaced a number of times in different countries. At the other end of the spectrum the publication of a popular book "E for Additives", that sold over half a million copies in the first edition, heightened rather than allayed concern. In the first edition there was only a passing mention in the introduction that additives bearing E numbers are "generally recognised as safe and tested for safety". There was no description of the extensive testing they have undergone and their subsequent assessment by an independent scientific advisory body. This was followed by almost 200 pages giving the *E number, Name, Origin, Function and Adverse Effects* of all the additives. An example of the wrong impressions that could be derived from such a text is the entry for sodium carbonate, which is cited under *origin* as "cheaper to manufacture" and under *Adverse Effects* – "Large amounts can corrode the gut, cause gastric upsets and circulation problems". Sodium carbonate is naturally present in many foods and tap water. Any food containing levels sufficiently high to produce the adverse effects mentioned would be totally uneatable. The book was re-launched as "the new E for additives" in 1987 and contained appendices on safety assessment, approval procedures and even an outright condemnation of the Villejuif list, nevertheless this did little to reduce the popular belief that additives are fundamentally harmful.

**Foodborne disease – the real enemy**

Milk from infected cows was a major vector for tuberculosis a disease that was killing almost 30,000 people a year in the UK just after the Second World War. Elimination of tuberculosis in the bovine herd and pasteurisation has removed this source nevertheless foodborne disease caused by common pathogens is still the major cause of illness and death. The US Foodborne Disease Active Surveillance Network (FoodNet) which monitors foodborne disease in 7.5% of the nation's population, estimates that 360 million cases of diarrhoeal illness occur each year in the US, resulting in approximately 28 million medical consultations but it is not known what percentage of these illnesses can be linked to food[14]. Oblinger estimates that human foodborne diarrhoeal disease cases in the US, may total 24 to 81 million cases a year and might cost the US $5 to $17 billion in medical care and lost productivity. While Roberts estimates that there are about 5.35 million cases, 4 600 deaths

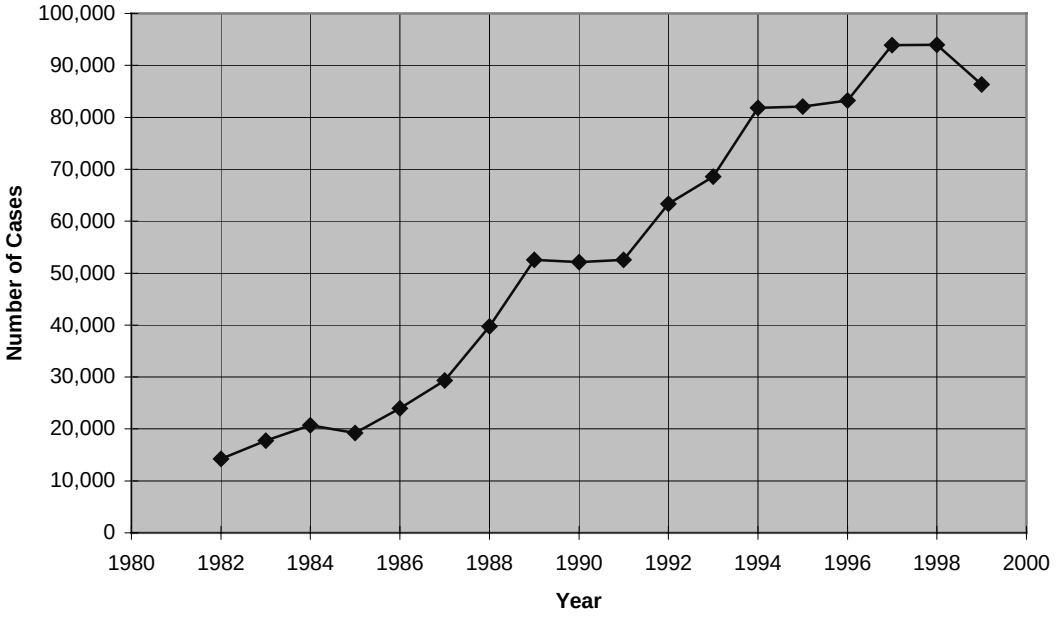
12. Renwick A.G. Food additives and contaminants. 8 No. 2 1991, pp. 135-150.

13. EU Council Directive on the approximation of the laws of the Member States concerning food additives authorised for use in foodstuffs intended for human consumption (OJ No L 40, 11.2.1989 p.33).

14. Food Safety and Inspection Service, US Department of Agriculture, Washington, D.C. 20250-3700. Consumer Information, Volume 3, No. 4 1998, The Food Safety Educator.

and $4.8 billion in total costs, annually in the US, due to the debilitating effects of foodborne pathogens on US citizens.[15]

These figures are comparable to those used by Gray[16] for estimating that about 10 million serious cases of foodborne disease occur in the EU. What is even worse, according to the UK Public Health Laboratory Statistics, the number of cases continues to rise and has increased by more than 50% since the Richmond Report. (See salmonella incident).




Apart from relatively large outbreaks, when a number of people have been affected in the same incident, and Bovine Spongiform Encephalopathy (BSE), which is a special case, there is little public concern with this major life-threatening hazard.

In contrast public attitudes to additives and pesticide residues are out of all proportion to extremely low levels of risk associated with their use. A few people, probably because or their genetic profile, are sensitive to a particular chemical species that may occur in a food additive. For example sufferers from phenylketonurea (Coeliac disease) cannot tolerate Aspartame, an artificial sweetener containing the amino acid phenylalanine, but neither can they tolerate any "natural" food containing phenylalanine in the form of gluten such as bread and all products made from flour. The E number system was introduced to inform such people so that they could avoid foods containing the additives to which they are sensitive. Although a number of what could be broadly termed "food hygiene" incidents occur every year there have never been any incidents of intoxication or fatality associated with food additives or with pesticide residues that are within permitted limits.[17]

15. Roberts, T in Food Safety and Inspection Service, US Department of Agriculture, Washington, DC.. 1995. Pathogen Reduction; Hazard Analysis and Critical Control Point (HACCP) Systems. Code of Federal Regulations 9:308, 310, 318, 320, 325, 326, 327 and 381; Docket No. 93-106P.

16. Gray, P.S. European Food Law Review 1-2/93 p.1. Int. Business Press Publishers, Frankfurt am Main, Germany.

17. Käferstein et al. International Food Safety Handbook, Marcel Dekker, New York 1999 p.11.

These attitudes are strongly influenced by the general concept that they are unnecessary and inflicted on an unwilling population by industry in order to maximise profits. This was undoubtedly true in the past but the ignorance of the 1850s has been replaced by the science-based approach of today. Put succinctly the task of the food industry is to preserve the harvest and ensure a continuous supply of food and freedom from infectious organisms or spoilage is an objective that would be supported by most consumers. This desirable end itself is however turned on its head and attacked as a wish to extend shelf life for the maximising of profit by industry and commerce

The use of slogans such as “additive free”, “containing no artificial preserving agents” helps to support the false idea that natural is good and processing and the use of additives necessarily denatures food. The rise of the organic food movement has reinforced this concept but, as with food processing, it is also driven by commercial considerations of increasing farm and industry profit. The very name “Organic” is a misuse of the term since the nutrients in organic materials such as compost have to be mineralised and turned into inorganic chemicals before a plant can absorb them.

***Case study 1. Salmonella in eggs – a crisis sparked off by government action***

The salmonella in eggs episode occurred in 1988 in the UK. Salmonella is a bacterium whose natural reservoir is in the gut of birds and cases caused by the consumption of contaminated eggs and poultry were not a new phenomenon. Peaks in occurrence had occurred in the 1950s, 1960s and 1970s but in the 1988 the Minister of Health, Edwina Currie decided to act and this sparked a crisis in public confidence. According to Whatmore & Mucha[18] “though the link was there no one was sure whether to blame the consumers for inadequately cooking their eggs and chickens or if the poultry industry should be damned for providing the public with contaminated produce”.

According to Gard,[19] critics of the handling of the salmonella scare at the time indicated contributing factors including:

- a prevailing atmosphere of doom;
- incidences of possible egg infection were hastily reported and uncritically accepted;
- excessive interest by the media;
- defensive researchers;
- scientific reports of dubious validity;
- over-reporting;
- lack of investigation and debate about true cause and effect.

The crisis in public confidence led to a dramatic fall in the sales of eggs and poultry. Surveys of public opinion made at the time showed a sharp fall in confidence in politicians and public authorities and consumers turned for assurance to brand names or supermarket chains that had a good reputation for food quality. One of these withdrew all their products for a short period without any real scientific reason then re-launched them, gaining an increase of 30% of sales and a permanently increased market share. On 16 December 1988 Edwina Currie, who had made what were regarded as alarmist remarks over the danger from salmonella in eggs, resigned. The Government ordered the

18. J. Whatmore & T. Mucha , 1995. Health, Medicine & Society, Research Paper.

19. “Traceability – Building Confidence with Food Safety www.agmed.org.uk Richard Gard Associates UK”.

slaughter of two million chickens, the cull being carried out between 1989 and 1993 and also set up an enquiry in the microbiological safety of foods under the chairmanship of Sir Mark Richardson an eminent academic microbiologist. On completion of the reported a very large number of recommendations were made most of which were accepted and acted on by government. All the steps taken do not seem to have solved the problem as the Public Health Laboratory Service statistics show continuing large increases in cases of salmonellosis in subsequent years and salmonella is still present in about the same proportion of eggs.

***Case study 2. The Alar affair – activists create a false crisis***

Substances that are capable of causing cancer are virtually everywhere, even in primary untreated products. The US FDA considers that the intake of carcinogens from man-made pesticide residues is very small compared to the carcinogenic substances that plants produce naturally. According to Ames[20] more than 99,99 per cent of the pesticides Americans ingest are "nature's pesticides" or "natural toxins". In western diets at least 10 000 times more by weight of natural than artificial pesticides are ingested. There is no evidence that the known natural toxins cause cancer at the concentrations that occur in the human body as a result of these diets and concentrations of synthetic pesticides are much lower.[21]

In 1989 the environmental group the Natural Resources Defense Council issued a report, "Intolerable Risk: Pesticides in Our Children's Food". This report stated that that Alar, a growth regulator used mainly for treating apples was a potent cancer-causing agent. The NRDC did no laboratory studies of its own, but reviewed existing research that Alar posed some cancer-causing risk. The findings also said that children eat proportionately more apples than adults. The NRDC concluded that thousands of children consuming apples or products such as apple juice were at increased risk for cancer. The Council hired Fenton Communications, a public relations firm, to publicise the report. In an internal memo published in "The Wall Street Journal", the firm's president said the communications strategy "was for the "story" to achieve a life of its own" The story broke on CBS which called Alar "the most potent cancer-causing agent in the food supply today".

The report was taken up widely by the media and caused deep concern about the safety of the food supply and school boards across the US cancelled orders for fruit and apple juice. Media icons joined in the debate and heightened the drama. In the US the actress Meryl Streep made an impassioned plea to Congress for a ban on Alar and in Australia Pamela Stephenson, a popular actress/comedienne appeared with the very best intentions crying on television that she had been poisoning her children by feeding them apples which were "alive" with Alar.

The US government issued a statement saying it was safe to eat apples and health experts from the FDA, the EPA (Environmental Protection Agency) and the National Academy of Sciences disputed NRDC's allegations but the intense media exposure over several months caused grave public uncertainty for the safety of apples. Sales dramatically declined and distrust of the regulators grew because they were thought to have not taken the appropriate steps to eliminate the risk. Consumers judged the risk to be "invisible" and "involuntary" since they did not know whether a particular product contained Alar or not and therefore they could not exercise choice.

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20. Ames, B.N., Magaw, R. and Gold, L.S. Ranking possible carcinogenic hazards. Science, 236(4799):271-280, April 17, 1987.

21. Hotchkiss, J.H. Pesticide residue controls to ensure food safety. Critical Reviews in Food Science and Nutrition, 31(3): 191-203, 1992.

The EPA's John Moore told the US Congress: "On March 1, 1989, the National Research Council (NRC) – a part of the National Academy of Sciences (NAS) released the most comprehensive report [1 400 pages] ever assembled on the relationship between diet and health. The NRC-NAS found there was no evidence that residues of individual pesticides in our diet contribute significantly to overall risk of getting cancer. In contrast to the recent publicity, the NRC-NAS, looking at the American diet from a nutritional viewpoint, actually concludes that Americans can reduce their risk of cancer by eating even more fresh fruits and vegetables".

The EPA proposed to phase out all allowed residue levels. The manufacturer of Alar withdrew it voluntarily from the market and sales of apples and apple products recovered. Yet, according to Bruce Ames, chairman of biochemistry and director of the Department of Environmental Health Sciences at the University of California at Berkeley, the human cancer risk from Alar is about the same as that from tap water (which contains the carcinogen chloroform) and about 30 times lower than from peanut butter (which can contain aflatoxin, a natural carcinogen). Upon further examination the EPA concluded several years later that the health risks associated with Alar were greatly exaggerated.[22]

According to Brookes[23] a reporter for the Richmond Times Dispatch Professor Thomas Jukes, one of the nations leading biophysicists and cancer research experts, at the University of California in Berkeley who serves as a consultant to the California State Advisory Committee on Cancer, said: "Most scientists have no respect for NRDC. Its so-called report is very short on hard facts and data. They infer all apples contain Alar, when only a very small percentage do, and the risk of those is slight. As the FDA told Congress, only about 5% to 10% of all apples are still produced with Alar, and since 1981 we have yet to find a single sample in which the residue exceeded the EPA sage tolerance."

CBS was supplied with FDA-style test data on 3 801 samples randomly collected, and only one showed a residue above one part per million, that is one-twentieth the EPA safe level. Instead, CBS and the NRDC showed an unscientific sampling of only 32 apples claiming 23 of them contained Alar residue, without saying the highest concentration they found was one-fortieth the EPA safe limit. "The irony of this, "Jukes said", is that apples raised without pesticides generally show up to 45 parts per million of patulin, a known natural carcinogen (produced by mould) that is far more dangerous than Alar".

***Case study 3. Crohn's disease – media amplification of risk***

This is an example of a scare with a relatively sound scientific foundation that did not take root and died out. Crohn's disease is a debilitating chronic digestive problem that affects more than 40 000 people in the UK first diagnosed in 1932. In July 1996 there was a newspaper report that scientists at St George's hospital in London were claiming there is a link between Crohn's disease and drinking milk although there is still considerable controversy in the scientific community on this point. Minute traces of an organism known as *Mycobacterium avium* subspecies paratuberculosis (Map), had been found in two thirds of the intestinal tissue removed from Crohn's patients after surgery. Despite its name, the bacterium is not associated with tuberculosis in either man or animals, but does cause Johne's disease, an intestinal disorder of cattle. Although the National Dairy Council had disputed

22. International Food Information Council Foundation. Alar's health risks revised. Food Insight. Washington, D.C., May/June, 1992.

23. "Bad apples". Warren T. Brookes. Richmond Times-Dispatch. March 31, 1989.

these claims on the basis of its own studies, the hospital researchers said that they had also found the organism in supplies of whole, pasteurised milk.

This did not arouse widespread media interest at the time but two years later on 10th August 1998 the UK Ministry of Agriculture announced that a study of the occurrence of Map in milk was to be carried out. The Government ordered nation-wide health tests on milk following concern that the bacteria may cause Crohns disease. Over a period of 18 months all types of milk were to be tested – from skimmed to UHT – and more than a thousand samples were to be examined for a range of bacteria.

Gard[24] summarises the press reactions thus:

The initial headlines were:

- Bowel illness milk links.
- Ministry survey into milk bacteria.
- Minister in battle to stem milk scare.
- Nation-wide milk tests launched to calm bacteria fears.
- Danger bugs found in milk.
- Much ado about milk.

The following week the scare increased with:

- Ban raw milk now say campaigners.
- UK Dairies shares lower as government launches investigation.
- Milk crisis threatens farms.
- Food Agency cannot be delayed further.
- Pinta bug plea.

At this point any business associated with milk would be getting concerned and the scare continued with a change of emphasis:

- Crohn's disease scare – robust industry response.
- Stores to increase milk heat treatment.
- Experts calm milk rise fears.
- Consumers reassured in milk scare.
- Don't panic over milk.

Having established that the scare was limited the headlines changed to:

- Food scare hype proves hard to swallow.

24. "Traceability – Building Confidence with Food Safety www.agmed.org.uk Richard Gard Associates UK".

- Farmers crying over spilt milk.
- Cheesed off over milk scare.
- Our unhealthy love of milk.
- Milking a scare for all its worth.

Over a month the scare that drinking milk leads to bowel disease moved from serious concern to a non-event. The preliminary results of the survey of the occurrence of Map were announced in early 2 000 showing that it was present in a significant number of samples but this caused little media comment.

### *Case Study 4. Bovine Spongiform Encephalopathy (BSE)*

The BSE affair created a major crisis that is far too extensive to deal with in detail in this paper. The voluminous report of the enquiry chaired by Lord Phillips published in October 2000 describes its evolution in detail.[25] The main reaction of the public was a feeling of lack of confidence and betrayal but any regulator reading the report would have the reaction, "there but for the grace of God go I".

The following three extracts from the executive summary illustrate this point and the cause of the sense of betrayal of trust.

"In the years up to March 1996 most of those responsible for responding to the challenge posed by BSE emerge with credit. However, there were a number of shortcomings in the way things were done".

"The rigour with which policy measures were implemented for the protection of human health was affected by the belief of many prior to early 1996 that BSE was not a potential threat to human life".

"The Government did not lie to the public about BSE. It believed that the risks posed by BSE to humans were remote. The Government was preoccupied with preventing an alarmist over-reaction to BSE because it believed that the risk was remote. It is now clear that this campaign of reassurance was a mistake. When on 20 March 1996 the Government announced that BSE had probably been transmitted to humans, the public felt that they had been betrayed. Confidence in government pronouncements about risk was a further casualty of BSE".

Those dealing with BSE were dealing with hitherto unknown animal and human diseases. 10 years elapsed between the identification of the first case of BSE and the identification of the first case of new variant Creutzfeld – Jacob disease (vCJD) in 1996. Even now the vector for transmission to humans has not been established and, because of the long incubation time, it could well be 10 years more before the mechanism and extent of possible transmission to humans is established. Media and public comment has expressed disappointment that the report makes very positive statements about some individuals and is not more critical of government and its advisers. It is interesting to speculate what would have been public and media reaction if vCJD had not emerged. Would the government and the regulatory authorities have been criticised for over reaction?

25. The enquiry into BSE and variant CJD in the United Kingdom. Stationery Office, London, October 2000.

### *Poor public understanding of science*

The 19th and 20th centuries have brought unparalleled progress in technology and science and yet there is currently a crisis of belief in the achievements of science that manifests itself across all areas of industrial and technological activity. The UK House of Lords' report on science and technology[26] found that public interest in science is strong but the attitude towards science more ambivalent than previously. "Many of our witnesses pointed to the tendency for opinion-formers to have an arts background and to regard science as difficult or at any rate different. Even among well-educated groups there is little stigma in United Kingdom society in claiming ignorance of science". This attitude exists everywhere, but is less prevalent in other countries such as France and the USA where there is a better public understanding of the dependence of the well being of society on scientific progress and a national pride in its achievements.

Nevertheless in relation to the BSE crisis in the UK independent scientists were trusted more than any other group to give advice on risk but government scientists were given a much lower rating. This finding underlines the importance of scientific advisory bodies being independent of political influence.

Table 5. **Which two or three of these sources would you trust most to advise you on the risks posed by BSE?**[27]

| | |
|---|---|
| Independent Scientists (e.g. university professors) | 57 |
| Farmers | 22 |
| National Farmers Union | 21 |
| Civil Servants at the Ministry of Agriculture, Fisheries and Food | 18 |
| Government Scientists | 17 |
| Television | 16 |
| Newspapers | 12 |
| Food Manufacturers | 11 |
| Friends/family | 9 |
| Supermarkets | 6 |
| Government Ministers | 4 |
| Politicians generally | 2 |
| Other | 1 |
| None of these | 4 |
| Don't know | 3 |

26. House of Lords, Session 1999-2000 Select Committee on Science and Technology third report. www.parliament.the-stationery-office.co.uk

27. House of Lords, Session 1999-2000 Select Committee on Science and Technology third report appendix 6. www.parliament.the-stationery-office.co.uk

***Crises are now media driven***

The role of the media was paramount in influencing public attitudes and the eventual outcome in three of the case studies described in this paper. This influence extends to many areas where technology is at the forefront. The UK Independent Expert Group on Mobile Phones[28] reviewed 641 press cuttings published in the UK between January 1999 and February 2000 and 76 TV and radio programmes broadcast over the same period. Seventy-nine per cent of the media reports alleged adverse health effects from mobile phones and base stations, whereas nine per cent concluded that there was too little rigorous scientific evidence to arrive at a conclusion or reported no adverse effect. Most media reporting did not refer to specific scientific studies or discuss the biological mechanisms by which RF radiation from mobile phones might cause adverse effects.

Several journalists interviewed the author during the crisis in Belgium caused by the contamination of food by dioxins in 1999. None of these journalists understood that, although exceeding the maximum permitted levels of dioxins in food is illegal, the Tolerable Daily Intake (TDI) on which the action levels are based assumes daily consumption throughout a lifetime. They all had initial difficulty in understanding that eating food at ten times the maximum permitted levels on ten separate occasions during a year would not necessarily bring the daily consumption of dioxins averaged over a year above the TDI and subsequently only one journalist referred to this concept in his copy. In a perverse way the need to set defined levels for contaminants in food for toxicological and legal reasons feeds the false notion that below these levels the food is safe and above it the food is dangerous. The concept of cumulative dose on which permitted levels is based is either not understood or deliberately ignored.

A recent headline in the UK Sunday Times read, “Pesticides found in supermarket vegetables” and went on to refer to residues below the Maximum Residue Limit (MRL) as “contamination” although it stated that “there is no evidence that low levels of such pesticides can harm people”.[29] Subsequent media reporting of the same findings demonised the presence of residues without indicating that the residues were within legal limits and were not harmful. The author was responsible both for the management of the contamination levels set for foodstuffs after Chernobyl and for the EU legislative proposals on food irradiation. In both cases there was confusion in the media over terminology. Contaminated food after Chernobyl was referred to as “irradiated” and irradiated food was referred to as “contaminated”.

The fundamental problem arises from the fact that issues are of little interest to the media unless they are contentious, arouse emotions and are topical. The media are highly competitive and are driven by circulations or listener ratings. A Canadian reporter interviewed by the author said that in his early career, when there was one dominant national newspaper, he could spend time researching and writing objective articles but later under the pressures of competition attention-gripping controversy took precedence over objectivity. Differences of opinion rather than consensus are sought and these become polarised into yes no conflicts where both sides are given equal weight whatever the credibility of those holding the opinions. Topicality implies that journalists have to follow the current of events working to short deadlines and they rarely have time to acquire a detailed background in any topic.

28. Mobile Phones and Health – the report of the Independent Expert Group on Mobile Phones, UK National Radiological Protection Board, 2000.

29. Sunday Times 8 October 2000.

**How do we build trust?**

The UK House of Lords' report put forward four interpretations of the term trust:

- We believe you can give us right answers and reliable information.
- We believe that you are honest, and will tell us all that you know.
- We trust your judgement, and rely on you for decisions, which are wise, impartial, ethical, and in the public interest.
- We think that you (pressure group) play a counterbalancing role against government and industry.[30]

In several of the cases examined in this paper trust has been undermined by what has been interpreted a political meddling with the facts. It is for government to define in its risk policy the objectives and the degree of risk then the appropriate structures should be in place to manage these risks free from political interference. The UK food standards agency has been put in place in response to the outcome of the BSE crisis and a European Food Agency is being mooted. Few other EU Member States have food agencies and it will be a long time before the situation is as homogeneous as in the US. The scheme of scientific cooperation adopted by the EU in 1993[31] was drafted by the author with the objective of stimulating cohesion of food safety assessment not only within the EU but also between the EU and its trading partners. In today's global information environment differences in safety assessment are obvious points of attack for pressure groups. After all which authoritative source are they to believe?

Cohesion and consistency in time is no less important. Scientific and safety assessment dossiers should be well prepared, peer reviewed and clearly and impartially presented. Otway makes the point that "The only way that authorities can be perceived as being credible in emergencies is if they have already earned credibility in their daily dealings with the public. The cosmetics of packaging and presenting information cannot cause a previously untrustworthy source suddenly to be perceived as credible".[32] Communication should be clear and robust. It is better to say, "I don't know" than to indulge in loose speculation. Each crisis has its own dynamics and the public will understand if the reasons for changes of approach to meet new situations are clearly explained. It is important to keep a sense of proportion and to communicate it. "Those risks that create real and significant hazards for individuals should be identified and discussed. Those that pose small public health risks should be kept in their proper perspective. The alternative is a confused public which cannot distinguish between major and trivial risks".[33]

To seek to understand compassionately other views is the essence of democracy and an essential basis for trust. But to let subjective views, be they from government or pressure groups, influence scientific assessments destroys the very rock of objectivity on which they stand. It should also be remembered "pressure groups are as dependent on subscriptions and donations as companies on orders and governments on votes". Their very lifeblood is contention and to seek to compromise on

30. House of Lords, Session 1999-2000 Select Committee on Science and Technology third report. 2.29-2.3 www.parliament.the-stationery-office.co.uk.

31. EU Directive on assistance to the Commission by the Member States in the scientific examination of questions related to food. EU publications office, Luxembourg, 1993. (OJ L.52, 4.3.93. p18).

32. Otway, H. in Chernobyl a Policy Response Study, ed Segerståhl, 1991; p.143 Springer Verlag, Berlin.

33. Gots, R.E. Public versus personal risk: the challenge in environmental risk. International Center for Toxicology and Medicine, Rockville, Maryland.

scientific findings or give ground to them without justification will only undermine trust and drive them into a more extreme position.

Sandman in his treatment of outrage lists 12 components influencing acceptability of risk.[34]

| | | |
|---|---|---|
| Voluntary | opposed to | coerced |
| Natural | opposed to | industrial |
| Familiar | opposed to | not familiar |
| Not memorable | opposed to | memorable |
| Not dreaded | opposed to | dreaded |
| Chronic | opposed to | catastrophic |
| Knowable | opposed to | unknowable |
| Individually controlled | opposed to | controlled by others |
| Fair | opposed to | unfair |
| Morally irrelevant | opposed to | morally relevant |
| Trustworthy sources | opposed to | untrustworthy sources |
| Responsive process | opposed to | unresponsive process |

This approach goes a long way to explain attitudes to food safety such as the preference of natural over processed food, fear of BSE and genetically modified foods and complacency in the face of the thousands of deaths caused by food borne disease, which is familiar, natural and chronic. Atomic energy scores rather more negative outrage components than any aspect of food. The most important difference is that there is a popular consensus that food is needed and almost a popular consensus that atomic energy is not. The damage to our environment from fossil fuels is chronic but in the end will be catastrophic and this is slowly beginning to penetrate the public consciousness. Renewables are held out as a great white hope when in fact they can only meet a small part of the World's energy needs. To our modern society energy is as necessary as food and atomic energy should be situated in a comprehensive holistic consideration of energy needs, possibilities of supply and hazards.

34. Sandman P. Responding to Community Outrage : Strategies for Effective Risk Communication American Industrial Hygiene Association, Fairfax, VA.

# NUCLEAR FACILITY PROJECTS IN FINLAND: QUALITY OF ENVIRONMENTAL IMPACT ASSESSMENT (EIA) PROCESSES

**A. Väätäinen**
Ministry of Trade and Industry, Finland

ABSTRACT: In Finland, three public EIA hearings arranged by the contact authority concerning nuclear facilities were organised in 1999: the EIAs of two reactors planned to be constructed in Eurajoki (Olkiluoto) and in Loviisa, and the EIA of a final disposal facility of spent nuclear fuel, to be situated either in Olkiluoto, Loviisa, Romuvaara or Kivetty. Additionally, an application for a decision-in-principle concerning a final disposal facility to be constructed in Olkiluoto was submitted. The Ministry of Trade and Industry is the contact authority in all nuclear projects in Finland. Probably due to the simultaneity of the processes and the great importance of nuclear facility projects to the whole of society, the public opinions did not include only views about environmental impacts of each project, but also opposing and overall views about the use of nuclear energy and its safety. As for the final disposal project, alternative methods were introduced and opposition to the project itself was expressed instead of or in addition to the environmental impacts.

## Introduction

### *Individual opinions and outlines of decision making in nuclear energy legislation*

The Ministry of Trade and Industry is the contact authority in all nucear facility projects in Finland. Consequently, one of the duties of the Ministry is to organise a *public hearing* process both on EIA reports and on applications for decisions concerning those projects. A public hearing in this context and also in this article means a procedure of some months' period, when anybody has the right to present opinions on the current issue to the Ministry. The Ministry announces about the public hearing process in municipalities and in newspapers. Additionally, in accordance with the legislation, certain authorities and organizations are asked a statement on the project.

The three EIA public hearings and the public hearing on the application for a *decision-in-principle* (see Chapter 2) concerning a final disposal facility, all of which were organised in 1999 in Finland, raised a number of questions about the relation of the EIA legislation to nuclear facility projects. Among these questions put forward were the following: How should an EIA process be organised to make it successful from the public point of view? Do people think that they have real influence on what is going on? How is the EIA seen compared to the licensing process itself? How can the authorities encourage public participation in order to ensure this useful contribution?

The public itself gave some direct answers and hints in their statements and opinions addressed to the Ministry when evaluating the communication between the companies in charge of the EIA processes and the public. Answers to these questions can be also looked for in the findings of the studies conducted within the "JYT" – public sector's research programme on nuclear waste

management in the sector of social sciences and in follow-up studies of the organisations responsible for the nuclear facility projects.

This paper concentrates on the experiences of the contact authority from public participation from the authority's point of view. Accordingly, the observations are mainly based on the amount and the content of the opinions given to the Ministry of Trade and Industry in the public hearings after the EIA processes conducted by the companies.

## Position of EIA procedure in the decision-making process concerning nuclear facility projects

Construction of a nuclear facility of considerable general significance requires a Council of State's decision-in-principle. That indicates political acceptance of the project, implying that the construction project is in line with the overall good of society. The processing of the application for a decision-in-principle includes a public hearing organised by the Ministry in order to give anybody an equal chance to present views before the decision is made. It is to be noted that the Council of State can make a decision-in-principle only if the intended site locality in its statement has supported the construction of the facility.

According to the Nuclear Energy Decree, an environmental impact assessment report in accordance with EIA legislation should be annexed to the application for the decision-in-principle. Consequently, the EIA is conducted prior to an application for the decision. An essential point to be noted is that no decisions on the project itself are made during the EIA process.

In the EIA Report, the party in charge of the project presents the project as designed as well as its alternatives. The EIA procedure is realised through interaction with the inhabitants living in the area influenced by the project. After the process a public hearing is organised on the EIA Report by the contact authority, as mentioned in Chapter 1.1. The EIA procedure ends when the contact authority, i.e. the Ministry of Trade and Industry, on behalf of the nuclear facility has provided its final statement on the EIA Report's adequacy.

## Nuclear projects and processes in 1999

### *Final disposal facility project: Application for a decision-in-principle and EIA Report*

In May 1999, Posiva Oy submitted an application for a decision-in-principle in which Olkiluoto is proposed to be the site of a final disposal facility. The public hearing concerning the application was conducted in 1999, too.

In accordance with the Nuclear Energy Decree, the EIA Report was attached to the application for the decision-in-principle. The procedure for environmental impact assessment and the report provided involves four possible alternatives for the site of the final disposal facility: 1) Olkiluoto in the municipality of Eurajoki, the host site of the present nuclear power plant of Teollisuuden Voima Oy, 2) the city of Loviisa, the host site of the present nuclear power plant of Fortum Power and Heat Oy, 3) Romuvaara in the municipality of Kuhmo in eastern Finland and 4) Kivetty in the city of Äänekoski in central Finland.

Consequently, the period of public hearing on the application for a decision-in-principle, concerning Olkiluoto, which Posiva Oy selected for the site of the facility, and the period of public hearing on the EIA report, concerning all the above-mentioned four candidate sites, were partly overlapping.

### *Plans for a new nuclear reactor; the EIA in Olkiluoto and in Loviisa*

The two power companies operating nuclear power plants in Finland have made preliminary studies of the construction of a new power plant in Loviisa (Fortum Power and Heat Oy) or in Olkiuoto (Teollisuuden Voima Oy). No application for a decision-in-principle has been filed, so far, but the EIA process concerning the both cases has been carried out. The two EIA Reports were submitted to the Ministry in September 1999 and the public hearing on them was organised at the end of the year. Correspondingly, the public hearing was partly simultaneous with that on the application concerning the final disposal facility.

An application for a decision-in-principle concerning a new reactor was submitted by Teollisuuden Voima Oy in November 2000. According to the application the alternative site of the reactor according to the application would be either Olkiluoto or Loviisa.

## Individual opinions and participation in the public hearings

### *General impressions*

As a consequence of the concurrence of the four public hearing processes (concerning the application for a decision-in-principle on a final disposal facility in Olkiluoto, the EIA report on the final disposal facility with four alternative sites and the two EIA Reports on a new nuclear reactor), the discussion of nuclear energy and nuclear waste was very lively in all the four municipalities and their neighbouring areas. For the citizenry of Eurajoki and Loviisa the year 1999 was the most challenging due to the two (Loviisa) or three (Eurajoki) hearing processes, altogether, taking place practically at the same time.

Table 1 illustrates the public activity at the different stages of the official public hearing on the nuclear projects. As described, the most of the public opinions sent to the Ministry were not restricted to the current process (EIA) only, but included also views on nuclear issues in general or opinions on the decision making concerning the project. Also alternatives to the project or the method of implementation were suggested. Because the EIA Act stipulates that the party in charge of the EIA also has to report on the environmental impact of potential alternatives, it is worth discussing if public ideas of alternative projects or methods can be adjudged extraneous, however.

It was obvious, that the concurrence of many processes made people in each statement actively express their opinions on both environmental aspects and the permissibility of the project itself as well as the permissibility of the use of nuclear energy. Being informed and enquired about various nuclear facility projects during a short period of time may have been confusing for the public. Also the partial simultaneity of the hearing on the decision-in-principle issue concerning the final disposal project and the hearing on the EIA Report concerning the same project may have complicated the differentiation of the processes. From another point of view, it is possible that the public simply did not found it necessary to restrict their opinions to treat only and exactly the issue in question. Apparently people consciously when being in contact with the companies or with the authorities took each opportunity to express their ideas, fears, disagreement, suspicion and demands concerning nuclear issues. Correspondingly, the Ministry of Trade and Industry, announced in its statements on each EIA report, that all kinds of opinions and points of view will be brought to the Council of State’s knowledge to be taken into account in the decision-in principle process.

According to enquiries people were more than satisfied with the excessive amount of all written material, contacts and information that they have been provided with by the companies responsible for the EIA processes and other organisations and groups, and the material produced in the

publicly administrated research programme. It turned out, that it was not easy for the public to adopt and manage the many reports coming from different sources or to distinguish reliable information and research results from unreliable information and groundless opinions.

Table 1. **Opinions sent to the Ministry of Trade and Industry in the public hearings on the nuclear projects in 1999**

| Project/plan | Civic and environmental organisations | Individuals |
|---|---|---|
| **Final disposal project**<br>EIA, 4 sites (Olkiluoto, Loviisa, Romuvaara, Kivetty) | 4<br>(3 including opinions of permissibility of the project) | (with 15 names altogether)<br>(6 including opinions of permissibility of the project) |
| **Final disposal project**<br>Decision-in-principle,<br>Site: Olkiluoto | 0 | 25 (with 100 names altogether) |
| **Nuclear reactor plan**<br>EIA<br>Site: Olkiluoto | 35, out of which 30 similar<br>(All of them concerning also EIA of Loviisa)<br>(34 including opinions of permissibility of the project) | 1<br>(concerning also EIA of Loviisa) |
| **Nuclear reactor plan**<br>EIA<br>Site: Loviisa | 40<br>(35 concerning also EIA of Olkiluoto)<br>(38 including opinions of permissibility of the project) | 5<br>(1 concerning also EIA of Olkiluoto)<br>(3 including opinions of permissibility of the project) |

***EIA of the final disposal facility of spent nuclear fuel***

As mentioned before, the EIA process of the final disposal facility was carried out in full in four alternative areas. Two of those, Loviisa and Olkiluoto, are the sites of the existing power plants. As expectable, the attitudes of the citizenry to the final disposal facility in those districts are slightly different from those of the citizenry of Romuvaara and Kivetty. The existence of the nuclear power plant has made people accustomed to nuclear facility projects and the atmosphere was**,** on an average**,** less suspicious and opposing. It can be supposed that a final disposal facility would not remarkably change the image or economy of the municipality.

An assumption is, that carrying out EIA in four alternative areas helped people to stay calmer and to participate in the EIA process with a more neutral and objective attitude than in the case where only one (their "own") site would have been evaluated. They could now "objectively" make comparisons between the candidate sites and express their opinions on benefits and deficiencies of those, for instance on the basis of geographical concerns, transport distances etc. Furthermore, some features of competition between Loviisa and Olkiluoto could be noticed: the final disposal facility was

not only seen as a threat and an enemy, but also as an opportunity, which for its part would stimulate the economy and the life of the municipality.

### *EIA of the nuclear power plants*

A majority of the public opinions concerning the EIA of possible nuclear power plants were focused both on Loviisa and on Olkiluoto. In other words, environmental aspects were treated on a general level and the most essential message of the opinions was opposition to nuclear power in itself, independent of the site of the plant. The use of nuclear power was considered risky, dangerous and also uneconomical in the long run, and due to that investments in renewable energy sources were recommended.

## Quality of EIA processes and influence of EIA

It appears from the results of the study that even if the EIA had increased knowledge of nuclear issues among people, it had not influenced their attitudes towards it. In all municipalities where an EIA was conducted, approximately one half of the people was interested in the EIA while another half didn't follow it or take part in it at all. A majority of the citizenry of each municipality found the EIA processes well done, independent of their own opinions on the current nuclear project itself.[1]

The EIA Act came into force as late as in 1994 and was now for the first time applied to projects where a completely new nuclear facility is planned to be constructed. Consequently, the question of people's possibilities of influencing the project plans by participating in the EIA process has come up. An outcome, reported by researchers and by the companies responsible for the EIAs is, that even if people hoped for and probably believed in their possibilities of influencing they got more passive, when the EIA processes went on. People apparently got tired, bored or frustrated with many EIA inquiries and events. Approximately one half of the citizenry thought that they had influenced the project plans. And, according to studies, the more a person supported the use of nuclear power the more she or he estimated to have possibilities of influencing the project planning by participating in the EIA. No other correlation with people's background – for instance age or sex – and their opinions about the influence and importance of EIA in decision making was found.

Regarding the final disposal project, one half of the citizenry thought that the EIA and their own opinions were not really taken into account in decisions. However, almost 50% of the policy makers in the municipalities thought that citizens have had enough opportunities to express their opinions on the decision making and even more than 10% of them thought that citizens have had too many opportunities to influence.[2]

In the final disposal project, where the application for a decision-in-principle was submitted already before the hearing and the Ministry's statement on the EIA Report, feelings of disappointment and frustration of the citizenry are partially understandable. Some people thought that the correct way would have been to analyse first the results of EIA and on the basis of them to select the site for the facility and then submit the application for a decision-in-principle. Their opinion was that the final

1. Kiljunen, Pentti: The EIA processes of the nuclear projects, Experiences of the citizenry (in Finnish only). Research report n. 8, Finnish Energy Industries Federation (Finergy), Helsinki 2000. (in Finnish only.)

2. Ponnikas, Jouni: Public participation and nuclear waste. Municipal policy makers and local decision making. Research Reports, 12/2000 JYT2001, Tampere 2000. (in Finnish only.)

disposal site should be the best possible one – not only good enough – and that, on the basis of the EIA report, one could not see why Olkiluoto was the best alternative.

However, the fact, as mentioned before is, that the EIA Report is one of the annexes to the application for a decision-in-principle and no decisions on the project itself are made within EIA. Furthermore, there is no obligation for the company to list in order of superiority the alternative sites according to the quality and quantity of the environmental impact. It is worth reminding, however, that the Council of State, when considering the application from the point of view of the overall good of society, is of course also free to make decisions of the project on the basis of the EIA Report.

As described in Chapter 2, the Nuclear Energy Act, in practise, provides the municipality with a power, e.g. veto right, equal to the power of the Council of State to decide upon the site of a nuclear facility. With respect to the decision-in-principle process concerning the final disposal facility, the citizenry of neighbouring municipalities already at the stage of the public hearing on EIA judged the legal right of the host municipality to alone decide on an important project, which might have remarkable environmental impacts on a much larger area than one municipality only. People reminded that even state-wide and global impacts may be caused by the project and that it is neither moralistic nor sensible that a small group of people can make such a decision.

**Conclusions**

From the contact authority's point of view all the three public hearings on the environmental assessment impact reports in Finland in 1999 can be considered successful. Some questions about the combination of the EIA Act's demands and the decision making concerning nuclear projects were, however, aroused.

After EIA the corresponding EIA Report is evaluated and the contact authority's duty is to give its statement on the sufficiency of the EIA. In public hearings on the EIA Reports in 1999, the citizenry did not limit its opinions to the EIA issues, e.g. environmental impacts only, but endeavoured to use the EIA process and the hearing on the EIA report as a tool for the decision making on the nuclear project itself. As stated before, the EIA report, however, is an annex to the application for a decision-in-principle and within EIA no decisions are made.

Researchers reported some frustration and suspicion among the citizenry regarding their own conception about possibilities of influencing the projects. Correspondingly they observed that public participation in EIA diminished rapidly when the process was proceeding. Afterwards in the follow-up studies, those who were in favour of the nuclear project found the EIA more successful and more influencing than those who opposed the project. "Influence" as a word can, however, be ambiguous: for instance a person opposing the project and the use of nuclear power may feel that she/he has influenced only, if the project is halted. Within EIA, "influence" should be seen as focused on environmental impacts.

The amount and the significance of knowledge and information as well as the problems involved in information management turned out to be an important question. The large amount of information from the layman's point of view is, to some extent, problematic: to differentiate essential data between unessential and real specialist knowledge between mere opinions or groundless assumptions is difficult. Subject-based public involvement in the EIA process may, in these circumstances, be difficult to achieve. How to improve and facilitate the management of information might be worth considering for the authorities. For mutual understanding and trust, it is beneficial if the public expertise in the project is sufficient.

# THE 14 OCTOBER 1999 NUCLEAR ACCIDENT SIMULATION DRILL AT NOGENT-SUR-SEINE NPP ROLE OF THE LOCAL INFORMATION COMMITTEE (CLI)

**G. Ancelin**
President of the Nogent-sur-Seine CLI, France

***Abstract***

The EDF nuclear power plant at Nogent-sur-Seine consists in two 1 300 MWe pressurised water reactor units. It is located 120 km south-east of Paris.

The Local Information Committee, which brings 120 members together, was created when the plant started operating in 1988.

The 14 October 1999 nuclear accident simulation drill, the sequence of which started from an incident in the virtual Unit 3, was intended to testing the reacting capacities of the local and national emergency PCs (command post). The main objective was to actually implement the evacuation of a 500 inhabitants village near the plant in order to manage their rallying n a reception centre about 15 kilometres from there.

The aim was to assess the speed and accuracy of the alert to the population, the requisitioning of human and practical resources, the affected area cordoning off, the evacuation of two schools, the activation of the reception centre with firemen, doctors and finally direct work with the media.

The CLI was involved from the initial stages in the 6 preparatory meetings and, on the day of the drill, put observers in the strategic places. After the drill it was invited to give its opinion during feedback meetings organised by authorities, both the Aube Prefecture in Troyes and the Nuclear Installation Safety Directorate in Paris. Our CLI had prepared in 1997 reactor cards “fiches réflexes” for local representatives which, in the light of this drill, could be improved. CLI participation to the rewriting – at national level – PPI (offsite emergency plans) is all the more active since it is done in the light of this drill. It will be the same with the reissue of our public information brochure dealing with security instructions.

In a more general way, it appears that such a drill would have been completely excluded, only ten years ago.

# CHALLENGES AND EXPERIENCE OF THE CSN PUBLIC INFORMATION CENTER

presented by
**J. Reig**
Head, International Relations, CSN, Spain

# Challenges and Experience of the CSN Public Information Centre

Pilar G. Sotero  Ana Sevilla
Luis G. Gajate  Javier Reig

# CSN Mandate and Policy for Public Information

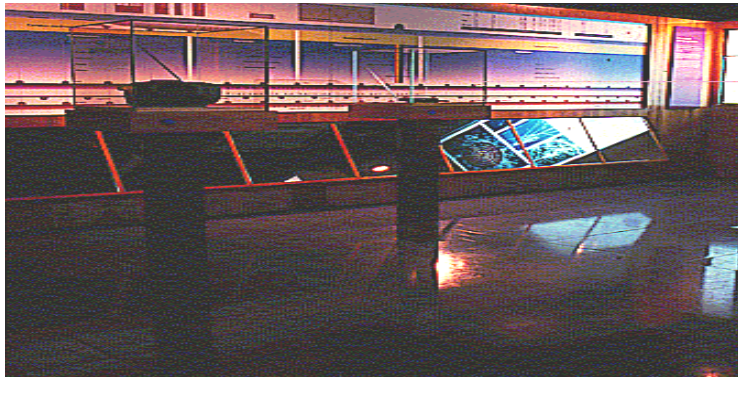
To inform public opinion on matters of its competence, with the scope established by CSN. Law 15/1980

To give visibility to the institution and promote its presence, so citizens are aware of CSN functions and activities. CSN Strategic Plan 10.1 (02/98)

To increase the institution credibility as a reference for nuclear safety and radiation protection issues. CSN Strategic Plan 10.2 (02/98)

To manage and spread the Public Information Centre. CSN Strategic Plan 10.3 (02/98)

The Commission requests that the CSN strengthen its public information and communication activities, opening a public information centre ... Spanish Congress (04/98)

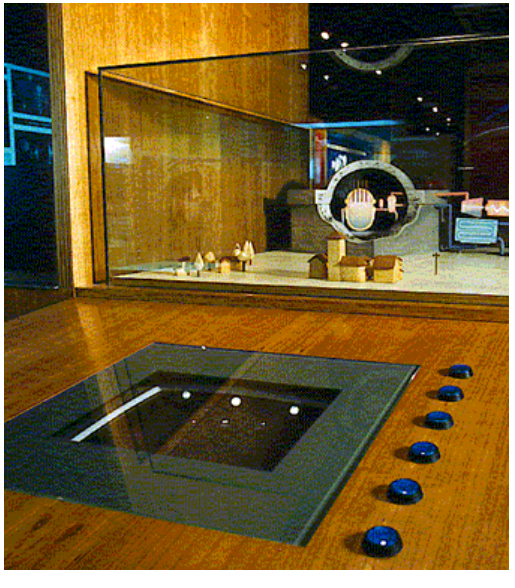


# Public Information Centre
# The Objectives

- Explain, in a simple but rigorous way, what are ionising radiations, what are its uses, what risks are associated to them and how are they controlled
- Establish an adequate tool for communicating with the target audiences
- Increase public interest and knowledge on nuclear safety
- Two main messages :
  - Ionising Radiations are a natural phenomenon,
  - Risks associated to their uses need to be controlled

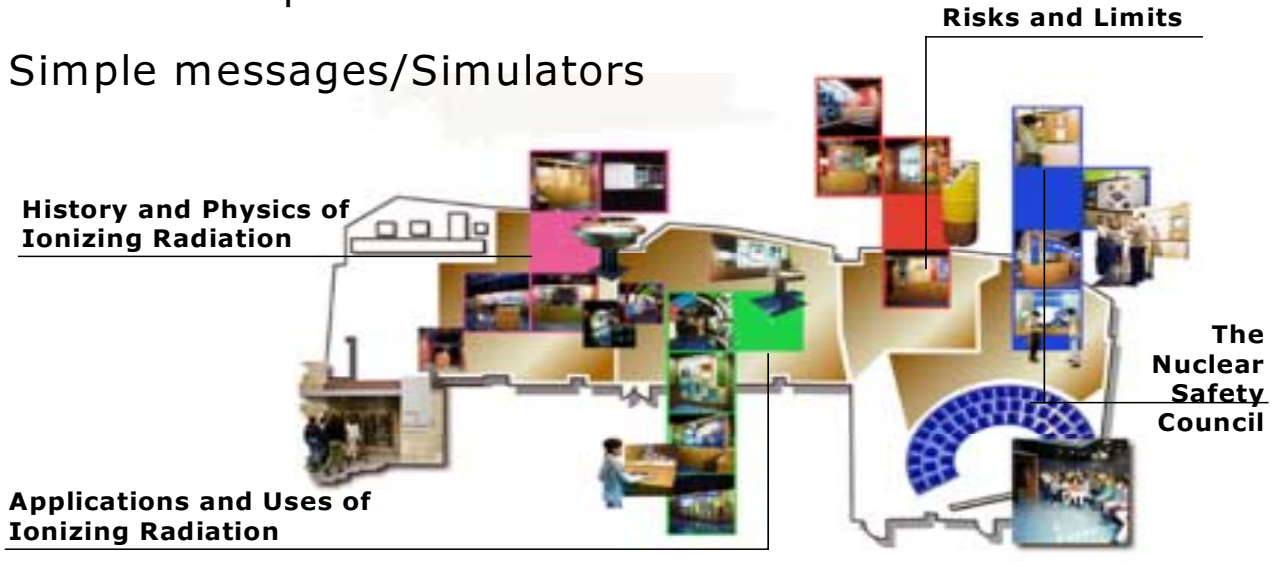
# Public Information Centre
# The Project

- First design proposal made by a scientist communicator
- Joint effort by CSN technical staff with experts on scientific exhibitions and media
- Mounting by specialized company in museums and scientific exhibitions
- Challenge for a regulator: Neither to promote or to oppose
- Dedicated staff to manage the centre



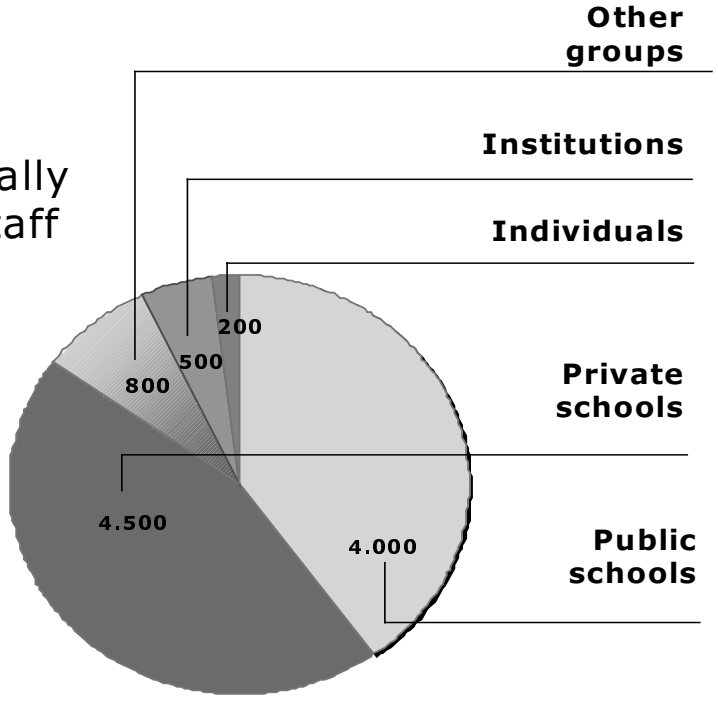
# Public Information Centre
# The Design

- 29 modules / 4 areas / 350 $m^2$
- Highly Interactive/Do not touch is forbidden
- Information point in each area
- Simple messages/Simulators



# Public Information Centre
# The Results

- 10.000 visitors per year
- Two visits per day/
  Two hours per visit
- Guided visits by specifically dedicated and trained staff
- Groups of 30 students
  Scholar age 15- 17 yrs
- Free time at the end
  (45 min)
- Survey conducted at the end of visit



# Public Information Centre
# The survey

SCHOOL YEAR_____

Dou you recognize this symbol? - YES - NO
Now you know that there is an alert signal on ionizing radiations

Radioactivity is a natural phenomenon
- TRUE - FALSE

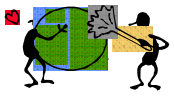
Can you mention positive aspects of nuclear energy?

And negative aspects?

Do you consider acceptable to use ionising radiations for medicine, research, industry... taking into account the risks that may be involved? - YES - NO

Do you recall some uses of ionising radiation in medicine, industry or research?

What is the role of the Consejo de Seguridad Nuclear (CSN)?

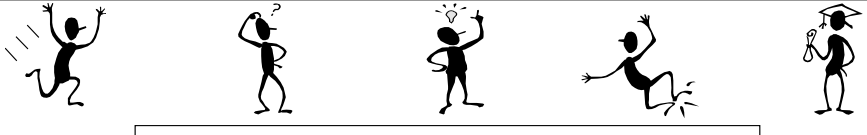


What did you like most from the CSN Information Centre?

And what did you like less?

After your visit to the Information Centre, did you learn anything new about nuclear safety or radiation protection? - YES - NO

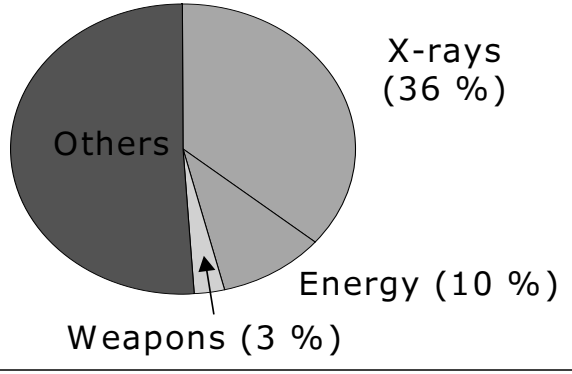
Please circle the picture below that more closely represents your feeling about the world of ionising radiation



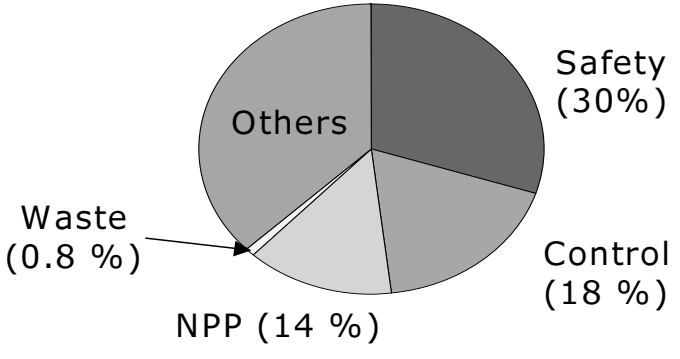
**THANKS FOR YOUR COOPERATION**

# Public Information Centre
# The Survey Results (1)

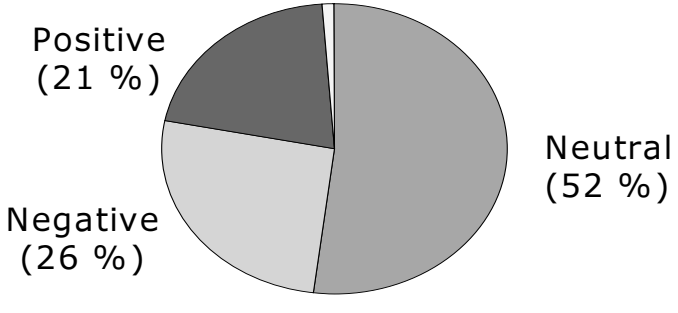
## Uses of Ionising Radiations




## CSN Functions

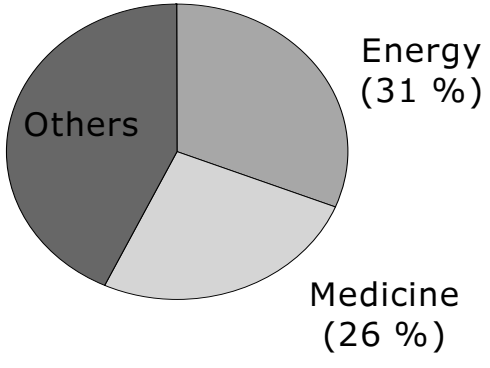



## Feeling about Radiation

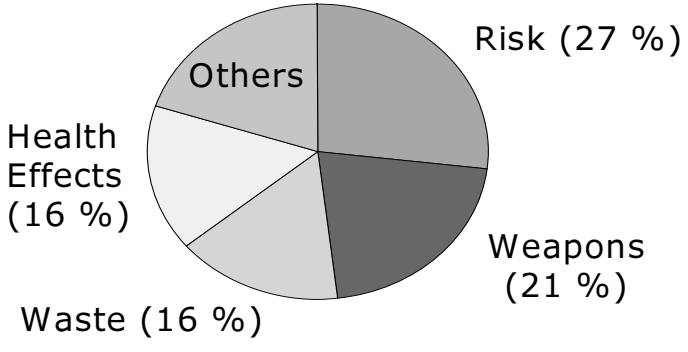


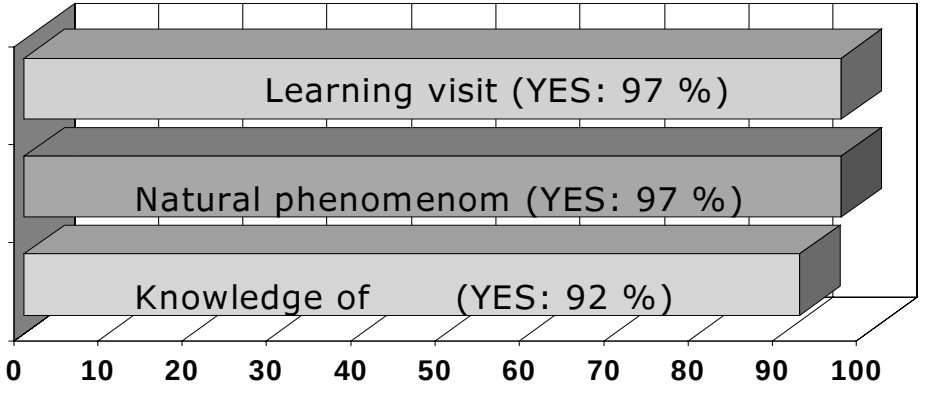
# Public Information Centre
# The Survey Results (2)

## Positive Aspects



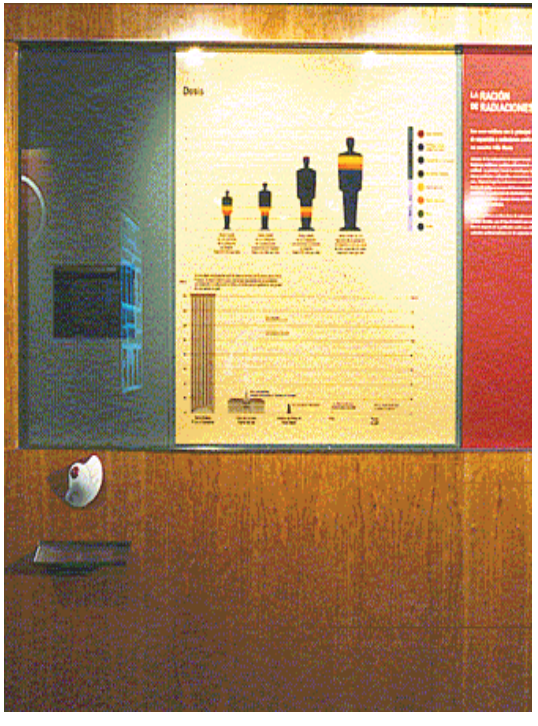

## Negative Aspects



# Public Information Centre
# The Assessment

- Guided visits most adequate
- Free time highly appreciated
- Observed interest
  Schools repeat visits
- Centre objectives achieved, esp. about CSN role
- Need to continuously update information and train staff



# Public Information Centre
# The Future

- Improve presentation of CSN functions and activities
- Consider survey results as input for potential risk perception studies
- Exchange experience with similar centres
- Continuously assess fulfilment of objectives
- Expand audience to citizen groups

# A KOREAN EXPERIENCE IN COMMUNICATION TO THE PUBLIC THE HEAVY WATER LEAK AT WOLSONG NPP IN 1999

**K.S. Choi**
Korea Institute of Nuclear Safety
Republic of Korea

## Introduction

A nuclear accident with a credible radiological consequence places, as a matter of fact, a great socio-political impact on the country. It causes health effects to the public as well as to the workers at nuclear power plant, property damages and also various socio-psychological impacts. And also it affects significantly neighboring countries due to trans-boundary characteristics of the radioactive releases. In that regard, the prevention of such a radiological accident is fundamentally important. However, as we cannot attain zero risk for diversified industrial activities in modern society, we regulate nuclear facilities, for example, to achieve and maintain safety at a level which the society can agree to accept.

Until recently, there has been a widely recognized understanding that regulators should only perform its regulatory duties as specified in laws. The communication to the public has been believed as a job of the nuclear industry. Even from the viewpoint of effective allocation of regulatory resources, it has been stressed that regulators have to concentrate on regulatory activities rather than making efforts to improve the public understanding and enhance the public confidence in nuclear regulation.

However, regulators are increasingly recognizing these days that some kind of efforts should be made to strengthen the communication channels with many stakeholders in the society. If the public is not provided with proper information on the safety of nuclear facilities, they cannot build confidence in nuclear safety and it may cause a social concern that may sometimes lead to social unrest. Therefore, there is a good reason for the regulators to make efforts to improve communications to the public.

In Korea, we experienced a heavy water leak incident at Wolsong nuclear power plant four days after the Tokai-mura accident in 1999, which drew a considerable attention from all over the world, even though its impact in terms of safety and health consequences was negligible. The measures, taken by the Korean regulatory authority and the utility upon Wolsong incident, were severely criticized by the media and the public and national debates continued for several weeks.

In my presentation, I will briefly review this case in light of risk communication and discuss its implications and lessons learned from this incident.

**Outline of the incident**

Wolsong Unit 3 was in the shutdown condition since September 23, 1999 for a planned preventive maintenance and checkup. At 7 P.M. Monday, October 4, 1999, the heavy water leak occurred during the maintenance of moderator pump # 1 to replace motor bearings and to change its lubrication oil. About 50 liters of heavy water leaked for about 15 minutes before it was completely stopped by closing the valves at each side of the pump.

Exposed to radiation from the leak of heavy water were 22 workers. The two workers who were involved in closing the valves received 4.44 mSv and 3.64 mSv, respectively, and the 20 other workers sustained varying degrees of exposure ranging from 0.006 to 1.73 mSv while performing recovery of the heavy water. The highest exposure sustained by a worker was about 4.44 mSv, that is less than 1/10 of 50 mSv, the maximum allowed exposure for one year of work for a radiation worker. This level of exposure is not unusual for workers involved in a planned maintenance of any nuclear power plant. The health effects due to this level of exposure are evaluated to be very small. As the heavy water leak did not occur outside of the building, it did not affect the environment.

**Cause of the social disturbance**

***Social circumstances around the incident***

A criticality accident occurred at JCO four days before in Japan, which has been widely believed to have super-safe nuclear technology to operate nuclear facilities in a safe manner, already caused a national concern about the safety of nuclear power plants and other nuclear facilities in Korea. The media was reporting the news everyday. There were, in the year 1999, 15 cases of malfunctioning had been reported from NPPs across Korea and 11 cases reported in 1998. Further, a nuclear power plant at Yonggwang, in particular, was suspended of its operation several times since 1998 for various reasons including operator errors.

It was coincident that the heavy water leak occurred during the Parliamentary Audit Session. Therefore, this incident coupled with the safety of NPPs quickly became nation-wide issue drawing attention from the media, NGOs and all other stakeholders concerned. Frequently many of the revelations by parliament members during the session aimed to draw media's attention rather than analyzing the core of the issue, participating in the debates sincerely and developing adequate measures for its resolutions. Lawmakers competed only to raise public concerns on nuclear power plants through the audit session. The session beared a special meaning as it was the last parliamentary activities in which the incumbent members needed to demonstrate their achievements in any way to get re-elected at the next general election, which would come about six months later. The incident occurred under that situation.

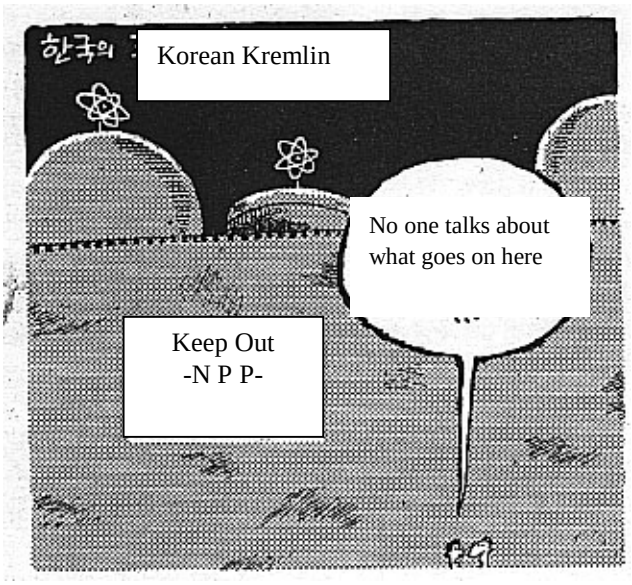
In the middle of the social turmoil, an allegation was brought up by one of KINS inspection staff that he had a suspicion about undocumented and unauthorized weldingspots existing in pipings of Ulchin unit 1 for more than ten years. Even though he could not specially identify the systems and locations, it was more than enough to trigger and intensify a national debate on the safety of nuclear power plants.

***World news influence over the incident***

The heavy water leak at Wolsong nuclear power plant Unit 3 was indeed a very small incident but immediately became a big issue internationally as well as domestically because we missed the timing to disclose relevant information. According to the official guidelines on the information disclosure for nuclear events, this incident should have been posted on the internet within 24 hours; the Ministry of Science and Technology (MOST), the regulatory authority in Korea, and Korea Electric Power Corporation (KEPCO) put the information on the internet the next day. The press release was also made to the media at 8 p.m. on October 5, 1999, one hour past the official deadline. In normal condition, it could have been regarded as a minor mismatch, but this was not the case; many journalists were still upset by the Tokai-mura accident. In addition, it was distributed at the most high-time deadline in the press routine with little time for them to confirm the details of the message about the occurrence of the leakage and the 22 workers exposed to radiation. Consequently the news media cannot but regard it as flash news. Simultaneously the CNN and the NHK broadcast this news to the world as urgent, turning a small incident into a major crisis.

The visibility of crises has changed radically in the information age. Today, large scale accidents and disasters are routinely played out in "real-time" on the satellite television and on the websites all over the world. It is said that much has been made of the "CNN effect" in shaping the public opinion and through it, driving the response to the crises. Huge public concerns generated as a result of inadequate media exposure sometimes cause insurmountable pressures to the nuclear related organizations.

***Failure in communication under crisis***




The incident took place at 7 p.m. on October 4, 1999 but the information was released to the press and the internet at 8 p.m. on the next day; a time gap beyond the usual practices. The hesitation made journalists suspicious of the possibility of cover-up of the incident by the utility; the CNN pointed out in its first news report that ministry officials were not immediately available for comments and clarification. The CNN also commented unfavorably that the officials could not say why such a

long time passed before the release of the news. After this, the press focused not on the safety aspects of the incident but on the delay of the information release and possible cover-up.

**Major findings of the opinion survey after the incident**

KINS and Gallup Korea jointly conducted a nationwide survey to find the views on nuclear regulation from January 21 to Feburary 14, 2000. 57% of the respondents consisted of 500 opinion leaders thought that nuclear power plants are not safe and 50% of them showed favorable attitudes toward the official remarks about the incidents. Key findings are as follows:

- The majority of the repondents (86.7%) answered that safety in construction and operation of NPPs should takes the top priority.
- 97.4% of the repondents think that government measures dealing with nuclear regulation should definitely be enhanced.
- Respondents who are skeptical about the safety of NPPs were identified as people less exposed to safety-related information.
- 78.3% of the repondents think that trifle events at NPPs, even with no harmful effects to the environment, are definitely “incidents”.

Additionally, we came to know that there were enough evidences to show the perception gap between journalist and utilities, as shown in Table 1.

**Table 1. Perception gap between journalist and utility.**

| Questions | Journalist | Utility |
|---|---|---|
| I think NPPs are safe | 46.5% | 100% |
| Technical mal-function with no radiological damage is an accident. | 83.0% | 7.1% |
| I am satisfied with the present information disclosure practice. | 13.0% | 95.7% |

**Concluding remarks**

The term “openness” and “transparency” in nuclear power plant operation and also in nuclear regulation have been increasingly talked about these days. Actually, without the public confidence on nuclear safety through this openness, any country in the world will not be able to operate nuclear power plants in the future. In particular, the regulatory process should be transparent to the general public and good communication should also be maintained to build public confidence in nuclear regulation as well as the safety of nuclear power plants.

In this respect, I believe at present that both the nuclear utilities and nuclear regulatory organizations in general in the world, are not fully prepared to cope with an unexpected situation, incident or accident, if it should occur.

In the emerging digital era, the public becomes wiser and wiser. They are increasingly provided with many channels through which they can obtain abundant information in a “speed of light”. Rapid expansion of the internet, satellite broadcasting and world media makes news on nuclear incident widespread across the country instantly and transmitted immediately to the people worldwide. The transmission of the information and propagation of the impacts sometimes show really chaotic features. Radiological accident in one country could bring the neighboring country into a social emergency, even if it is not a serious one. In that sense, the JCO Accident didn’t bring actual radioactive “fallouts” to Korea, however, it spread a socio-psychological one.

I would also like to talk about the importance of the international obligations such as Convention on the Early Notification. We have to review the effectiveness of this Convention for potential improvements. The speed of official communication is still slow and much information is flowing rapidly through private channels among citizens and netizens using Internet. False information can easily be transmitted, permitting no chance to clarify it. I think, under this circumstance, it is time to think about for the enhancement of the effectiveness of this international regime.

Finally, to build the public confidence in nuclear safety, we should understand the characteristics of the modern society, especially the digitalized, mutually dependent and thus chaotic features. We should also understand the behavioral patterns of the media, their attitudes, internal process for producing and sending out the news. And also we should take socio-psychological approach more in communicating to the public rather than the technical approach that we have concentrated so far.

# IAEA ACTIVITIES ON COMMUNICATION OF NUCLEAR SAFETY ISSUES

**P. Wieland**
International Atomic Energy Agency
Department of Nuclear Safety

## Introduction

The regulatory authorities in several countries have taken the initiative to overcome the renowned difficulties of communicating nuclear safety issues. They communicate with segments of the public specially in case of nuclear/radiological accidents, waste disposal, transport of radioactive material or food irradiation. This reflects the full recognition of the importance of the topic. However it is also recognized that there is hitherto a need of international assistance in order to develop a regulatory communication strategy that could be harmonized and at the same time customized to the different needs.

Communications on nuclear, radiation, transport and radioactive waste safety are needed to:

- disseminate information on safety to the public in both routine and emergency situations;
- be attentive to public concerns, and address them;
- maintain social trust and confidence by keeping society informed on the established safety standards and how they are enforced;
- facilitate the decision-making process on nuclear matters by promptly presenting factual information in a clear manner;
- integrate and maintain an information network at both the national and international levels;
- improve co-operation with other countries and international organizations;
- encourage the dissemination of factual information on nuclear issues in schools.

A major factor in addressing all of these questions is understanding the audience(s). A two-way communication process is needed to establish what particular audiences want to know and in what form they prefer to receive information. This will differ depending on the audience and circumstances. For example, the information on a routine day-to-day basis will be different from what might be needed at the time of an accident. Communication with the news media is a matter of particular importance, as they are both an audience in themselves and a channel for communicating with wider audiences.

The applications of radiation and radioactive substances in medicine, industry, agriculture, and research along with the entire cycle of activities related to the generation of electricity in nuclear power plants, the management of radioactive waste and the transport of radioactive materials are subject to numerous safety regulations, standards, recommendations and guides, from national and international sources. National regulatory authorities exist to develop, interpret and enforce these, in order to assure the safety of these activities and protection against the risks of ionizing radiation. However, the general public are largely unaware of the existing mechanisms to assure the safety of radiation sources, the scale to classify the incidents and accidents or the national and international arrangements to respond to severe accidents that could involve releases of large quantities of radioactive substances to the environment, with the possibility of acute health effects. Public opinion research shows that people would like to know more about nuclear topics and are concerned about safety issues and the capacity of the country to control radiation sources and respond to accidents.

An effective safety strategy is best served when integrated with clear public communication on all aspects of potential nuclear risks and safety measures. Basic principles for national infrastructures for radiation protection and safety are stated in the International Basic Safety Standards[1]. These include the responsibility *"to set up appropriate means of informing the public, its representatives and the information media about the health and safety of activities involving exposure to radiation and about regulatory processes aspects. This provides information to facilitate the political process of setting national priorities and allocating resources for protection and safety and also helps to make the regulatory process more readily understandable."*

Moreover, the Safety requirements Legal and Governmental Infrastructure for Nuclear, Radiation, Radioactive Waste and Transport Safety[2] states that "*Legislation shall be promulgated to provide for the effective control of nuclear, radiation, radioactive waste and transport safety. This legislation: ... shall define how the public and other bodies are involved in the regulatory process"*

The roles and responsibilities of regulators and licensees are different and so are their messages. It is fundamental to transmit the message that the regulatory authority is responsible for the national control of the use of radiation sources and not biased in favour of promotion of the nuclear industry.

**IAEA assistance on communication of nuclear safety issues**

In order to promote a systematic, homogeneous and consistent approach on the matter, the IAEA developed a programme on communication of nuclear issues to assist regulatory authorities to establish or improve their communication activities. This programme aims at:

- improving public and media understanding on nuclear, radiation, radioactive waste and transport safety;
- disseminating good practices on communication during emergency situations, including the use of the International Nuclear Event Scale (INES).

1. Food and Agriculture Organisation of the United Nations, International Atomic Energy Agency, International Labour Organisation, Nuclear Energy Agency of the Organisation for Economic Co-operation and Development, Pan American Health Organisation, World Health Organisation, International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources. Safety Series No. 115, IAEA, Vienna (1996).

2. International Atomic Energy Agency, Legal and Governmental Infrastructure for Nuclear, Radiation, Radioactive Waste and Transport Safety, Requirements GS-R-1, IAEA, Vienna (2000).

The programme includes the preparation of reference publications, exchange of information; maintenance of internet homepage, expert advice to the Member States under technical co-operation projects or safety missions, seminars, workshops and lectures at training courses and on-the job training.

The IAEA publication entitled "Communications on Nuclear, Radiation, Transport and Waste Safety: A Practical Handbook"[3] is being used as reference in all types of assistance to regulators in the area of communicating nuclear safety. In addition, a Safety Report is being elaborated with the objective of providing guidance to regulators on the establishment of a structured and systematic strategy for communicating nuclear safety.

The IAEA assistance provides a basic structured approach to communication of complex technical nuclear safety issues in a scientifically correct, but non-technical language. This innovative approach is being developed and implemented jointly with specialist from the nuclear safety community and communication experts towards the intended harmonization of such efforts.

**General principles for communications**

The operating organization has the primary responsibility to ensure the safety of its facility. Traditionally, the operating organization takes the lead in providing the public with the information on the level of safety that its nuclear facility is achieving. The regulatory authority may properly inform the public of its strict safety oversight without in any way appearing to promote the nuclear industry. Clearly the mission of a regulatory authority is to effectively protect public health and the environment against ionizing radiation. The public depends upon the regulatory authority to be sufficiently vigilant in its oversight function to ensure that serious degradation in equipment, operational procedures or management control are not allowed to occur. Therefore, the goal of the regulatory authority in communicating with the public is to foster better public understanding of, and trust and confidence in, its regulatory programme and activities.

The public is one of the most important clients of the regulatory authority, and its interest in safety issues and its right to know needs to be acknowledged. Furthermore, experience in recent years has shown that one-way communication, with the public only told what the experts consider important, is not the best practice. The public has an important role to play as issues of safety and health are addressed. Therefore, the regulatory process needs to be participatory, with input not only from the regulated community, but also from members of the public, interest groups, media, and representatives of the public in parliaments and local governments.

An effort may be made to ensure the public is informed in a timely manner in order to have the opportunity to participate in the decision making process, whenever possible; to actively seek and consider public views and concerns in making decisions of the regulatory authority; and to incorporate credible, effective public participation in its planning and decisions. For achieving these objectives, communication needs to be transparent and technically sound, clear, accurate, reliable, timely and understandable to the public. This communication includes direct expressions of opinion, as well as positive and constructive debates and discussions. It is important to ensure that its decisions are not only shaped by the safety significance of the issue and considerations of regulatory effectiveness, but also by considerations of public trust and credibility.

3. International Atomic Energy Agency, Communications on Nuclear, Radiation, Transport and Waste Safety: A Practical Handbook, IAEA-TECDOC-1076, Vienna (1999).

The regulatory authority maintains public confidence by ensuring that it has effective processes for meaningful public participation; by increasing the objectivity and results orientation of its regulatory approach; and by providing transparency in its decision making. The more open it is with information, the more likely it is to win and hold the public's trust. It is important that the regulatory authority build its image as a credible, unbiased and frank source of information. If the public loses confidence in the veracity and straightforwardness of those in the regulatory authority, that confidence may never be fully regained. It has also been experienced that if there is a communication gap between the regulatory authority and the public, this gap could well be filled by speculation, rumours or misinformation. Such misinformation and misunderstanding could lead to undesirable psychological impact and unjustified pressure on the decision making process which might give more weight to political arguments than to technical explanations.

Communication on nuclear issues may sometimes appear to be a simple and direct subject. However, it will often arise to be an issue of psycho-social and political complexity. Limitations in translating technical language for public understanding and, also the sometimes inaccurate media coverage, induce serious obstacles for communicating. How to communicate with the public is an art and a very difficult task that requires specialized and trained professionals. In order to give the public confidence that the regulatory authority is carrying out its health and safety mission, while describing findings to the public, the regulatory authority needs to be scrupulous in putting events, practices and conditions into clear perspective, neither overstating nor understating the significance of the situation, with emphasis on how they relate to safety. A careful balance in describing what it finds and what it requires needs to be achieved. The art of simple, concise, correct, factual and balanced explanation and clear exposition is important to make sure that written and spoken words are understandable to the general public.

**Key messages to be communicated**

The regulatory authority should communicate its activities in order to address the safety of the sources of radiation and to protect humans and the environment. The advantages and disadvantages of the production of nuclear energy and of the applications of ionizing radiation and the associated risks are important topics for discussion while deciding on the authorization of a new installation. However, the promotion of nuclear energy should be left to the interested operators and to the respective industry. The regulatory authority should remain independent to meet its responsibilities to ensure the control of any activity related to sources of radiation.

There are some characteristics of nuclear technologies that are important to be communicated as they reflect the safety fundaments and the basis of development of nuclear applications. The following list explains these elements:

***Safety culture**:* The implementation of the safety culture is a key consideration in ensuring the safe use of sources of radiation. Safety culture has two general components. The first is the necessary framework within an organization and the responsibility of the management hierarchy. The second is the attitude of staff at all levels in responding to and benefiting from the framework.

***Learning from experience***: Extensive research and study over a long period of time have gone into learning about and understanding radiation. This contributes to the development of safe nuclear technologies. Based on experience gained and on new developments, nuclear technologies continue to be improved.

***Nuclear technologies designed and tested to prevent accidents:*** Because scientists and engineers know that accidents can happen, they design nuclear technologies to make accidents as unlikely and rare as possible. The design is based on the complexity and potential danger of the particular technology. Design-based accident prevention concepts include: multiple barriers, redundant safety systems, diversity of safety systems, the fail-safe principle, and physical separation.

***International co-operation:*** Information about nuclear technologies is shared worldwide to ensure that all nations have access to the best information available. International and national nuclear associations organize conferences and periodic meetings to facilitate exchange of information and international collaboration.

***Safety conventions:*** Interdependence in the nuclear field calls for legally binding instruments. The International Atomic Energy Agency (IAEA) facilitates the establishment of international conventions on nuclear safety such as:

- Convention on the Early Notification of a Nuclear Accident (1986).
- Convention on the Assistance in the Case of a Nuclear Accident or Radiological Emergency (1987).
- Convention on the Physical Protection of Nuclear Material (1987).
- Convention on Nuclear Safety (1996).
- Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (1997), and
- Protocol to Amend the Vienna Convention on Civil Liability for Nuclear Damage and the Convention on Supplementary Funding (1997).

***International safety standards:*** Safety and protection issues have been taken into consideration on an international level. The IAEA affirmed the importance of safety in its statute more than 40 years ago and has been working ever since towards international harmonization of safety and radiation protection principles. All nuclear technologies are recommended to meet minimum standards of nuclear safety set at the international level by the IAEA and by the International Commission on Radiological Protection (ICRP).

***Regulatory authorities:*** All nuclear technologies are regulated to ensure that they meet standards that protect public health and safety. The highest priority has been given to safety and protection when establishing national regulations and procedures. Safety and protection issues were identified and dealt with according to their significance. National regulations are usually based on international recommendations and guidelines are often even stricter than the international rules. The regulatory function is effectively independent of the promotion or utilization of nuclear energy functions and it has adequate authority, competence and resources to fulfil its assigned responsibilities. It has responsibilities for issuing authorization to use radiation sources, assessing safety conditions and performing inspections. Measures or sanctions may be applied in case of non-compliance with established safety criteria.

***Independent expert review and consultation:*** In many cases independent experts with recognized high-level credentials review policy, procedures, operations and new developments to ensure overall safety. Quality, consistency and scientific accuracy are based on best available knowledge.

***Public processes**:* Public processes, such as informal consultations or formal public hearings, provide opportunities for the public to participate in the discussion about a proposed project which could have some potential for a direct economic or environmental impact on them. During such processes, members of the public have direct access to the authorities as well as the implementing organization to ask questions as well as to make their concerns known about the project. Through these processes, the public can have an influence on the project's outcome.

**Communications programme on nuclear safety**

A communication programme comprises a set of structured and systematic activities aimed at establishing or improving communications between the regulatory authority and several audiences. These activities are part of an integrated strategy for nuclear safety and for the protection against ionizing radiation and safety of radiation sources. Two types of communication programme are to be established: (a) for essentially routine situations to including the communications about licensing of nuclear facilities; transport of radioactive material; transport of spent nuclear fuel; radioactive waste management and disposal; food irradiation process; responding to incorrect reports in the media, etc.; and (b) during emergency situations.

In routine situations, once the needs for improving communications are identified, specific objectives can be developed with goals for each audience. A communication plan can be developed incorporating the following elements: message development, a communication vehicle which is appropriate for the message, and a schedule for releasing the various messages. The implementation of this plan is monitored and evaluated, resulting in feedback for continuous improvements.

An essential component of any emergency management system is the establishment of a practical and effective public information management programme to ensure the provision of accurate and updated information about the causes and status of the emergency, the protective actions being taken and, if necessary, the actions the public should take to protect themselves. Communications during emergency situations will depend on the national emergency plan and on the role of each organization involved in the emergency response. In any case, the public information policy and associated programme define how communications with external and internal groups will take place during the response to an emergency. It is also important that emergency exercises are conducted on a regular basis to test the responses of nuclear operators, regulators and other appropriate parties.

In the event of a nuclear accident, international convention[4] requires the country involved to notify both the IAEA and neighbouring countries, in order to minimize possible consequences. Designated national points of contact are responsible for receiving and issuing consistent, accurate and timely information. Information to be transmitted in the event of an accident includes its safety level on the International Nuclear Events Scale – INES, which attaches a rating to events according to their severity, thus facilitating understanding between the nuclear community, the public and the media.

4. International Atomic Energy Agency, Convention on Early Notification of a Nuclear Accident and Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency. IAEA Legal Series No. 14, (1987).

# THE NEA/RWMC FORUM ON STAKEHOLDER CONFIDENCE OVERVIEW OF FIRST MEETING AND WORKSHOP

**Y. Le Bars, C. Pescatore and H. Riotte**

## Introduction

Any significant decisions regarding geologic disposal will need a comprehensive public review and a thorough involvement of all relevant concerned parties (stakeholders), such as waste generators, waste-management agencies, regulatory authorities, local communities, elected officials, etc. The participation of non-technical stakeholders in decision making will become increasingly important as more countries move towards siting and the implementation of geologic repositories. Public perception and confidence is thus one of the strategic areas[1] where the NEA/RWMC intends to promote common understanding and further dialogue. The NEA strategic plan provides a broad framework for initiatives in this area.

At a broader level, trends towards a participatory democracy are more and more evident in OECD countries and the strengthening of public participation, transparency and accountability and, ultimately, policy effectiveness in Member countries constitute major areas of the work of the OECD. Within this wider context, the RWMC has taken up the challenges of understanding the needs of stakeholders and to provide a neutral forum where experience can be exchanged and analysed, and lessons can be drawn in stakeholder involvement and decision making in radioactive waste disposal.

The RWMC Forum on Stakeholder Confidence (FSC), which met for the first time in August 2000, is charged to act as a centre for informed exchanges of opinion and experiences across institutional and non-institutional boundaries, and to distil the lessons that can be learnt. While it is recognised that the decision-making process and avenues for stakeholders' involvement differ from country to country, it is important to identify similarities and differences, understand the key concerns of various stakeholders, and document means to interact effectively. The Forum mandate is relatively broad and covers a period of three years, at which time the efficacy of the Forum will be assessed. The FSC is composed of representatives of national organisations with responsibility, overview and experience in the field of stakeholder confidence.

This paper provides an overview of the inauguration, first workshop and meeting of the FSC. The event took place over three days in August 2000 and saw the participation of 75 attendees from 14 countries and three international organisations. The participants had widely varied backgrounds, spanning both the technical and social sciences. Affiliations included universities, national academies, technical oversight bodies, safety authorities, implementing agencies, and advisory bodies to

1. *Strategic Areas in Radioactive Waste Management: The Viewpoint and Work Orientations of the NEA Radioactive Waste Management Committee*, NEA 1999.

government. In addition, a mayor from Sweden and a parliamentarian from France were amongst the inauguration speakers.

During the three-day meeting, the world-wide experience in the field of stakeholder confidence and radioactive waste disposal was reviewed.[2]

**The workshop**

The workshop was inaugurated by five speakers presenting the viewpoints and experiences of implementers, regulators, policy specialists, and elected representatives at national and local level. A round table then took place, which was followed by a plenary address reviewing the experience of SKB, in Sweden. The workshop developed thereafter around five major topics:

1. The changing environment for waste management programmes.
2. Trust and the institutional framework.
3. Stakeholders and the public: who are they?
4. Is there a new dynamics of dialogue and decision making?
5. Are the waste management institutions set up for achieving stakeholder confidence over the long-term?

Each topic was framed by two plenary talks, one reviewing the broader societal picture and the other reviewing specific field experience, and it was subsequently developed in working groups. This was therefore a highly interactive workshop.

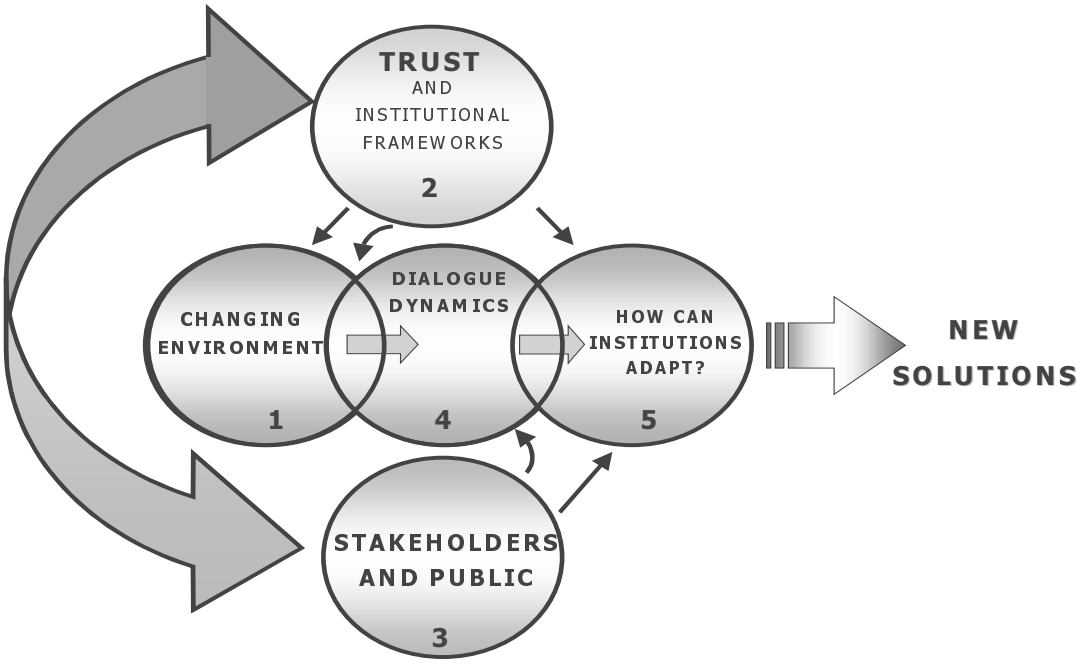
During the workshop, the interrelationship amongst the five topics was analysed and it is captured in Figure 1.

It is a fact that the environment for decision making has been changing in an important way in society (Topic 1). In particular, technology is no longer being perceived as the bright future; those who contested the old order are now in decision-making positions; and centralised decision has ceded to a stronger involvement of local authority. Development projects in general are rejected when stakeholders have not been actively involved in creating them and developed a sense of responsibility for them.

The OECD countries are increasingly implementing forms of participatory democracy that will require new or enhanced forms of dialogue amongst all concerned parties (Topic 4). The new dynamics of dialogue and decision making were characterised in discussion as a shift from the traditional "decide, announce and defend" model, for which the focus was almost exclusively on technical content, to one of "engage, interact and co-operate" for which both technical content and quality of process are of comparable import to a constructive outcome. In this context, the technical side of waste management is no longer of unique importance; organisational ability to communicate and to adapt now moves into the foreground. The obligation to dialogue and to demonstrate to stakeholders that their input is taken into account raises the questions of who can take on the role of communicator, what skills and training are needed, which tools should be developed, and what organisational changes are necessary.

2. *Stakeholder Confidence and Radioactive Waste Disposal, Workshop proceedings, Paris, France, 28-31 August 2000,* NEA 2000.

Figure 1. **The five workshop topics and their interrelation**




Institutions must be able to accommodate these changes in order to carry out the long-term projects for which they are responsible (Topic 5). The workshop offered views on what would characterise an organisation capable of achieving stakeholder confidence over long time periods. Participant input could be organised into three main areas: organisational aspects, missions, and behaviour. Organisational features include independence, clarity of role position, public ownership, dedicated and sufficient funding, a non-profit status, structural learning capacity, an internal culture of "scepticism" allowing practices and beliefs to be reviewed, high levels of skill and competence in relevant areas, including stakeholder interface, strong internal relations and cohesion, an ethical chart or code of conduct, and a general "quality consciousness". Mission features implied in achieving long-term confidence include clear mandate and goals, a specified management plan, a grounded and articulated identity, a good operating record, and responsibility for the back end of the nuclear fuel cycle, including decommissioning. Behavioural features were explored and defined, and include openness, transparency, honesty, consistency, willingness to be "stretched", freedom from arrogance, recognition of limits, commitment to a highly devoted and motivated staff, coherence with organisational goals, an active search for dialogue, an alert listening stance and caring attitude, proactive practices, emphasis on stakeholder interface, a policy of continuous improvement, use of allies and third-party spokespersons, and a level of commitment comparable to that displayed by NGOs.

Stakeholders and trust will play an important role all along the decision-making process. The term "stakeholder" (Topic 3) could signify different things to different people: it can mean someone with a vested interest or a preconceived view, or simply someone with a role to play in the process. This latter definition allows the regulator, as well as international organisations, to be considered stakeholders. However the designation of the regulator as a stakeholder is not necessarily acceptable in all countries. The workshop concluded to a majority that the term "stakeholder" should be understood

as somebody with a role to play in the process. The identification of stakeholder groups is less difficult than the definition of interactions among groups and their respective roles, responsibilities and rights. Stakeholder groups may not be characterised by unitary opinions or needs. Stakeholders change with time. Regarding future stakeholders, the opinion was that we can only do what we think is best for them, but there was recognition of the conflicting priorities of leaving a passively safe situation, or leaving enhanced possibilities of future intervention.

Trust needs to be given and to be won continually from stakeholders if the process is to go forward. (Topic 2). Trust implies that an individual is willing to give up a certain measure of control to another person, an institution, or a set of institutions. Trust must be earned, typically by verification through actions and meeting commitments. The actions of individuals in an organisation (including policy making) will affect the perception of the institution at large; interpersonal trust with agents of the institution can form a basis for regarding the institution with trust. Trust is much easier to lose than to win. Technical competence is necessary but insufficient in itself to earn trust. Other measurable components include caring, integrity, fairness, credibility, reliability and openness. If there is a failure on just one of those components, it may result in failure of the entire set, and in loss of trust. The parallel activities of an organisation involved in more than waste management must also be conducted in a trustworthy fashion to preserve overall trust.

Lack of trust may not necessarily be at the root of public rejection of a repository project: at issue rather may be unacceptable changes in lifestyle or other undesired impacts.

Waste retrievability and programme reversibility alleviate mistrust of technology and its implementation. Enhanced oversight by authorities and stakeholders constitutes a “defence in depth”, and the sharing of responsibility and control, as well as financial and other compensation, may work to build public confidence in the process.

**Insights from practical experience in radioactive waste disposal projects**

The workshop provided a wealth of information regarding the broader context in which decisions are taken in present-day society and it provided insights for how this may evolve and how institutions could adapt. Many presentations covered the actual experience of member countries disposal programmes and the lessons that were drawn. A bulletised list gives a broad overview of the practical lessons learnt:

- Management programmes have often included substantial public information and consultation efforts in their initial phases. However, these do not elicit massive response. Only when programmes move into a site-specific phase do non-technical stakeholders appear to take an active interest. It is thus a challenge to find ways of involving stakeholders early.
- Of special concern is the link between achieving a repository for radioactive waste and the future of nuclear power. This link – whatever it is in each country – must be spoken of openly and clarified. In particular, whilst it is clear that the debate on waste disposal is important to the debate on the future use of nuclear energy; it is also clear that a disposal solution is needed regardless of the future development of nuclear energy.
- A number of points must be demonstrable and clearly demonstrated to stakeholders:

  – The implementer is performing a service to society.

  - The waste generators provide finance under arrangements that provide value for money.
  - Financing arrangements are transparent.
  - Within its independent oversight role, the regulator is actively involved in assuring that the national policy on disposal is carried out in a safe manner.
  - Institutional arrangements are robust, and meant to survive changes in political orientation.

- Policy makers should review and communicate the assumptions, sources and consequences of policy choices. The same is true for regulators. The public needs/wants to participate early in the decision-making process, when the "rules of the game" are being defined. In particular, regulators must clarify the reasons and basis for changing regulations at later stages in repository development.
- Regulators must determine and then communicate to stakeholders where, when and how public and other stakeholder input can be accommodated. They must also communicate the bases of their decisions.
- Independence, competence and effectiveness are essential for public confidence in the regulator. The regulator's role and responsibilities must thus be clearly defined, and separated from nuclear energy policy and promotion.
- At initial phases of repository development everyone is a stakeholder, albeit often unaware of that role. In later phases of a programme, concerned citizens in siting communities take on a more central role. Also, local and regional officials move into place as potential mediators when the programme shifts into the site-specific phase. A range of mechanisms for dialogue is needed to accommodate such shifts.
- The present generation must take responsibility for the choices made, or left unmade, e.g. in deciding, or less, to move forward in implementing a repository.
- Localities should receive economic resources upon entering the (potential) host community role. Allocations to favour local development have been wrongly criticised as "immoral" or a source of pressure. There is no reason that participation in waste management, as in other industrial activities, should not generate prosperity.
- The messages given by the decision makers must be clear.

**Conclusions**

Development projects in general are rejected when stakeholders have not been actively involved in creating them and developed a sense of responsibility for them. Radioactive waste is not perceived to be a shared societal problem, and the priority assigned to resolving energy-related issues may be low today when economic and energy shortages are just a memory.

In this context, the technical side of waste management is no longer of unique importance; organisational ability to communicate and to adapt now moves into the foreground. The obligation to dialogue and to demonstrate to stakeholders that their input is taken into account raises the questions of who can take on the role of communicator, what skills and training are needed, which tools should be developed, and what organisational changes are necessary.

Implementers and regulators alike perceive the importance of role clarification, within the organisation and within the national waste-management system, such that responsibilities are identified, transparent and taken on. Finally, local and regional officials move into place as potential mediators when the programme shifts into the site-specific phase.

FSC will act as a forum for reviewing the map of roles, the modes of function and engagement of stakeholders. An important role will be to provide a neutral ground where the exchange of experience can be achieved, lessons can be learnt for future improvements in waste management programmes, and mutual understanding is promoted across both institutional and non-institutional boundaries. The FSC is the sole forum of this type world-wide.

# SESSION 6

## Working Together as Regulators

*Chairman: J. Laaksonen*

# WHY IT IS IMPORTANT TO PROMOTE COMMUNICATION IN THE DECISION-MAKING PROCESS

**C. Viktorsson**
Director, Office for Reactor Safety
Swedish Nuclear Power Inspectorate, SKI

## Introduction

Opportunity, nightmare, integrity and public confidence are all well-known words for us working in the nuclear area. Dealing with the outside world involves all those elements. However, having an active communication component in the decision-making process can reduce the risk of getting into a nightmare situation and at the same time it contributes to gaining public confidence.

The nuclear regulatory authority needs confidence to achieve effectiveness. Investing in trust is, therefore, necessary but requires a well-defined strategy and working methods. Moreover, it requires patience, and a culture of openness and relaxed attitude towards media. Finally, my experience tells me that it requires training of staff and motivators that constantly remind us of the importance of promoting communication in the decision-making process.

In this paper I am presenting some insights into how SKI works when preparing decision and why we are doing it.

## The mission of SKI

The mission of SKI is regulation and supervision of nuclear safety and safeguards at Swedish nuclear installations. SKI shall also actively inform public on nuclear risks and safety. SKI's mission is given in Annex 1.

SKI's allocation of resources are about 75 million SEK for administrative expenses and approximately an equal amount for nuclear safety research. Fees from the nuclear power industry finance SKI's operations. Allocated funds are channelled through the national budget according to normal routines. SKI has about 120 employees of whom 6 works at the public information department.

## The challenge

SKI tries to perform its regulatory function in a timely and cost-effective manner as well as in a manner that ensures the confidence of the operating organisations, the general public, and the government.

In order to succeed with its mission, SKI needs credibility. This is gained by:

- considering public as a most important stakeholder;
- having a view that SKI is a service organisation to all its stakeholders;
- actively informing public through media and other relevant channels;
- providing updated information to the stakeholders in an understandable way;
- considering all staff as potential communicators and training them accordingly;
- having a culture enhancing integrity aspects, and most importantly;
- maintaining an independent recognised technical expertise at the regulatory body.

**Confidence building**

SKI believes that an active communication component in the decision-making process can reduce the risk of getting a nightmare and at the same time gain public confidence. Our view is that the challenge comprises the following:

- selling good communication culture to experts/decision makers within the organisation; and equally important
- selling safety culture/thinking back to communications department.

Success, however, is not guaranteed by just having technical experts at the communications department, it requires a well thought out strategy and constant dialogue within the organisation. In our view all staff is potential communications people. The communications department is there to assist the staff in the process and needs to be on the back of technical staff at all time. Some important aspects to consider in setting up such a strategy are:

- Openness – a key to confidence. SKI has an obligation to be open to media and public in all issues. Only in certain cases, SKI can argue in favour of secrecy [1, 2]. Openness for us means to be open also internally, i.e. between the various groups of the organisation;
- considering public as legitimate target group of regulatory decisions. In drafting decisions, inspectors tend to write in very technical language adapted for the licensees. It is certainly true that being technically correct is of great importance. However, in some decisions media and public interest is so great that the decision has to reflect this legitimate interest;
- clarity of message and language of decisions. Again, not being clear with what you mean can reduce efficiency and effectiveness of the regulatory body. This is not only in relation to media and public, but also in relation to advisory bodies of the regulatory authority as well as in relation to licensees, who may misunderstand decisions and thereby wasting time;
- co-ordination of message and choice of active communication measure in relation to decision is a delicate issue. The core message of the decision needs to be spelt out clearly in the decisions and spokespersons chosen. We consider all staff of SKI is potential spokes-persons of SKI. The process of ending up with the same message from all staff is challenging;

- being aware of the level of importance, or perspective of a specific decision. Keeping in mind what is “hot”, or at stake in nuclear among media and public is essential if you wish to be leading the media coverage.

Therefore, SKI has adopted the procedure of having the participation of communications people in line organisation work, not to do the job but to assist in having it done. In the work organisation within SKI, we have taken into consideration the above aspects by involving our communications department in our operational work. This is done by having them participating in the weekly decision making meetings of the Offices having responsibilities for operational aspects of our licensees, i.e. reactor safety, waste management and non-proliferation. This gives us the opportunity to establish a two-way communication dialogue on the various day-to-day issues. It gives the necessary knowledge of communications people to handle technical issues in the meaning of answering some questions and in teaching them whom is dealing with what at SKI. Also, the director of communications department is member of top management of SKI as well as in Directors meeting on regulatory matters.

## Conclusion

It is important to promote communication in the decision making process because it has an influence on the effectiveness of the regulator’s work. It all starts with the culture within the organisation. A communications culture and a culture of openness on the top of the high level of technical culture have proved to support public confidence of SKI. SKI is committed to continue to work according to the direction described above.

## References


1. *The Principles of Public Access to Official Documents in Sweden*, I. Persson, CNRA Workshop on Investing in Trust – Nuclear Regulators and the Public, Paris, 29 November – 1 December 2000.

2. *The Oversight of Nuclear Safety – a Mission in the Service of the Public*, J. Melin, CNRA Workshop on Investing in Trust – Nuclear Regulators and the Public, Paris, 29 November – 1 December 2000.

*Annex*

## Excerpt from the government letter of appropriation to SKI

### SKI Mission

SKI must work towards:

- Ensuring that Swedish nuclear installations have adequate defence-in-depth methods that prevent serious incidents or accidents originating from technology, organisation or competence. In addition, the dispersion of nuclear substances must also be prevented or limited if an accident should occur.
- Adequately protecting nuclear installations and nuclear substances under Swedish jurisdiction against terrorist activities, sabotage or theft.
- Ensuring that the Swedish government, in co-operation with the competent international safeguards agencies, is provided with adequate information on and control over nuclear substances and nuclear technology which are held, used and traded and which come under Swedish jurisdiction. This must be done to ensure that such substances or technology will not be used in any way contrary to Swedish legislation and Sweden's international obligations in the area of non-proliferation.
- Carrying out the final disposal of spent nuclear fuel and nuclear waste in such a way that any possible leakage of radioactive substances should, within various periods of time, be expected to remain under tolerable levels. Future generations should not be exposed to greater health and environmental risks than are tolerated by society today.
- Ensuring that the nuclear industry carries out comprehensive and appropriate research and development programmes to achieve the safe handling and final disposal of spent nuclear fuel. Methods must also be developed for decommissioning and dismantling nuclear installations, and sufficient funds should be set aside for such future expenses.
- Keeping decision makers and the general public well informed about nuclear risks and safety, and about supervision and the final storage of spent nuclear fuel and nuclear waste.
- Actively contributing to developing and strengthening efforts in the areas of international nuclear safety and non-proliferation, particularly within the framework of the European Union (EU). As a member of the EU, Sweden should actively work for increased and effective environmental measures in neighbouring countries, especially in the Baltic area and in central and Eastern Europe.

# WORKING TOGETHER IN FUTURE: NEXT STEPS

**S. Copeland**
Canadian Nuclear Safety Commission, Canada

We have now spent three days listening and learning, sharing insights on how to build and maintain public trust. I have certainly learned a lot. I think we all have. I will be going home with new ways of looking at some of the challenges we face in Canada. I think it is very clear that we will all be stronger if we find ways to continue sharing our experience, insights and ideas after this workshop is over. What next steps can we take – should we take – to keep on learning from one another?

That's what this session is all about and I was asked to pull together a few ideas to get the ball rolling. Some come from me, some from my colleagues on the organising committee, and many from you. Thanks to those of you who took the time to come and share your thoughts with me. Many minds are always better than one!

Some of the ideas are rooted in the real world of face-to-face communication and some are more in what I would call the cyber-world of virtual communication. I will take them in that order.

## First, in the real world face-to-face communication

This first meeting has been very successful, in my view, and that of those of you who have taken the time to offer feedback. It has got us thinking about trust, what it means locally, nationally and internationally. And I think I would agree with that when we talk about "Investing in Trust", we are talking about a long-term investment.

Now that we have met once, do we want to set up some kind of formal association or network of nuclear regulatory communicators that would allow us to share information freely, bounce ideas off colleagues, call for help when we need it? An advisory group of nuclear regulatory communicators reporting to CNRA could meet regularly, perhaps once a year, to discuss developments, progress, problems, techniques and achievements in the area of regulatory communication with the public.

Meetings could be held here in Paris, or they could be hosted by the organisations represented on the advisory group. That could provide the opportunity for some real experience in the host countries, perhaps meetings with senior regulators, site visits, attendance at community meetings or at licensing hearings.

Such a group could work to facilitate the immense potential of information sharing among regulators. That could include initiatives such as preparation and dissemination of jointly-prepared information materials (or FAQs) on topics like basic radiation information or waste management,

perhaps references to nuclear information web sites, explanations of internationally adapted norms and much more. It could also look at such things as how regulators in one country could adapt innovative work done elsewhere to their own national context. The example of the Spanish public information centre comes to mind. Exhibits and text developed there might well be adapted for other countries. In public information as in many other fields, recycling is a good thing? It saves us from constantly reinventing the wheel.

Ways to address the public differ from country to country, and there are language problems, but jointly-prepared information might carry more weight than information presented by a single organisation and adaptation of material that has been successful elsewhere might save us time and money – and help achieve consistent messages on where it is very much needed.

If we do want to create some kind of a formal organisation to continue sharing information, we need to think about how to structure it. Is a small executive committee enough? What role would the NEA play as the secretariat or co-ordinating body? Is there a need for one person or more to clear a block of time to get this off the ground?

**Second in the cyber-world of virtual communication**

These days, of course, we can chat with a colleague around the world in a split second, by e-mail. And we can check out our colleagues' information products just by clicking our way to their web sites. So clearly, we do want to make full use of the enormous potential of the Internet.

One simple approach – you might call this the low-tech way to go – would be to maintain an "unofficial network" of nuclear regulatory communicators by exchanging and updating e-mail addresses for quick and informal exchanges of information, news, data etc.

Or, in what you might call a "mid tech" approach, we could set up an Internet site structured to meet our needs, with places to post documents, "chat" on issues, easily reach some or all of us electronically. This could be a small public web site built specially for our group to post and share documents. But there are privacy concerns. If all documents are not open for public access, then the answer might be an "Extranet" web site – that is a password web site that the group could use to post and swap documents. The organising committee thinks this would be an extremely helpful tool.

To move on to something I would call pretty high tech, there is also something called NetMeeting – software that enables people to meet on line from anywhere in the world. I don't know if we are quite ready for that!

Of course, there are some practical questions related to all these options. As we all know, web sites do not run themselves. They are only as good as the people who are "minding" them. Who would host a web site? Who would maintain the content of the web site? Who would pay for the web site? How much can the NEA do? How much can the rest of us do?

**Participants' contributions to the mix**

On the first day of the workshop, I asked you all to come and talk to me if you had thoughts to add for this short paper on how to move forward from here. I am pleased to report that a lot of you did. Here is a list, very much in short-form:

- The language of safety.
- How much is enough, how much is too much for stakeholder interaction?
- How do you deal with the issue of responding, i.e. demonstrating action on issues when the licensing decision is not what public groups want?
- How do you measure the success of consultations?
- What are the indicators for trust?
- Benchmarking and measuring public perceptions.
- Need for consistency of approach (can undermine public confidence by differences between countries).

The ideas and issues that were raised could well be subjects for consideration by an advisory group, on the Internet or at future meetings.

**Practical, realistic and achievable**

Those, then, are some options for the future – for our future together. I think we would all agree that our goal is to have something we can use and maintain with minimum effort and maximum benefit. Something practical, realistic and achievable that will help us keep in touch and help us keep on building our investment in trust.

# CONCLUDING PANEL

## Future Directions and Next Steps

Members

| | |
|---|---|
| *S. Collins* | Director, Office of Nuclear Reactor Regulation, NRC, USA |
| *J. Furness* | HM Deputy Chief-Inspector, NII, HSE, UK |
| *J. Laaksonen* | Director-General, STUK, Finland |
| *J. Goellner* | Deputy Director, DSIN, France |
| *A. Martin* | Vice-President, CSN, Spain |
| *C. Viktorsson* | Deputy Director-General, SKI, Sweden |

Facilitator

| | |
|---|---|
| *M.D. Montel* | French Journalist |

## LIST OF PARTICIPANTS

### AUSTRALIA


Mr. T. Vincent Diamond
Manager, Nuclear Installations Regulatory Branch
Miranda, N.S.W. 1490

Phone: +61 (2) 9545 8332
Fax: +61 (2) 9545 8348

Dr. R. Wayne Garrett
Counsellor (Nuclear)
Australian High Commission
ANSTO Office
Australia House, Strand
London WC2B 4LA
United Kingdom

Phone: +44 (207) 887 5620
Fax: +44 (207) 873 9026
E-mail: wayne.garrett@dfat.gov.au


### BELGIUM


Mr. Eric Maillet
Engineer
AVN (Association Vinçotte Nuclear)
Avenue du Roi, 157
B-1190 Brussels

Phone: +32 (2) 536 83 41
Fax: +32 (2) 536 85 85
E-mail: em@avn.be

Dr. Lodewijk Van Bladel
Medical Doctor
Radiation Protection Office
Ministry of Social Affairs,
Public Health and the Environment
Rue Ravenstein, 36
B-1000 Brussels

Phone: +32 (2) 289 21 93
Fax: +32 (2) 289 21 95
E-mail: lodewijk.vanbladel@fanc.fgov.be


### CANADA


Mr. Jim Blyth
Director, Safety Evaluation Division – Engineering
Canadian Nuclear Safety Commission (CNSC)
P.O. Box 1046, Station B
280 Slater Street
Ottawa, Ontario
Canada K1P 5S9

Phone: +1 (613) 995 7253
Fax: +1 (613) 995 5086
E-mail: blythj@cnsc-ccsn.gc.ca

Ms. Susan Copeland*
Director, Communications Division
Canadian Nuclear Safety Commission (CNSC)
P.O. Box 1046 - Station B
280 Slater Street
Ottawa, Ontario
Canada K1P 5S9

Phone: +1 (613) 992 5544
Fax: +1 (613) 992 2915
E-mail: copelands@cnsc-ccsn.gc.ca

Ms. Beverley Ecroyd
Head, CNSC Site Office
Power Reactor Operations Division
Canadian Nuclear Safety Commission (CNSC)
Point Lepreau Nuclear Generating Station
P.O. Box 10
Point Lepreau, New Brunswick
Canada E0G 2H0

Phone: +1 (506) 659 6456
Fax: +1 (506) 659 2418
E-mail: ecroydb@cnsc-ccsn.gc.ca

**CZECH REPUBLIC**

Ms. Dana Drábová
Chairman
State Office for Nuclear Safety (SUJB)
Senovážné námestí 9
110 00 Prague 1

Phone: +420 (2) 216 24 209
Fax: +420 (2) 216 24 704
E-mail: dana.drabova@sujb.cz

Mr. Pavel Pittermann
Spokesman
State Office for Nuclear Safety (SUJB)
Senovážné námestí 9
110 00 Prague 1

Phone: +420 (2) 216 24 363
Fax: +420 (2) 216 24 704
E-mail: pavel.pittermann@sujb.cz

**FINLAND**

Mr. Risto Isaksson*
Information Officer
Finnish Radiation & Nuclear Safety Authority (STUK)
Laippatie
P.O. Box 14
FIN-00881 Helsinki

Phone: +358 (9) 7598 8208
Mobile: +358 40 436 843
Fax: +358 (9) 755 3738
E-mail: risto.isaksson@stuk.fi

Prof. Jukka Laaksonen
Director General
Finnish Radiation & Nuclear Safety Authority (STUK)
Laippatie
P.O. Box 14
FIN-00881 Helsinki

Phone: +358 (9) 7598 8201
Fax: +358 (9) 7598 8216
E-mail: jukka.laaksonen@stuk.fi

---

* Organising Committee member

Ms. Anne Väätäinen
Senior Adviser
Ministry of Trade and Industry
Energy Department
P.O. Box 32
FIN- 00023 Helsinki

Phone: +358 (9) 160 4836
Fax: +358 (9) 160 2664
E-mail: anne.vaatainen@ktm.vn.fi

Mr. Tero Varjoranta
Director
Finnish Radiation & Nuclear Safety Authority (STUK)
Laippatie
P.O. Box 14
FIN-00881 Helsinki

Phone: +358 (9) 759 88 375
Fax: +358 (9) 759 88 670
E-mail: tero.varjoranta@stuk.fi

**FRANCE**

Mr. Gérard Ancelin
Maire de Nogent-sur-Seine
Président de la Commission locale
d'information (CLI) de Nogent
Mairie de Nogent-sur-Seine
Hôtel de Ville
B.P. 40
F-10401 Nogent-sur-Seine CEDEX

Phone: +33 (3) 25 39 42 00
Fax: +33 (3) 25 39 98 74

Mr. Michel Asty
Chef de la Division des Relations Internationales
Direction de la Sûreté des Installations Nucléaires
(DSIN), B.P. 83
F-92266 Fontenay-aux-Roses CEDEX

Phone: +33 (1) 43 19 70 71
Fax: +33 (1) 43 19 70 69
E-mail: michel.asty@industrie.gouv.fr

Mr. Alain Denys
Division des Relations Internationales
Direction de la Sûreté des Installations Nucléaires (DSIN)
B.P. 83
F-92266 Fontenay-aux-Roses CEDEX

Phone: +33 (1) 43 19 70 87
Fax: +33 (1) 43 19 70 69
E-mail: alain.denys@industrie.gouv.fr

Mr. Jean Gauvain*
Division des Relations Internationales
Direction de la Sûreté des Installations Nucléaires (DSIN)
B.P. 83
F-92266 Fontenay-aux-Roses CEDEX

Phone: +33 (1) 43 19 70 54
Fax: +33 (1) 43 19 70 69
E-mail: jean.gauvain@industrie.gouv.fr

Mr. Jérôme Goellner
Directeur Adjoint
Direction de la Sûreté des Installations Nucléaires (DSIN)
99 Rue de Grenelle
F-75353 Paris 07 SP

Phone: +33 (1) 43 19 33 15
Fax: +33 (1) 43 19 47 74
E-mail: jerome.goellner@industrie.gouv.fr

---

* Organising Committee member

Mr. André-Claude Lacoste
Directeur
Direction de la Sûreté des Installations Nucléaires (DSIN)
99 Rue de Grenelle
F-75353 Paris 07 SP

Phone: +33 (1) 43 19 32 17
Fax: +33 (1) 43 19 39 24
E-mail: andre-claude.lacoste@industrie.gouv.fr

Mr. Yves Le Bars
Président du Conseil
Agence Nationale de la Gestion des Déchets Radioactifs (ANDRA), Parc de la Croix Blanche
1-7 Rue Jean Monnet
F-92298 Châtenay-Malabry CEDEX

Phone: +33 (1) 46 11 82 89
Fax: +33 (1) 46 11 83 09
E-mail: yves.lebars@andra.fr

Mr. Serge Roudier
Secrétariat Général
Direction de la Sûreté des Installations Nucléaires (DSIN)
99 Rue de Grenelle
F-75353 Paris 07 SP

Phone: +33 (1) 43 19 18 80
Fax: +33 (1) 43 19 39 46
E-mail: serge.roudier@industrie.gouv.fr

**GERMANY**

Dr. Christian Greipl
Head of Section Coordination of Nuclear Energy Policy (RSI6)
Federal Ministry for the Environment, Nature Conservation and Reactor Safety
Heinrich-von-Stephan-Strasse 1
D-53175 Bonn

Phone: +49 (1888) 305 3444
Fax: +49 (1888) 305 3965
E-mail: greipl.christian@bmu.de

Dr. Klaus Martignoni
Section Head
German Federal Office of Radiation Protection (BfS)
Institute for Radiation Hygiene
D-85764 Neuherberg (München)

Phone: +49 (89) 31603-130
Fax: +49 (89) 31603-111
E-mail: kmartignoni@bfs.de

**HUNGARY**

Dr. Elizabeth Besenyei
Head, Information Service
Deputy Head, External Relations
Hungarian Atomic Energy Authority
Margit krt. 85.
H-1024 Budapest

Phone: +36 (1) 375 3586
Fax: +36 (1) 375 7402
E-mail: besenyei@haea.gov.hu

Dr. Lajos Vöröss
Deputy Director General
Hungarian Atomic Energy Authority
Margit krt. 85.
H-1024 Budapest

Phone: +36 (1) 355 0528
Fax: +36 (1) 355 1591
E-mail: voross@haea.gov.hu

**JAPAN**

Mr. Kiyoshi Kojima
Technical Counselor
Office for Nuclear Safety Commission
Minister's Secretariat
Prime Minister's Office
Toranomon Mitsui Bldg. 3F
3-8-1 Kasumigaseki
Chiyoda-ku
Tokyo 100-0013

Phone: +81 (3) 5511-2502
Fax: +81 (3) 5511-0101
E-mail: kkojima1@sorifu.go.jp

Mr. Shojiro Matsuura
Chairman
Nuclear Safety Commission
Toranomon Mitsui Bldg. 3F
3-8-1 Kasumigaseki
Chiyoda-ku
Tokyo 100-0013

Phone: +81 (3) 5511-2506
Fax: +81 (3) 5511-0101
E-mail: smatsuu@sorifu.go.jp

Mr. Nobuo Tanaka
Deputy General Manager
Institute of Nuclear Safety (INS)
Nuclear Engineering Power Corporation (NUPEC)
Fujita Kanko Toranomon Building 7F
17-1, 3-chome, Toranomon
Minato-ku
Tokyo, 105

Phone: 81 (3) 4512-2777
Fax: 81 (3) 4512-2799
E-mail: nb-tanaka @ nupec.or.jp

**KOREA**

Mr. Kwang Sik Choi
Principal Researcher
Korea Institute of Nuclear Safety (KINS)
Kusong-dong 19
P.O. Box 114
Yusung-gu
Taejon, 305-600

Phone: +82 (42) 868 0124
Fax: +82 (42) 861 1700
E-mail: choi@kins.re.kr

**NORWAY**

Mrs. Anne Marit Østreng
Head of Information
Norwegian Radiation Protection Authority (NRPA)
P.O. Box 55
N-1332 Østerås

Phone: +47 (67) 16 25 29
Fax: +47 (67) 14 74 07
E-mail: anne.marit.ostreng@nrpa.no

**SPAIN**


Mr. Juan Manuel Kindelán
Presidente
Consejo de Seguridad Nuclear (CSN)
Justo Dorado, 11
E-28040 Madrid
Phone: +43 (91) 346 0336
Fax: +43 (91) 346 0575
E-mail: jmkg@csn.es

Dr. Anibal Martin
Vice-Presidente
Consejo de Seguridad Nuclear (CSN)
Justo Dorado, 11
E-28040 Madrid
Phone: +34 (91) 346 0332
Fax: +34 (91) 346 0377
E-mail: amm@csn.es

Mrs. Carmen Martinez Ten
Head, Chairman's Cabinet
Responsible for Relations with the Media
Consejo de Seguridad Nuclear (CSN)
Justo Dorado, 11
E-28040 Madrid
Phone: +34 (91) 346 0321
Fax: +34 (91) 346 0678
E-mail: cmt@csn.es

Mr. Javier Reig
Head, International Relations
Consejo de Seguridad Nuclear (CSN)
Justo Dorado, 11
E-28040 Madrid
Phone: +34 (91) 346 0352
Fax: +34 (91) 346 0103
E-mail: jrr@csn.es


**SWEDEN**


Ms. Susanne Carlberg
Deputy Head
Department of Communication and Public Relations
Swedish Nuclear Power Inspectorate (SKI)
Klarabergsviadukten 90
SE-106 58 Stockholm
Phone: +46 (8) 698 84 07
Fax: +46 (8) 661 90 86
E-mail: susanne.carlberg@ski.se

Mrs. Britt Ekman
Head, Information and PR
Radiation Protection Institute (SSI)
S-171 16 Stockholm
Phone: +46 (8) 729 71 34
Fax: +46 (8) 729 71 08
E-mail: britt.ekman@ssi.se

Mr. Anders Jörle*
Director
Head of Communication and Public Relations Department
Swedish Nuclear Power Inspectorate (SKI)
Klarabergsviadukten 90
SE-106 58 Stockholm
Phone: +46 (8) 698 84 05
Mobile: +46 70 548 90 93
Fax: +46 (8) 661 90 86
E-mail: anders.jorle @ ski.se


---

* Organising Committee member

Dr. Judith Melin
Director General
Swedish Nuclear Power Inspectorate (SKI)
Klarabergsviadukten 90
SE-10658 Stockholm

Phone: +46 (8) 698 84 01
Fax: +46 (8) 661 90 86
E-mail: judith.melin@ski.se

Mr. Ingvar Persson
Senior Legal Adviser
Swedish Nuclear Power Inspectorate (SKI)
Klarabergsviadukten 90
SE-106 58 Stockholm

Phone: +46 (8) 698 84 15
Fax: +46 (8) 661 90 86
E-lail: ingvar.persson@ski.se

Dr. Olof Söderberg
Special Advisor
Ministry of the Environment
SE-100 33 Stockholm

Phone: +46 (8) 405 37 54
Fax: +46 (8) 201 066
E-mail: olof.soderberg@environment.ministry.se

Mr. Christer Viktorsson
Deputy Director General
Director, Office of Reactor Safety
Swedish Nuclear Power Inspectorate (SKI)
Klarabergsviadukten 90
SE-106 58 Stockholm

Phone: +46 (8) 698 84 21
Fax: +46 (8) 661 90 86
E-mail: christer.viktorsson@ski.se

**SWITZERLAND**

Mr. Anton Treier
Head of Information
Swiss Federal Nuclear Safety Inspectorate (KSK)
CH-5232 Villigen-HSK

Phone: +41 (56) 310 38 70
Fax: +41 (56) 310 39 95
E-mail: treier@ksk.psi.ch

**UNITED KINGDOM**

Mrs. Wendy Bines
Head, Ionising Radiation Policy Unit
Health Directorate, HDB
Health & Safety Executive
Room 6.23, Rose Court
2 Southwark Bridge
London SE1 9HS

Phone: +44 (20) 7717 6831
Fax: +44 (20) 7717 6681/6199
E-mail: wendy.bines@hse.gsi.gov.uk

Mr. John Croft
Head, Communications and
Occupational Exposure Department
National Radiological Protection Board
Chilton, Didcot
Oxfordshire OX11 0RQ

Phone: +44 (1235) 822680
Fax: +44 (1235) 822630
E-mail: john.croft@nrpb.org.uk

Mr. A. Glyn Davies
HM Principal Inspector of Nuclear Installations
HM Nuclear Installations Inspectorate
Health and Safety Executive
St. Peter's House
Stanley Precinct
Balliol Road, Bootle
Merseyside L20 3LZ

Phone: +44 (151) 951 3718
Fax: +44 (151) 951 3710
E-mail: glyn.davies@hse.gsi.gov.uk

Mr. Jim Furness
HM Deputy Chief Inspector of Nuclear Installations
HM Nuclear Installations Inspectorate
Health and Safety Executive
St Peter's House
Stanley Precinct, Bootle
Merseyside L2O 3LZ

Phone: +44 (151) 951 4957
Fax: +44 (151) 951 3968
E-mail: jim.furness@hse.gov.uk
linda.colley@hse.gsi.gov.uk

Mrs. Susan E. Lennie
Associate Director
Simpson Carpenter Limited
5th Floor, John Dalton House
121 Deansgate
Manchester, M3 2BX

Phone: +44 (161) 828 8352
Fax: +44 (161) 828 8338
E-mail: selennie@scmanchester.demon.co.uk

Dr. Katherine Mondon
Senior Scientific Officer
Radiological Safety Unit
Contaminants Division
Food Standards Agency
Room 506 A, Ergon House
P.O. Box 31037
Horseferry Road
London SW1P 3WG

Phone: +44 (020) 7238 6201
Fax: +44 (020) 7238 5465
E-mail:
katherine.mondon@foodstandards.gsi.gov.uk

Mrs. Mary Morrey*
National Radiological Protection Board
Chilton, Didcot
Oxfordshire OX11 0RQ

Phone: +44 (1235) 822 777
Fax: +44 (1235) 833 891
E-mail: mary.morrey@nrpb.org.uk

Mr. Robert E. Smith**
Policy Adviser, Radioactive Substances Regulation
Environment Agency
5th Floor, Steel House
11, Tothill Street
London, SW1H 9NF

Phone: +44 (20) 7664 6854
Mobile: 0777 1940556
Fax: +44 (20) 7664 6797
E-mail:
robert.e.smith@environment-agency.gov.uk

---

* Organising Committee member

** Was unable, at the last minute, to attend; paper presented by Mrs. M. Morrey

Mr. Laurence Williams
HM Chief Inspector of Nuclear Installations
Director, Nuclear Safety Directorate
Health and Safety Executive
St. Peter's House
Stanley Precinct, Bootle
Merseyside L2O 3LZ

Phone: +44 (151) 951 4170
Fax: +44 (151) 951 4821
E-mail: laurence.williams@hse.gsi.gov.uk

**UNITED STATES OF AMERICA**

Mr. Samuel J. Collins
Director
Office of Nuclear Reactor Regulation
Mail Stop O12 G18
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Phone: +1 (301) 415 1270
Fax: +1 (301) 415 8333
E-mail: sjc1@nrc.gov

Dr. Michael C. Cullingford
Special Assistant for Technical Policy
& International Liaison
Office of Nuclear Reactor Regulation
Mail Stop O5 E7
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Phone: +1 (301) 415 1276
Fax: +1 (301) 415 1887
E-mail: mcc@nrc.gov

Mr. Jonathan Edwards
Director
Center for Radiation Information
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W. (MC 6608J)
Washington, D.C. 20460

Phone: +1 (202) 564 9197
E-mail: edwards.jonathan@epa.gov

Dr. Richard A. Meserve
Chairman
U.S. Nuclear Regulatory Commission
MS 016C1
Washington, D.C. 20555-0001

Phone: +1 (301) 415-1759
Fax: +1 (301) 415-1757
E-mail: chairman@nrc.gov

Mr. C. William Reamer
Chief, High-Level Waste Branch
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Phone: +1 (301) 415-6537
Fax: +1 (301) 415-5399
E-mail: cbr@nrc.gov

**EUROPEAN COMMISSION**

Dr. Georges Van Goethem
Coordinator of Reactor Safety Research
Directorate-General for Research
D.II.3 Nuclear Fission and Radiation Protection
Building MO75-5/27
European Commission (EC)
Rue de la Loi, 200
B-1049 Brussels
Belgium

Phone: +32 (2) 295 1424
Fax: +32 (2) 295 4991
E-mail: georges.van-goethem@cec.eu.int

**INTERNATIONAL ATOMIC ENERGY AGENCY**

Ms. Patricia Wieland
Safety Officer
Department of Nuclear Safety
International Atomic Energy Agency (IAEA)
Wagramer Strasse 5
P.O. Box 100
A-1400 Wien
Austria

Phone: +43 (1) 2600 22615
Fax: +43 (1) 26007 22615
E-mail: p.wieland@iaea.org

**OECD NUCLEAR ENERGY AGENCY**

Mr. Luis Echávarri
Director General
OECD Nuclear Energy Agency
Le Seine Saint-Germain
12 Boulevard des Iles
F-92130 Issy-les-Moulineaux
France

Phone: +33 (1) 45 24 10 00
Fax: +33 (1) 45 24 11 10
E-mail: luis.echavarri@oecd.org

Mr. Sam Thompson
Deputy Director General
OECD Nuclear Energy Agency
Le Seine Saint-Germain
12 Boulevard des Iles
F-92130 Issy-les-Moulineaux
France

Phone: +33 (1) 45 24 10 02
Fax: +33 (1) 45 24 11 10
E-mail: sam.thompson@oecd.org

Mr. Kazuo Shimomura
Deputy Director, Safety and Regulation
OECD Nuclear Energy Agency
Le Seine Saint-Germain
12 Boulevard des Iles
F-92130 Issy-les-Moulineaux
France

Phone: +33 (1) 45 24 10 04
Fax: +33 (1) 45 24 11 10
E-mail: kazuo.shimomura@oecd.org

Dr. Gianni Frescura
Head, Nuclear Safety Division
OECD Nuclear Energy Agency
Le Seine Saint-Germain
12 Boulevard des Iles
F-92130 Issy-les-Moulineaux
France

Phone: +33 (1) 45 24 10 50
Fax: +33 (1) 45 24 11 10
E-mail: gianni.frescura@oecd.org

Dr. Hans Riotte
Head, Radiation Protection
& Waste Management Division
OECD Nuclear Energy Agency
Le Seine Saint-Germain
12 Boulevard des Iles
F-92130 Issy-les-Moulineaux
France

Phone: +33 (1) 45 24 10 40
Fax: +33 (1) 45 24 11 10
E-mail: hans.riotte@oecd.org

Mr. Jacques de la Ferté
Head, External relations and Public Affairs
OECD Nuclear Energy Agency
Le Seine Saint-Germain
12 Boulevard des Iles
F-92130 Issy-les- Moulineaux
France

Phone: +33 (1) 45 24 11 10
Fax: +33 (1) 45 24 11 10
E-mail: jacques.delaferte@oecd.org

Dr. Edward Lazo
Deputy Head
Radiation Protection and Waste Management Division
OECD Nuclear Energy Agency
Le Seine Saint-Germain
12 Boulevard des Iles
F-92130 Issy-les-Moulineaux
France

Phone: +33 (1) 45 24 10 42
Fax: +33 (1) 45 24 11 10
E-mail: lazo@nea.fr

Dr. Claudio Pescatore
Radiation Protection & Waste Management Division
OECD Nuclear Energy Agency
Le Seine Saint-Germain
12 Boulevard des Iles
F-92130 Issy-les-Moulineaux
France

Phone: +33 (1) 45 24 10 48
Fax: +33 (1) 45 24 11 10
E-mail: claudio.pescatore@oecd.org

Dr. Jacques Royen*
Deputy Head
Nuclear Safety Division
OECD Nuclear Energy Agency
Le Seine Saint-Germain
12 Boulevard des Iles
F-92130 Isy-les-Moulineaux
France

Phone: +33 (1) 45 24 10 52
Fax: +33 (1) 45 24 11 29
E-mail: jacques.royen@ oecd.org

* Organising Committee member

Mr. Koichi Shiraga
Nuclear Development Division
OECD Nuclear Energy Agency
Le Seine Saint-Germain
12 Boulevard des Iles
F-92130 Issy-les-Moulineaux
France

Phone: +33 (1) 45 24 10 68
Fax: +33 (1) 45 24 11 10
E-mail: koichi.shiraga@oecd.org

***By special invitation:***

Dr. Paul S. Gray
Former Director of the European Commission
Environment, Climate and Marine Science and
Technology Research Programmes
Member of the Scientific Council of the
Belgian Royal Institute for
Sustainable Development of Natural Resources and
Promotion of Clean Technologies
Avenue des Chênes, 67
B-1180 Brussels (Uccle)
Belgium

Phone: +32 (2) 375 1432
E-mail: paul.gray@4thwave.be

Mrs. Marie-Dominique Montel
Journalist
18 Rue de l'Odéon
F-75006 Paris
France

Phone: +33 (1) 43 54 25 74
E-mail: genet@cybercable.fr

Dr. Serge Prêtre
Former Director of the
Swiss Federal Nuclear Safety Inspectorate (HSK)
Haldenweg 11
CH-5313 Klingnau
Switzerland

Phone: +41 (56) 245 64 14
Fax: +41 (56) 245 64 14
E-mail: serge.pretre@gmx.ch

Dr. Min-Fong Su
Director
Radiation Protection Department
Atomic Energy Council
67, Lane 144, Section 4
Keelung Road
Taipei, 106
Chinese Taipei

Phone: +886 (2) 2362 6189
Fax: +886 (2) 2367 6209
E-mail: mfsu@aec.gov.tw

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