

# PROMOTION OF ACCEPTANCE OF NUCLEAR WASTE DISPOSAL AS AN OBJECTIVE OF NAGRA'S PUBLIC RELATIONS PROGRAM

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## ABSTRACT

In addition to its technical and scientific aspects, nuclear waste management also raises important social and political issues. Public acceptance of the solutions to waste management problems depends not only on correctly solving the technical and economic problems but also on taking into consideration the expectations of society; the background to the project must also be correctly and efficiently communicated to the members of the public involved.

The concepts of politicians and the general public often contradict those of scientists and economists. It is necessary to establish priorities: Do the technical concepts have to be modified in order to improve their public acceptance? How far should this go? And can public opinion be changed by presenting purely technical arguments to the public? What is the way to do it most efficiently?

The present paper tries to give some preliminary answers to these questions. It establishes a code of ethics for the balancing of interests between technology and public acceptance and presents some experience from the past project work of NAGRA in Switzerland.

## INTRODUCTION

As in other countries, despite its primarily technical and scientific character, the Swiss nuclear waste management program has important social and political aspects. To the scientists involved in the investigations and to program management, it was - and often still is - a great surprise to discover that it is not sufficient to provide technically correct and economically sound solutions to the problems posed, but that the acceptance of such solutions by the public depends upon other factors. All parties involved had to learn that it is impossible to provide purely technical answers to political questions.

Hence, as was the case for other waste management organizations, NAGRA - the Swiss Waste Management Cooperative - found it necessary to become involved in intensive communication with politicians and officials at various levels, as well as with the interested public. In this context we have become aware that two main questions arise. The first question is: What is the relative importance of public acceptance issues compared to technico-scientific considerations? Do the scientists have to be flexible and modify their programs according to public demand - and how far? After this has been settled, the second question is, of course: How do we communicate most efficiently with the public? How do we optimize the distribution of information and public relations work in general?

## CODE OF ETHICS IN WASTE MANAGEMENT PUBLIC ACCEPTANCE STRATEGY

Obviously, the first question is the more important one from the point of view of scientific integrity. We are convinced that scientific integrity is the vital prerequisite to the long-term success of any waste management program. The

technical problems involved in final disposal are very challenging and the demanding character of the tasks imposed - unprecedented for any other waste category of similar toxicity - must be clearly recognized. The high professional standard of the scientific staff involved in the projects can only be realized if there is no danger that scientific scrupulousness will be compromised for reasons of public acceptance. Any idle compromise, any unsuitable modification of the disposal concept for the sake of short-term applause from politicians or media will be paid for dearly later since, in the long run, emotions subside but natural laws remain valid.

It is therefore necessary to integrate a "code of ethics" into the public acceptance work connected with the waste management program. Such a code might consist of the following rules:

- Safety of final disposal and other steps in the waste management process have top priority. Absolutely no concessions to public opinion may be made if these would compromise the safety requirements.

This can be illustrated using the following example: In Switzerland, the opponents of nuclear energy began to discredit final disposal as being unsafe since it is not controlled. The public consequently demanded "controlled" final disposal which would - in the final consequence - also mean "retrievable" disposal. Irrespective of public opinion, no special provisions for later retrieval of the waste are foreseen in Swiss disposal projects since these could prejudice the long-term safety goals. Retrieval of the waste after closure is not envisaged but it may still be technically possible, albeit at considerable expense.

- The present values of society must be respected. The public must receive the necessary information, but we

should not aim to "enforce happiness on society" from a position of "we know better". However, we should inform the public of all possible effects of the political decisions and try to prevent decisions which would lead to irreversibly negative effects.

It is e.g. not the task of a waste management company to promote nuclear energy (nor to fight against it). The decision for or against nuclear power, for or against reprocessing etc. must be left to political forces. Similarly, the politicians must accept responsibility for politically caused delays in the repository realization programs and the additional financial costs. But the public can, and must, be openly informed about these situations.

- The public must be informed correctly and openly. Oversimplifications and playing down of safety issues must be avoided, even when faced with exaggerations of danger by the opponents.

However, we have to accept that we live in a "push-button society" where everybody knows his world only up to next control element, without understanding the mechanism behind it. It is absolutely impossible to educate the general public or even a few opinion leaders to the stage where they would fully understand the technical concepts behind radioactivity, waste management etc. The method of informing the public must take account of this.

- When two technical options are available which are equal from the point of view of safety, it is correct to adopt the one with better public acceptance. If society prefers a more expensive option (and is willing to meet the costs), that is society's choice.

Final disposal of low-level waste in Switzerland may be cited as an example of this maxim. Since there are no unpopulated areas in Switzerland, and since Swiss Federal Law specifies that the safety of disposal may not depend upon supervision of the repository, no shallow-land burial has been foreseen, even for short-lived low-level waste. Instead, the much more expensive option of geological disposal in a mined cavern system with access through a horizontal tunnel was selected as the best way of meeting the requirements and ensuring the necessary public acceptance.

These rules have proved valuable for balancing the interests of scientists against those of communication experts. They leave enough space for efficient public relations work and allow the technical staff to act in a professionally ethical manner.

#### PERCEPTION OF WASTE PROBLEMS BY THE PUBLIC

Before discussing the second question, i.e. the one of efficiency of public relations work, the image of waste management held by the general public will be discussed. Here

also, the situation is often different from what technical experts would expect. A socio-psychological study carried out in Switzerland in 1989, as well as other experience gained in the past, has yielded interesting results, a few of which are summarized in the following:

With regard to waste in general, the public regards waste management issues as important and not yet solved. Nevertheless, the unwelcome problems are repressed and rationalized by diffuse expectations that "future technology will solve them" somehow. In view of the current widespread criticism of "high" technology, this optimism is somewhat unexpected.

The same is true for radioactive waste. Despite his consumption of electricity (in Switzerland up to 40 % nuclear), the "man in the street" does not regard himself as a "producer" of this waste and does not feel responsible for its management. The problem remains repressed, a real awareness occurring only in the case of a direct confrontation (i.e. when a particular region has been selected as a site for NAGRA's field investigations). Here also, the view predominates that the disposal problem is not solved. This is supported by the fact that NAGRA (and other organizations) are "still working and working", and that the reporting in the media "never says anything positive" about radioactive waste.

Disposal in final repositories is not considered as a solution to the waste problem - there is an expectation that future technology will provide a "means to destroy radioactivity" (in the sense that chemical toxicity can be destroyed by burning the waste down to non-toxic components), a "means to shoot the radioactive waste to the sun", etc. Hence, final disposal is not considered as "final" and, from this, the demand for retrievability arises.

Another surprising result is that there is very little credit given to nature from the point of view of safety. Nature is considered as unstable and unreliable (i.e. earthquakes, tornados), human organizations being accepted as more trustworthy. The argument that geology is much more long-lived than even a state or a church carries very little weight. Here again, there is little psychological understanding of the concept of a "final" geological solution to a problem which - in the eyes of the public - can only be solved by a superior technology. The old ethical imperative stating that our generation has the benefit of the use of nuclear energy and hence our generation must solve the problem of radioactive waste definitively and not leave it to our children is, contrary to all expectations, a weak argument.

Against all intuition - but in view of the technical ignorance of the public hardly surprising - is the fact that less safe solutions are often regarded as better ones. In Switzerland, e.g., the (geologically young and still active) region of High Alps is regarded as safer than the (populated !) Pla-



teau where the crystalline bedrock with its sedimentary cover is over 350 million years old. Despite its inherent safety, deep-sea dumping is considered a priori as unsafe and immoral. Plastics are considered to be a more effective technical barrier than concrete. Infinitely toxic inorganic waste such as heavy metals is not considered as longer-lived than short-lived low-level waste, etc.

Since - for the public - it is clear that "the problem is not yet solved and can only be solved in the distant future", any message about present solutions is considered as not being true, as playing down hidden dangers. On the other hand, messages about working towards future solutions ("We try hard !") are believed and accepted as positive. In Switzerland, e.g., the Federal Government demanded a project which offers a guarantee of feasibility and safety of final disposal as a prerequisite to the extension of operational licenses for nuclear power plants beyond the year 1985. This project - the so-called "Project Gewähr" - was submitted to the Federal Government by NAGRA on 23rd January 1985. Our scientists were proud of their internationally esteemed work, our safety authorities were satisfied to a high degree and the Federal Government accepted the project as a demonstration that safe disposal is feasible and that the continued operation of the existing nuclear power plants can be justified. The impact on the general public, however, was much weaker than expected, apparently because the project offered actual solutions - and not simply a process for finding solutions.

On the other hand, and inconsistently with the previous chapter, mere drilling and other field investigations are only considered as proof for the statement that "the problem is not yet solved". The best contribution to a positive image of NAGRA is provided by the underground rock laboratory at Grimsel. Obviously the combination of the laboratory work (it is not a repository, they are working hard !) in surroundings which look like a repository (they are not far away from the solution !) is positively valued by the collective subconscious of the public.

### COMMUNICATION PRACTICE

In a country as densely populated as Switzerland, available land is restricted. Land use is widely regulated and construction of major technical installations such as railways, hospitals, toxic waste incineration plants or facilities for nuclear waste disposal can therefore lead to conflicts of interest. This is particularly true when there is a widespread lack of acceptance of the facility in question by the population affected. Such conflicts can only be solved by a careful balancing of local, regional and nationwide interests, the price of which is a mass of legal regulations and costly licensing procedures.

In the field of nuclear waste management, the effect of these legal regulations is already apparent at the stage of

licensing the site investigations. For any exploratory borehole, NAGRA requires a permit from the Federal Government, permits from the relevant local community and Canton and the agreement of the property owners affected. In practice, it may take two to eight years to obtain all the licenses required. The time required for licensing depends on the extent to which the local public accepts the investigations. The lower the level of acceptance, the more individual citizens or groups will use all available legal means to cause delays right up to the last stage.

Given this situation, NAGRA places great emphasis on intensive communication with politicians and officials as well as with the local public and especially the landowners. Despite the politically unfavorable climate and the potential legal obstacles, by promoting public acceptance NAGRA has been able, in the last ten years, to drill seven deep boreholes at seven different sites in Northern Switzerland as a part of its regional investigations for the HLW repository, and to perform drilling work and geophysical investigations at three out of four potential sites for a LLW repository. During this time we have learned how to translate the code of acceptance ethics into practice, keeping in mind the perception of waste problems by the public. The main experience can be summarized as follows:

- Main goal is to gain confidence. We are not trying to "educate" the public or to improve its technical knowledge with regard to nuclear energy or radioactive waste beyond a fairly basic level. We try to convince by action, by open information about our work, our successes and our misconceptions, that we are trustworthy and that we are scrupulously taking account of the safety of the population.
- Never play down public fears. These are real and we have to understand them. The fear can only be overcome when the public is correctly informed - and this takes time. The messages must also come from a trustworthy source.
- Single actions are not enough - continuity is needed. The public has other topics of interest, the waste issue being only one which is more annoying than interesting. Therefore, we should be proactive - rather than reactive.
- Concentrate on local actions. The necessity of good contacts with the site population has already been stressed. The nationwide public must also be informed - but we should not forget that it is largely disinterested. It is the local public which is concerned and looking for information - and also more critical of our success.

Accordingly, we should establish good contacts with local authorities, with local opinion leaders as well as with any interested citizen. We should try to help to solve local

problems - those which are caused by our investigations and those which already exist. For instance, infrastructure facilities like access roads or sewage which are necessary for drilling can be realized in line with the interests of the local community!

- Show the local population that they are not alone. Help them to establish contacts with the authorities at other sites and to exchange experience with them. They potentially distrust us - if we have proceeded correctly at another site, we may obtain good references which will help the new community to trust us.
- Expose the public to examples of work already done. This is actually an amplification of the above point: We try to bring the public to our drilling sites while working, to our underground rock laboratory at the Grimsel Pass or to foreign waste disposal facilities (mainly France, Sweden, Finland). Looking at action is much more convincing than listening to a thousand words. Since it is rather expensive to move people to other sites or even abroad, we have to restrict the invitations to officials, political leaders, media representatives, local opinion leaders and similar persons.
- Personalize contacts and information. We have had the experience that the local authorities in particular like to have one or two contact people with whom they can establish good relations. Such contact people must be high enough in the management hierarchy and sufficiently technically in touch to have the necessary competence to make decisions. Also in the nationwide media, the presence of one or two personally responsible people is more important than anonymous press releases and statements.
- Focus on the waste management task. We have to realize that it is not the task of NAGRA to promote nuclear energy in Switzerland and we stay out of the socio-political controversies about this. Our job is to keep Switzerland clean from radioactive waste contamination, a job which must be fulfilled even in case of society deciding to phase out nuclear energy (as Sweden did, but nevertheless constructed the first European underground repository for short-lived waste. Even Austria, which dismantled its first nu-

clear power plant before start-up, has to construct a repository for LLW from medicine and research.)

As mentioned above, these maxims have helped us to perform various investigations by promoting confidence in our work. Of course, from a technical point of view, the work could have proceeded faster and smoother, but we realize that the time-consuming and often annoying legal procedures are the price to be paid for the existence of a pluralistic direct democracy of the Swiss type.

#### **CIVIC RESPONSIBILITY VERSUS NIMBY-SYNDROME**

A last comment will be devoted to the NIMBY effect. The NIMBY (not-in-my-back-yard) syndrome was first associated with nuclear waste management facilities but, at least in Switzerland, we realize that this aspect of welfare egoism is penetrating more and more into other areas of societal life - be it the construction of infrastructure facilities for other non-nuclear waste treatment processes, roads, railways, hospitals, senior citizen accommodation or homes for asylum-seeking refugees.

The technical civilization which provides our well-being also requires various common infrastructural facilities. Everybody knows that they must be constructed somewhere, but nobody is willing to accept them in his neighborhood. It looks as if we have forgotten how to solve problems in the affluent society. We can still agree on the diagnosis of a problem and the demand for a solution, but insurmountable problems arise as soon as a contribution from a region, from a community or from a specific population group is required.

Since this effect is no longer specific to nuclear energy or nuclear waste, more and more politicians have become aware of it, even from those political groups who oppose everything which is nuclear. In Switzerland we realize that, in the field of nuclear waste management (but certainly not for new nuclear power plants!), we are receiving more nationwide support from reasonable political forces, irrespective of their party origin. There is a well-founded hope that the necessary civic sense of responsibility will gradually replace welfare egoism - a tendency which would certainly help to speed up our work!