

The Swedish NGO Office for Nuclear Waste Review

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By Kenneth Gunnarsson

The Swedish program for final storage of high-level nuclear waste has attracted international attention. Without encouragement in the form of promised compensation or payment, two Swedish municipalities have competed for the privilege of hosting a final repository for one of the most hazardous waste Mankind has produced. Environmental organizations are actively involved in the process, and their work on the issue is financed, indirectly, by the nuclear power industry. The waste repository project has popular support locally; surveys indicate that about eighty per cent of the local populations are in favor. Today, the site has been selected, and next year the company in charge of the project will apply for a permit to start construction of the final repository.

In the following I will talk about our experience of the Swedish process and briefly sketch the project's background and some key factors and events in its development. I will also identify the players in the process, the playing field. Finally, I have some recommendations.

History, traditions and culture

Sweden is a relatively large country, but has a very small population. The bond between the people and the Crown, the national government, has a long history and is relatively strong. For several centuries we have been able to develop robust social institutions that enjoy a high degree of public confidence. We managed to stay out of the two world wars that ravaged most of the rest of Europe, and thanks to an abundance of natural resources we came to prosper. One may say that the gods have smiled on Sweden. Consequently, popular confidence in the democratic system, in public institutions and authorities is strong. Add to that a cultural bent toward consensus, compromise, pragmatic solutions and a general discomfort with disorder – and a strong urge to avoid conflict, perhaps even a certain fear of it.

Swedish environmental organizations find nuclear energy incompatible with the concept of sustainable development. We apply the same criteria to nuclear power as to any other form of industrial production. That is to say, we evaluate all the steps in the process: from uranium mining, through generation, to the treatment and storage of nuclear wastes.

Political crisis

The coalition government that ruled Sweden in the 1970s also shared this view. The problem of radioactive wastes worried them, and they introduced legislation, known as the *Conditional Act*, whereby permission to operate several newly constructed reactors was made conditional on a demonstrated ability to deal with nuclear waste in an entirely safe manner at the safest possible place.

Under severe pressure from the industry and certain members of the coalition, rather than to compromise, the Government chose to resign. The succeeding Government declared in 1979 that the problem of nuclear waste storage had been solved. They referred to a purely theoretical study of deposition in bedrock. In support of their conclusion they referred to a determination issued by one of the then two regulatory agencies, the Swedish Nuclear Power Inspectorate. It stated: "*the importance of bedrock barriers should not be exaggerated, provided the other barriers are functioning satisfactorily*".

In effect, the Inspectorate's statement implied an unequivocal choice of method and opened the door to a siting process that was to be guided by other factors than the safest possible bedrock formation.

The determination also clearly revealed the objective of the entire exercise, namely, to solve the Swedish power industry's problem regarding wastes so that the country's nuclear power program might get back on track. Finding the best possible solution to a very serious problem for current and future generations was no longer the prime goal.

The difference – addressing the problem of waste management in the context of an industrial project OR addressing it as a national environmental problem having long-range consequences for the entire nation, is crucial.

It is reflected in the different actors' attitudes toward the project, in how they approach the choice of method, in their interpretation of different terms and guidelines, in their ideas about what should be included in the application and environmental impact statement, et cetera, et cetera.

Who is responsible?

As a consequence of the Inspectorate's determination, a piece of legislation known as the Nuclear Technology Act was introduced in 1984. The law placed all responsibility for the nuclear waste storage project and the process leading up to it in the hands of the nuclear power industry. This is probably the one factor that has had the strongest influence on the Swedish process, the one single factor that explains why it is what it is. It is also the key to how the Swedish process has been able to proceed in, by international comparison, a singularly rational fashion. Much smoother than processes steered by political bodies, for example. But there are also some serious drawbacks, to which I will return.

The Dialogue Project

The going has not always been smooth, however. Wherever the waste management company SKB went in the 1980s they met with demonstrations, occupations, police interventions and arrests, negative publicity and, ultimately, criticism from the Government for the company's high-handed manner vis-à-vis local residents and authorities.

The Swedish Nuclear Power Inspectorate, the regulatory body stepped in and tried to improve the situation by creating a forum for dialogue between the various interests involved. They initiated something known as the Dialogue Project, the aim of which was...

"in the period leading up to an application for a permit to build the repository for storage of spent nuclear fuel, to develop a procedure that would inspire confidence in it on the part of most concerned parties".

The waste management company declined to participate.

One of several conclusions of the Dialogue Project was that local governments and NGOs involved in the issue need economic resources to help them develop the competence they need in order to be able to make independent judgments.

The company chose to ignore the conclusions of the Project and in the 1990s set off on a course of its own, based on voluntarism and local acceptance. They invited municipalities to participate in so-called exploratory field studies.

Of the twenty-two local governments that initially expressed interest in collaborating, two were eliminated due to unsuitable geological features, whereas eighteen withdrew for mostly political reasons. Two municipalities finally remained; both host nuclear power plants.

A new Environmental Code

In 1998 Sweden adopted new environmental legislation, which has as its overall objective, sustainable development. The Code requires analysis of the environmental impact of the project, use of the best available technology (BAT), and the selection of the best, most suitable, site. The Code also stresses the importance of participation of what in Europe are referred to as "civil society organizations", that is to say, democratically organized groups of open membership that have a demonstrated interest in the question at hand.

The Swedish nuclear energy industry was first assessed according to the Code in 2005, in conjunction with an application on the part of a power company to upgrade, or increase the output capacity of reactors at Ringhals. The application was denied on the grounds that nuclear energy was not compatible with the overall objective of the Code: sustainable development. The Court held forth three aspects:

- Nuclear energy can result in unacceptable consequences for the general public in the event of an accident;
- Nuclear technology wastes energy; and
- The problem of nuclear waste storage has yet to be solved.

The issue was subsequently referred to the Government, which overruled the finding of the Court, referring to the importance of nuclear energy to Swedish society. Nonetheless, the finding of the Court naturally inspired some worry as to how the Court will receive the application to build a final waste repository.

The EIA process

Reconnaissance studies in the two "finalist" municipalities commenced in the 2000s. Through information to residents and generous sponsoring of cultural events and sports teams, etc., the company "marketed" the project.

From the company's point of view neither NGOs nor politicians are very sure partners in the siting process. Instead, the company has invested its energy in establishing positive relationships with the public at large and with those whose homes are closest to the project. The aim has been to build acceptance of the project that is strong enough to influence the politicians.

Just how residents were to be involved in the process was left to the discretion of the municipalities.

Oskarshamn hired a consultant to develop a good relationship between the project and the public. They chose a model /[Riscom](#)/ that involved interested residents directly in the work of the local organization on a par with their elected representatives.

Östhammar adopted a more passive strategy. Initially, the municipality tended to see the project as any run-of-the-mill industrial establishment. The only things they asked were (1) that they be kept informed of all developments in the project, and (2) that the municipality's budget should not be involved in the project in any way.

In time, the two municipalities joined forces in order to get more out of the nuclear waste project. They sought to avoid a situation where one of them would be the winner, the other the loser when the company eventually made its choice.

Funding for NGOs

A formal EIA consultation process started in 2004 under the leadership and control of the waste management company. The Ministry for the Environment was well aware of the issue's political "charge" and recognized the value of public confidence in the project. The Ministry initiated a study to explore ways by which the conclusions of the Dialogue Project might be implemented. The study recommended an amendment to the law that governs the Nuclear Waste Fund.

As a result, starting in 2005 money from the Fund could be made available to qualifying civil society organizations to support their participation in the EIA consultations. Only the waste management company and the power companies opposed the amendment.

In May of this year, 2010, the waste company unilaterally ended the consultations, against the wishes of the municipalities and environmental organizations. In truth the consultations had not engaged very many members of the general public, and the meetings were more a question of one-sided managed communication on the part of the company than of true consultation. This assessment has been confirmed in academic studies of the process.

The playing field

There were only provocative drillings and no open process so ever during the 1980s.

The field studies of the 1990s were all conducted by means of negotiations between the waste management company and the executive committees of the local governments. In only a few of the eight municipalities were there any organized participation on the part of civil society organizations.

Only in the 2000s when more detailed siting studies were conducted in the two candidate municipalities and with the initiation of EIA consultations was there any formal dialogue with the public and organized NGOs.

You can say there have been two different arenas; one controlled by the waste company, where we have been talking about the labor-market, opportunities for local industries, infrastructure, some about dust, noise and frogs etc. and another arena where other actors played. Interested individuals and groups have been invited to participate in a number of conferences and seminars where we have been talking about long term safety, BAT, alternative methods etc. All have also been invited to submit comments on various reports issued by the actors over the years.

The thirty-year process has meant a prolonged effort and demanded considerable perseverance on the part of all the actors involved. Those still participating, aside from the company, are groups and institutions that are dedicated, either by statute or interest, to monitoring the project. We have become a bit like "family". We are all familiar with one another and with each other's views. And as a family we tend to close the door behind us, leaving the public outside

The actors

The nuclear power companies

Swedish, Finnish and German power companies own the Swedish nuclear power plants. The owners set aside 1 Swedish öre, or 0.15 [zero point fifteen] cents per kilowatt-hour to the Nuclear Waste Fund so as to guarantee the financing of the entire nuclear waste management project.

SKB – the Swedish Nuclear Fuel and Waste Management Company

The company is jointly owned by the Swedish nuclear power industry.

SSM – the Swedish Radiation Safety Authority

The regulatory authority sets out statutes, rules and guidelines for nuclear installations; it monitors all radiation protection and safety measures and equipment.

SSM has maintained a low profile with regard to the waste storage project; they do not wish to get too involved in an undertaking that they will be called upon to examine later in the process.

The Swedish National Council for Nuclear Waste

The Government's scientific reference group consists of senior scientists from a number of disciplines. The Council evaluates the progress of the project, publishes independent reports and arranges seminars. The role of the Council is somewhat unclear today, and its ties to the Government are relatively loose.

The Regional Councils

Are collaborative organs for municipalities in the two counties, for the purpose of regional development. They are in no way charged to examine the project critically and have supported it without reservation.

The County Administrative Boards

Are arms of the central government that operate in the counties. (Swedish counties are larger than their American counterparts, they are more on the order of provinces.) Formally, they represent the national government in the consultations. In principle, they have a coordinating role, but they have delegated that responsibility to the waste management company.

Municipalities

The two local governments have since long time ago a partnership with the nuclear industry and now they have entered a new with, therefore, the waste management company. At the same time they strive to maintain their integrity as evaluators of the project. Each has devised its own structures to involve the public in the consultations and to keep elected officials abreast of developments.

Environmental organizations

A handful of local environmental organizations take part in the municipalities' organizations. At the national level, they are organized in two umbrella organizations, MKG and Milkas, which were formed in order to qualify for funding out of the Nuclear Waste Fund.

The umbrella organizations are of different size. The larger one, MKG, represents three organizations, 160 000 members all told, and receives 1.9 million [one point nine million] SEK a year (300 000 USD).

The public

Where are they?

Actor's self-interest

Naturally, each actor has its own objectives – pursues its own agenda.

Those that most distinguish themselves in this regard are the waste management company and the municipalities.

Both are clearly committed to the realization of the project. The waste management company is totally focused on gaining approval of its project and a permit to build, which in extension is also a prerequisite for permits to operate the power companies' reactors.

The municipalities' needs this project and the both leaders have expressed hopes that their community will be chosen.

As a consequence, none of these actors is particularly interested in reporting or otherwise calling attention to problematic aspects of the project, aspects that might endanger its realization. Inasmuch as the consultation process has been so tightly controlled by the waste management company, and political supervision has been delegated down to the municipal level, these actors' self-interest affects the conduct of the consultations. We have seen numerous examples of this kind of bias these past six years, since the EIA consultations got under way.

We environmental organizations, too, distinguish ourselves in that we have absolutely no self-interest in the project. That is, we have no stake in the choice of method or the siting. Our only objective is to try to ensure that the process allows the selection and execution of the best solution in terms of its performance and environmental impacts in the longer term.

We like to think that our particular role in the consultation process might be the reason why Swedish environmental law now calls for the involvement of environmental organizations in EIA and other evaluative processes. And why the authorities have seen fit to finance our participation out of the Nuclear Waste Fund.

One possible consequence of this "long haul", of the many years that we have been involved in the issue of nuclear waste management, may be that we have developed a certain expertise that sets us apart from the public at large. We may be perceived as just another bunch of experts or interest groups. Or, maybe the public has in a sense delegated the issue to us. These are two of many possible reasons why the public has shown relatively little interest in this important issue.

The findings of nationally representative "SOM" surveys show the levels of credibility accorded to different actors in public arenas. These and other studies have shown that the Swedish people have great confidence in the work of the environmental groups, and that is yet another reason why we should take part in the process; it is expected of us.

SOM-Institute (Society, Opinion and Media. University of Göteborg)

Confidence for stakeholders in the energy and nuclear issue

"How much confidence do you have in these groups when it comes to information about energy and nuclear power?"

	1986	1990	1995	2000	2005	2007
Scientists	81	87	81	87	82	81
Environmental organizations	57	61	71	59	60	64
Federal authorities	40	36	41	56	56	56
Government	52	36	39	42	38	42
Nuclear power industry	36	52	45	52	47	39
Journalists	16	20	28	29	31	27
Energy industry				29	24	23

The work of environmental organizations

As I noted earlier, there are some major presumptions and choices that have been made a priori in a non-transparent fashion relating to the choice of method. As a consequence we have, within the framework of the consultations, put a lot of time and effort into analyzing and pointing out flaws in the process itself and discussing their consequences.

We have especially worked hard to gain access to information and basic data from the industry – which are not covered by Swedish access-to-information laws, the so-called "publicity principle", for which Sweden is "famous" in the context of the European Union. As a result we know that some of the industry's principal claims regarding the reliability of the chosen method are based on studies of poor scientific quality, and in some cases, sheer presumptions.

The problems relating to the choice of method have also raised questions concerning the choice of site. Here we have observed how the company has successively adjusted the criteria of selection, from geological suitability toward popular acceptance.

Have we had any influence on the process?

The waste management company claims that they are today exactly where they planned to be. They say they have a comprehensive method and a suitable enough place. They have settled on a municipality where the political leadership wants the project and a solid majority of the general public favors it.

The project is roughly ten years behind schedule compared to the original plan, due to the friction surrounding the siting process in early years (*caused by*) and the opposition of the local residents and environmental groups.

The financing of environmental groups' participation in the process was evaluated after the first four years. The study found that the financial support had contributed to more active participation on the part of the groups and a rise in their knowledge of the subject. Furthermore, the question of a final waste repository had been examined from many more points of view, and, overall, the quality of the consultations had improved.

The support and our more active participation has heightened our status and facilitated contacts with other actors. We have developed a clearer profile as an actor in the process, which has led to more media attention. We have taken advantage of these opportunities, and the amount of press coverage we have received is second only to that accorded the waste management company itself.

Clearly, we have had some influence on the process. But the greatest challenge, is our ambition not only to take part in the consultations and risk serving as a sort of alibi, but to actually influence the project. Whether we have managed to do this is less certain. We will know for sure only when we have seen the application for a permit.

Once the company submits its application next year, we will have entered into a new phase, when it will be our turn to speak. When the company no longer controls the process, we and other actors will have more leeway. We will be able to submit our questions and objections to the court, and we will have the right of appeal. These things have been decisive for us from the start; they weighed heavily in our decision to take part in the process, despite the fact that our work would be indirectly financed by the nuclear industry.

Key factors

Over the course of the EIA consultation process, several factors have emerged that I would like to mention here.

Aims and objectives. How the different actors perceive the aim and objective of the final repository project influences their attitude to the project, and the attitude they bring to the table in the consultations.

The division of responsibility between the industry and elected officials at the national/federal and local/state level has to be made clear.

All issues should be negotiable.

Economic interests. Benefit packages and other economic considerations affect the process.

Participation in the process has to be coupled with a real possibility to have some influence on it.

Financial support to participating organizations is necessary to allow them to develop the competence they need, to be able to make independent judgments.

A few recommendations

And on the basis of these observations I have a few recommendations

Make sure that the aims of the project and the consultations are clearly defined.

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s it all about a waste disposal problem for the nuclear industry, or is it a broader environmental problem that poses a challenge to the whole of society?

Is spent nuclear fuel to be considered waste, or is it a potential resource? Wanting to store something away, out of reach, leads in one direction. Wanting to keep it isolated, but accessible leads in another as regards choice of method.

What agendas guide the respective actors in the process?

Are the agendas compatible in any respects?

What aspects are non-negotiable?

The method? The financing? The timetable?

Maintain a clear distinction between the process and the project.

A frank and open process leads to a proposed solution that more people can believe in.

Design the process in mutual agreement from the start.

Bringing people into a pre-packaged program, where everything has already been decided, cannot produce the best results.

Models of participation

A process that rests on the notion of "safe space" allows the participants to broach issues without having to reach agreement.

Partnerships between industry and local governments are a common model in European processes. Such arrangements give leeway to actors with strong interests in the issues at hand, which can inspire less confidence in the project and weaken popular support for it.

Economic compensation

Financial incentives should be settled early in the process, as economic considerations affect the recipients' attitudes and behavior.

Who is in charge?

EIA consultations that are chaired by a "disinterested" party, which means an actor or institution that is independent of the industry, fosters greater confidence in the project and greater enthusiasm for it. It also produces a better basis for decision-making.

In no way does this relieve the company of its responsibility for the contents of the environmental impact statement.

Access to information

All relevant information should be made available to participants in the process, including the data and reasoning that underlie the industry's decisions.

Legal recourse

Organizations that represent the public should be able to call upon the court to examine policy, decisions, and interpretations of the law, etc.

Some more from earlier presentations

The Nuclear Waste Fund

The Nuclear Waste Fund is a government agency that was created 1982 to ensure the long-term financing of nuclear waste management. The Fund receives money from companies in the nuclear sector, manages the capital and pays out money to the project.

Funds accrue, not from the Treasury, but from the nuclear power industry, which pays about 0.01 SEK (0,15 cents) for each kilowatt-hour of electricity the Swedish reactors produce.

To date the nuclear waste storage project has cost 35-40 billion crowns (5-6 billion USD).

The current balance in the Fund is 43 billion crowns (6 billion USD)

The total cost of the project is currently estimated to reach 110 billion crowns, or 15 billion dollars.

Funding for NGOs

In 2004, the Ministry of the Environment proposed an amendment to the law that governs the Nuclear Waste Fund. The amendment would allow civil society organizations to apply for money directly out of the Fund. The proposal was circulated for comment - a step in the legislative process in Sweden. Only the nuclear waste company, SKB, opposed the idea.

In order to be eligible for funding, organizations have to fulfill the criteria set for formal participation in legislative processes; have existed three years, be democratic, and have at least 2000 members.

Few of the organizations were large enough to qualify, but the lawmakers removed that hindrance by allowing *coalitions* of organizations to apply. This is the background to MKG.

The money made available to us NGOs may only be used for participation in the nuclear waste project - not, for example, for propaganda on, say, the future of nuclear power as such. Without it, we would hardly have been able to take any active part in this decades-long process.

This arrangement is unique in Sweden. There are no corresponding provisions relating to other environmental issues.

The motive behind it is not some sudden stroke of generosity on the part of the government. It was a strictly pragmatic strategy to resolve the conflict that the nuclear waste issue had triggered.

The funds began to be paid out in 2005. The program was evaluated in 2009. The findings were positive:

- NGOs had become more actively involved,
- Levels of knowledge had risen.
- Not least, the issue of nuclear waste management had received more 'all-round' treatment, and the quality of consultations had improved.

After that, the funding arrangement was extended through to one year after the Environmental Court has made its recommendation.

It should be noted that there is no provision for NGO participation in the Court's consideration of the industry's application, or for possible appeals of the Court's decision later on.

Today, three coalitions of NGOs share an annual allotment of 430 000 USD. MKG receives 2/3 of the total.

This sum may be compared with the 700 000 USD the host municipality receives, and the 360 000 USD that the Uppsala Regional Council receives to advertise the final repository project as a motor for industrial development in the region. There are no conditions attached to how these latter groups use the funds.

The subsidy has had several positive effects:

- It enables us to cover the costs of our volunteer members, who attend meetings, etc.
- We have been able to hire permanent staff, which can process the flow of documentation that the project generates.
- As a consequence, we have learned more and come to the meetings better prepared.
- The documents we have submitted over the years have become better, too.
- Our knowledge has given us recognition; journalists turn to us.
- And our status overall has been boosted.

The Swedish project from a local NGO point of view.

The issue of a final waste repository has two distinct dimensions:

- It is a major industrial undertaking, and
- It involves a complex of severe environmental impacts, some potential, others inevitable.

The former aspect – jobs, infrastructure, city planning, etc – is the special concern of local government, whereas we as an environmental organization focus solely on the environmental hazards and impacts. In contrast to the nuclear waste company, SKB, and local politicians we have no material interest in a repository being located here in Forsmark. That gives us a substantial degree of freedom when it comes to assessing the plans for the project.

The project involves storage of some of the most hazardous substances human beings have produced (SKI [Swedish Nuclear Power Inspectorate], 2009). The hazards are of two kinds:

- Radioactive materials can contaminate and spread in the natural environment; and once in the environment they can harm human health.
- Secondly, there is the risk that fissionable materials will fall into the wrong hands.

An additional dimension – one that makes the project quite unique – is that the waste remains dangerous for such a long time. What we choose to do today will affect nature and people for millennia to come. In other words, the task implies an ethical dilemma much akin to the problematic of climate change.

Thus, the choice of method is crucial.

In this context we speak of multiple barriers. Technical barriers and the bedrock itself are decisive factors that affect the choice of method and the localization or siting. In recent years researchers have identified a third 'barrier' that is vital to long-term safety, namely, the social barrier.

The key to this social barrier is confidence. Public confidence in the project is decisive for whether, and how well, awareness of the repository and the hazards associated with it will be communicated to coming generations. If members of the community have confidence in the chosen solution, they will also be better prepared to ensure that it is monitored and protected. Thus, confidence is a key factor.

There are primarily two things that might arouse concern and reduce public confidence. One is the risk of leakage and radioactive contamination from the repository. The other is the risk that someone may deliberately try to get into the repository. These risks are the two key foci when environmental groups assess the project.

One of the most central documents in the coming application for approval of the project is the EIS, the Environmental Impact Statement. SKB published a preliminary version of this document earlier this year. The contents of that document leave the impression that there are still considerable factors of uncertainty and unaddressed risks on these two points, radioactive leakage and penetration.

The unfathomable stretch of time the project encompasses means that uncertainties are inevitable. Therefore, we are especially interested in how SKB has dealt with factors of uncertainty in the project.

We in the environmental movement believe that the choice of method must be made on the assumption that the repository will leak radioactivity to the surrounding environment. Sooner or later. Therefore, it seems reasonable that the industry should choose a method that is 'forgiving'. That is, a method that allows for error, for deviations from the plan, with the least serious environmental impacts.

This is the reasoning behind our demand, and the recommendation of the National Council for Nuclear Waste, that SKB explore the deep borehole solution more extensively. Enough so that the environmental consequences of the two alternatives may be assessed and compared.

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