

Same, Same but Different - A Comparative Perspective on Participation and Acceptance in Siting Procedures for HLW repositories in France, Sweden and Finland

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Abstract: *This paper compares national approaches in Finland, Sweden, and France. These three EURATOM Member States are in an advanced stage of siting deep geological disposal (DGD) facilities. The procedures in these countries are largely based on voluntarism, but differ in their approach to public consultation as they were based on the so-called staged volunteer process leading to working partnership arrangements between the operator and the hosting communities and veto rights (Sweden), decisions with strong local community support and veto rights for municipalities until the final decision (Finland), and final top-down decision making after consultative processes (débat public) with the affected communities without veto rights (France). This presentation focuses on participation and acceptance issues; it analyses the different modes of governance with diverse conditions regarding transparency, trust, communication, and participation that have been at work. Moving beyond the fact that variance exists with regard to the relevant national institutional, legal, cultural, industrial, and energy frameworks, the authors take evidence from national case studies and look for common patterns.*

1 Introduction

Deep Geologic Disposal (DGD) has been indicated for a long time by a large majority of scientific and technical experts — and endorsed by national governments — as the most adequate way of disposing highly radioactive waste (HLW). However, the paradigm of DGD has started to erode. The ENEF-Working Group "Risks" (2009:3) claimed that "[...] it is nevertheless recognized that there are diverging views in some groups and that there are remaining concerns in the public about geological repositories". Although the advocates of permanent closure of wastes in DGD continue to be numerous, reversibility and retrievability (R&R) is now seen as a more "prudent approach" (NEA/OECD 2012:3). Nowadays, the R&R option is included in several national waste disposal concepts as a possible way to adjust to progress in science and technology and to respond to societal pressures.

People, regardless of their views of nuclear power, realize that radioactive waste needs to be disposed of. In most countries, the debate on siting criteria is no longer confined to the scientific and techno-political spheres, but involves stakeholders, including civil society. However, nuclear waste governance varies from country to country. Various actors and factors, such as the nature of the political and legal systems, formal and informal rules and procedures, political constraints, geographical conditions, technical skills, the stock of knowledge, degrees of public acceptance, and a country's nuclear history can shape siting processes. The way in which competing information and knowledge is processed and put to use by different actors and in different political and cultural contexts plays also an important role. Certainly without knowledge about geological formations and their corresponding morphologies and hydrological conditions no siting selection would be possible. But the process that leads to a selection of clay, salt or granite as host-rock for DGD is hardly only technical and we witness a shift from "geology" to "political geography".

Under the Directive 2011/70/Euratom, Member States are required to establish, implement, and keep updated “national programs” for the management of spent nuclear fuel (SNF) and HLW waste by 2015. The state of implementation of the EURATOM directive at the national level varies considerably. In most Member States legal and institutional frameworks are now in place. Licensing requirements and procedures for site selection and safety criteria have been established, and the responsibilities of stakeholders defined. The major actors involved are: waste producers, waste management organizations, regulatory authorities, civil society, and policy makers at the national, regional, and local levels. Amongst the EURATOM countries, only Sweden, Finland, and France are in an advanced stage of planning and/or implementation of a DGD facility. These are the cases analyzed in the following sections.

2 Common patterns and diversities

The management and governance of spent fuel and radioactive waste in Finland, Sweden and France present a number of similarities, but also marked differences. All three countries have nuclear programs. In Sweden ten reactors are presently in operation, providing about 40% of the nation’s electricity. In Finland, there are four reactors which make up approximately 30% of its domestic electricity. Olkiluoto 3 (European Pressurised Reactor-EPR) has been under construction since 2005 and two new reactors were approved by parliament in 2010. France counts 58 nuclear reactors, which provide approximately 75% of its domestic electricity. Moreover a new reactor, Flamanville 3 (EPR type), has been under construction since 2007 and another reactor (Penly) has been approved.

Amongst the three countries there are some similarities in the subdivision of responsibilities between waste producer and the waste management organization. There is also a common functional separation between “operators” and “regulators” in charge of overseeing safety requirements and standards. Differences are most prominent with respect to the ownership structure of the implementing organizations, which are state agencies (France) or in private hands (Finland, Sweden). There are also differences in the host rocks chosen for the geological disposal, i.e. crystalline rock in Finland and Sweden and clay in France. For the system of financing, the ‘polluter pays’ principle is usually applied. All three countries can count on specific disposal funds which cover the financing of a wide spectrum of tasks, ranging from feasibility studies to decommissioning and to operating costs.

The siting procedures, mostly based on volunteer processes, had unique outcomes in each country: partnership arrangements between the operator SKB and the hosting communities and veto rights (Sweden); decisions with strong local community support and veto rights for municipalities till the final decision (Finland); and final top down decision making after some consultative processes (débat public) with the affected communities (France) without veto rights. In France, the final decision on site selection is subject to the outcome of a public debate; however, it is not binding and has been boycotted by opponents. The sites in Sweden and Finland are “nuclearized,” as nuclear facilities exist within the municipality or in the neighborhood, whereas in France the designated site already hosts an underground research laboratory (URL). Moving beyond the fact that variance exists with regards to the relevant national institutional, legal, cultural, industrial, and energy frameworks, we take evidence from national case studies (Mez et al. 2014) and further analyze it to reveal common patterns and differences.

2.1 Finland

Finland has attracted worldwide attention, as it has already started building a DGD. The construction of the Onkalo nuclear waste repository at Olkiluoto started in 2004 and the HLW disposal facility is scheduled to begin operations by 2020.

Onkalo construction is proceeding with very little public debate; the influence of non-governmental organizations has been limited (Lehtonen 2010). In fact, the siting process in Finland has been based on voluntarism. In 1983, a list of 101 potential sites for a repository was prepared and a consultation process with the affected communities was started. This resulted in the identification of five potential sites that “volunteered” to accept more detailed investigations; these were subsequently carried out in three sites. The respective interim reports were released in 1996. Six areas were analyzed for their suitability and a list of four candidate regions was selected. The EIA (environment impact assessment) regulations represented a very important step preceding the licensing process and can be seen as a major driver for initiating participatory planning processes. The need to ensure local acceptance was the major motive for the operator POSIVA’s adoption of a more dialogue-oriented strategy (Lehtonen 2010; Kojo et al. 2012).

Finland made use of the so-called Decision in Principle (DiP) process in which municipalities have veto rights. A positive decision by the local municipality and a preliminary safety appraisal of the disposal concept by the regulator STUK were required before the government decided on whether to build the repository (NEA 2010). Cooperation took place between the operator Posiva and the local councils with whom the negotiations were carried out. The final positive decision by the municipal council was taken after the submission of the EIA report by Posiva and the application for the DiP process to the government.

2.2 Sweden

Like Finland, Sweden has gained international attention for having found a solution for the disposal of radioactive waste. Its approach to the governance and management of radioactive waste and the legislation governing it is often seen as a model for other countries. The Swedish state takes the ultimate responsibility for the management of radioactive wastes. However, differently from many Euratom countries, the state has somehow shifted responsibility to the industry. This applies to management and final disposal, but also to the financing of all related activities and regulation. The Swedish concept for RWG thus places the whole responsibility on the owners and operators of the nuclear power plants (Kåberger and Swahn 2014). The nuclear industry has transferred this responsibility to their co-owned radioactive waste company SKB, which is in charge of RWM and the decommissioning of nuclear facilities.

Transparency and public participation are regarded as key elements of the safety of all nuclear facilities (IAEA 2006). The Nuclear Activities Act requests formal consultations with a broad range of stakeholders before a license application can be submitted. Sweden has already implemented Article 10 (on transparency and public participation) of the 2011/70/Euratom Directive and the regulator takes care of consulting stakeholders including environmental organizations while developing the program.

The current status is the outcome of a long process, one which started with nationwide test-drillings in the 1980s that resulted in widespread local protests. Original opposition led to a decision to turn towards a voluntary siting process in which all municipalities in Sweden were invited to host initial ‘feasibility studies’. After local referenda blocked potential sites in northern Sweden, the focus shifted to

communities already housing nuclear waste facilities. Two municipalities, Oskarshamn and Östhammar, both hosting NPPs, expressed interest and competed with each other to be the preferred site. As stipulated by environmental law since 2004, resources have been made available from the Nuclear Waste Fund to enable environmental groups and other NGOs to participate in the evaluation and public examination of Swedish RWM policy. The SKB decision for Forsmark in the municipality of Östhammar was made in 2009.

2.3 France

In France, the search for a site to host a nuclear waste repository started in the late 1970s. Site investigations conducted in the late 1980s generated intense local opposition, prompting the government to declare a one-year moratorium on the search for a site in 1990. After extensive consultation, the parliament adopted the country's first nuclear law in 1991 (Bataille Law), which reopened the search for a waste solution. The law also marked the beginnings of a more participatory approach to waste management policy. French legislation requires both retrievability of the waste packages and the reversibility of decisions concerning the project. In 1998, the village of Bure (89 inhabitants), situated in the Northeast of the country was first chosen as the site for an underground research laboratory (URL) for deep geological disposal; subsequently it was designated to host the final disposal facility.

The focus of the French participation procedures is on consultative instruments and – as in any infrastructure process – they include an “enquête publique” and a “débat public”. The first has an administrative character; the second is considered as more important, but its results are non-binding. The disposal concept was confirmed after a controversial public consultation process organized by the National Commission of Public Debate in 2005-2006. Environmental and citizens groups contended that the law passed in 2006 on the basis of the public debate ignored the fact that a portion of the citizens in the public debate in 2005 were against the DGD facility. In the case of the second *débat public* in May 2013, a grouping of citizens' initiatives, BURESTOP 55, called for a boycott. Consequently, the debate was continued on the web and comments could only be provided online. Three members of the commission disassociated themselves before the end report of the commission was completed. In Bure there is a Committee (*Comité local d'information et de suivi* (CLIS)), which consists of 90 members (state, regional, district & local governments, MPs, NGOs, environmental groups, Trade Unions, ANDRA, etc.) who work in several commissions, but its influence is limited.

The Cigéo repository remains a controversial project, which on the one hand captivates an economically declining region with potential socio-economic benefits, but on the other hand also generates many doubts and concerns, especially regarding possible negative impacts on local image and economic development (Lettonen 2014). Upon approval from the government and the nuclear safety authority ASN, the waste management operator ANDRA will start constructing Cigéo in 2017.

3 Participation and acceptance in comparison

Looking for a suitable framework to embed the three different cases in and compare them, we make use of the so-called “ladder of participation” (Arnstein 1969), as well as subsequent adaptations. In spite of being almost 45 years old and not immune from criticism, Arnstein's ladder — once developed to frame citizen involvement in planning processes in the USA — still represents an adequate heuristic tool. Its charm resides mostly in its simplicity. The eight types of participation are grouped under: non-participation (step 1-2); tokenism (step 3-5); and citizen power (step 6-8). The lower rungs are non-participatory and

include (1) manipulation and (2) therapy, and are characterized by plans to achieve public support by “public relations approaches”. The next step, (3), includes participation, but the information provided is unidirectional and no feedback is envisaged. Consultation (4) follows on the ladder and, in this step, instruments such as surveys, neighborhood meetings, and enquiries are used. This step is considered by Arnstein to be “window dressing”. In rung 5 (placation), citizens’ advice or plan, but decision makers ultimately decide whether or not to accept their input. It is only in the next stage (6), characterized by partnership, where negotiations are possible and decision-making responsibilities are shared, for example in committees. The next stages, 7 and 8, include delegated power, citizen control and opportunities for power sharing and (co-) governance, but are hardly realistic in the case of RWG.

M. Wiedemann and S. Femers (1993) built upon Arnstein's ladder and considered public participation in risk-related decision-making. Their ladder goes from (a) public right to know, (b) informing the public, (c) public right to object and determine the agenda, (d) public participation in defining interests and recommending solutions, and (e) public partnership in the final decision.

In the EURATOM countries, most of the participation procedures are limited to rung 4 (consultation) or are even at an inferior level of Arnstein’s ladder. Consultative participation processes are the most frequently used instruments; there are hearings where mostly experts, politicians, and NGOs take part and advisory committees where NGOs and other stakeholders have an important role. Amongst the countries analyzed, Sweden could be placed on scales 6 (Arnstein’s ladder) and e) (in the Wiedemann & Femers ladder) as it adopted a partnering approach. The procedure in France could be classified between steps 4 and 5 (Arnstein’s ladder) and between b) and c) on the expanded ladder. Finland has been often considered an example of a good balance between the requirements of fair representation and competent participation. NEA (2004) considers this to be one of the underlying elements of the partnership approach, which is linked to helping to achieve a combination of licensable site and management concepts with host community support and a balance between compensation, local control, and development opportunities. However, it has been observed that in Finland, there is no tradition of radical NGOs and there is a strong trust in local and official experts and a preparedness to let them negotiate agreements in their interest (Kojo et al. 2012, Litmanen 2009, Lehtonen 2010). Moreover, demand for participation appears to be limited. Against this background Finland could be placed between rungs 5 and 6 on Arnstein’s Ladder and between b) and c) in Wiedemann & Femers ladder.

We can speak of real, active participation starting from rung 6 of the the Arnstein ladder and c)-e) of the Wiedmann & Femers ladder. In order for the public to participate and exert influence, additional criteria need to be fulfilled. NEA (2010) puts forward criteria that emphasizes the importance of considering local interests, i.e. voluntarism and veto rights, and speaks of local partnerships. These approaches have the potential to increase local acceptance and build trust. Moreover, the stakeholders must be involved at the very beginning of the process; if a participatory process starts late, than these criteria cannot be fulfilled.

Transparency and access to information are a prerequisite in participatory siting processes that are on the higher rungs of the ladder, but the affected stakeholders should also be endowed with sufficient resources. This is the case in Sweden, where since 2005 some environmental organizations have received support from the nuclear waste fund. In France, the CLIS has a budget of 300,000 Euro per year for commissioning independent reviews of the program and hiring experts (NEA 2010). In contrast, in Finland only once, in 1999, have NGOs been financed by the Ministry of Trade and Industry.

According to the Nuclear Energy Agency, key elements of the partnership approach are — apart from voluntarism and right of veto — cooperation with local stakeholders in facility design and implementation and the provision of community benefits (NEA 2010). The provision of community benefits or compensations can manifest in several ways. It provides financial backing for the affected stakeholders to empower the generation of knowledge and expertise (capacity building) and allow citizens to participate. However, it can also hide forms of bribery and in a way, serve as a subtle manipulation (which would bring the process back to the initial rungs of the ladder). For this reason, it is important that compensation is settled only after important aspects, such as safety and security issues, have been sufficiently discussed, and not earlier. All three countries provide compensation and socio-economic benefits to the affected communities.

4 Summary – Lessons learnt

In the case of complex political issues such as RWG, the classical transmission mechanisms between politics and civil society are not enough; citizens want to influence political decisions. The processes leading to a site selection are unforeseeable and conflict ridden; they cannot be encompassed by a narrowly defined planning approach in which problems are defined, analyzed, and solved in consecutive steps. Especially because of changing requirements that are difficult to identify or anticipate and because of the many interdependencies at play, efforts to solve one aspect of the problem (whether societal, technical, or political) may end up creating new problems. Key conditions for an inclusive approach are access to information, early involvement of the affected population and stakeholders, openness for unforeseen results, inclusiveness of the process and compensation. In voluntary approaches, negotiated mechanisms to compensate the affected communities have played an important role. Proper provision of resources for local capacity building, including support for NGOs, is a factor which enhances engagement, increases public confidence, and possibly helps the quality of decision-making. The support of potential host communities, however, cannot exclusively rely on compensation which is expected to be commensurate to offset the potential detriments of the project. Another key element is trust in the institutions and preparedness to delegate negotiation agreements to them, as this is perceived to be in the community's interest. However, this also implies that local authorities are capable of negotiation in this circumstance, and this depends on the capacity building support that they received in the process. Moreover, this is not only a political factor, but also an especially influential cultural factor. In France, the population is said to mistrust the political elite; in Sweden and Finland there is a consensual approach.

Although participations strategies are not completely replicable in other countries, lessons learnt from these contexts can help us avoid underestimating the influence of the participatory factor in the siting process. This is of critical importance, as such an underestimation could result in the further hardening of attitudes and lead to deadlock situations.

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References

- Arnstein, S. R. , 1969. A Ladder of Citizen Participation. *Journal of the American Institute of Planners*, 35(4), pp. 216-224.
- Auffermann, B. et al., 2014. A Final Solution for a Big Challenge. *The Governance of Nuclear Waste Disposal in Finland* in: Mez et al. (Eds), *Nuclear Waste Governance: An international Comparison*, Springer VS (forthcoming).

- Litmanen T. 2009. The temporary nature of societal risk evaluation: understanding the Finnish nuclear decisions. In: Kojo M, Litmanen T, (Eds). The renewal of nuclear power in Finland. Basingstoke: Palgrave Macmillan. 192–217.
- Litmanen, T., Kojo, M., Kari, M., 2010. The rationality of acceptance in a nuclear community. *Int J Nucl Govern Econ Ecol*. 3(1):42–58.
- Lehtonen, M., 2014. Megaproject Underway. Governance of Nuclear Waste Management in France, in: Mez et al. (Eds), *Nuclear Waste Governance: An international Comparison*, Springer VS (forthcoming).
- Lehtonen, M., 2010. Deliberative decision-making on radioactive waste management in Finland, France and the UK: influence of mixed forms of deliberation in the macro discursive context. *Journal of Integrative Environmental Sciences*. 7: 3, 175 — 196
- Käberger, T., Swahn, J., 2014. Model or Muddle? Governance and Management of Radioactive Waste in Sweden, Mez et al. (Eds), *Nuclear Waste Governance: An international Comparison*, Springer VS, Wiesbaden (forthcoming).
- Kojo M, Kari M., Litmanen T., 2012. Nuclear community considering threats and benefits of final disposal. Local opinions regarding the spent nuclear fuel repository in Finland. *Int. J. Environmental Technology and Management*, Vol. 15, No. 2, 2012.
- Mez, L., Di Nucci M.R., Brunnengräber, A., & Schreuers, M., 2014. *Nuclear Waste Governance: An international Comparison*, Springer VS, Wiesbaden (forthcoming).
- Nuclear Energy Agency (NEA), 2004. Learning and Adapting to Societal Requirements for Radioactive Waste Management – Key Findings and Experience of the Forum of Stakeholder Confidence, OECD, Paris, France.
- Nuclear Energy Agency (NEA), 2007. Fostering a Durable Relationship Between a Waste Management Facility and its Host Community. Adding Value Through Design and Process. NEA No. 6176. OECD, Paris.
- Nuclear Energy Agency (NEA), 2008. Moving forwards with geological disposal. OECD, Paris, France <http://www.oecd-nea.org/rwm/reports/2008/nea6433-statement.pdf>
- Nuclear Energy Agency (NEA), 2010. Partnering for Long-term Management of Radioactive Waste. Evolution and Current Practice in Thirteen Countries. OECD, Paris.
- Nuclear Energy Agency (NEA), 2012. Reversibility and Retrievability in Planning for Geological Disposal of Radioactive Waste. Proceedings of the “R&R” International Conference and Dialogue. 14-17 December 2010, Reims, France.
- Wiedemann, P., Femers, S., 1993. Public participation in waste management decision making: Analysis and management of conflicts. *Journal of Hazardous Materials*, 33 (1993) 355-368.