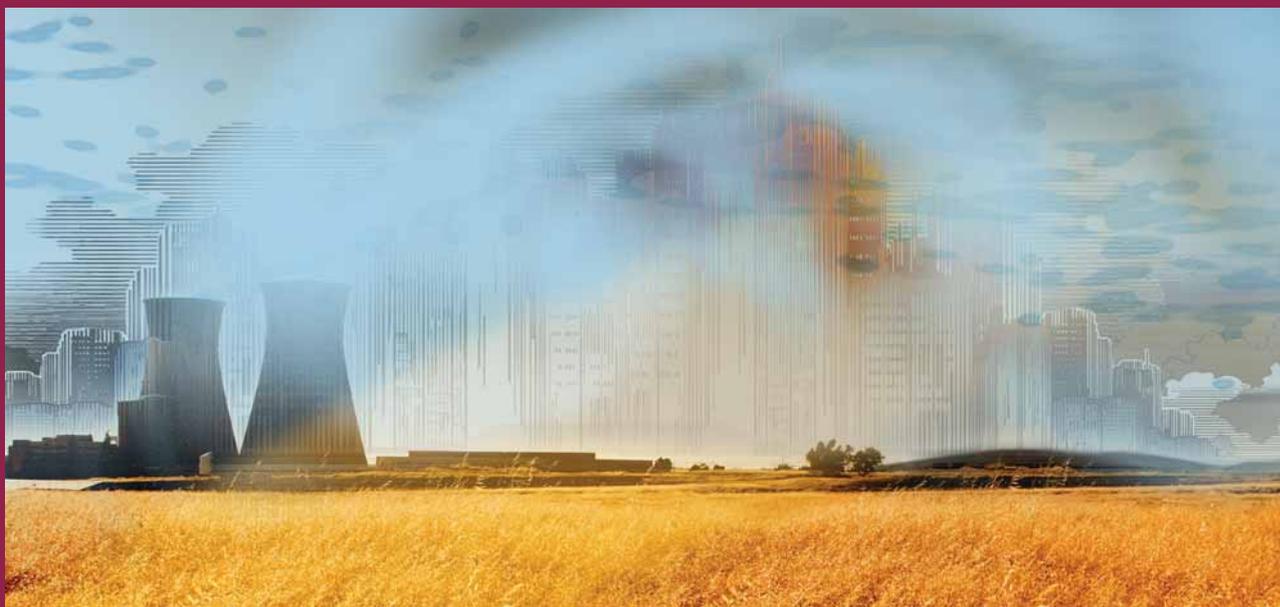


RAW Handling in Some EU Countries and Russia. Public Participation.

(Sweden, Finland, France, Germany, Russia)



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On the 16th of January 2017 the St.Petersburg public organization Environmental Rights Center BELLONA was included in the list of "non-commercial organizations performing the function of foreign agent" by the Russian Ministry of Justice.

TERMS AND ABBREVIATIONS

BUT RAO	— national operator for radioactive waste management (Russia)
DBS	— deep burial site
EIA	— environmental impact assessment
GHK	— Mining & Chemical Company (Zheleznogorsk, Russia)
HAW	— high-active radioactive waste
IBRAE	— Institute for Safe Development of Nuclear Power
LAW	— low-active radioactive waste
LRW	— liquid radioactive waste
MAW	— medium-active radioactive waste
NIIAR	— Scientific Research Institute for Nuclear Reactors (Dimitrovgrad, Russia)
NW	— nuclear waste
R & D	— research and development work
RAW	— radioactive waste
Repository	— storage site
RWDS	— radioactive waste disposal site
SHK	— Siberian Chemical Combine (Seversk, Russia)
SNF	— spent nuclear fuel
SRW	— solid radioactive waste
URL	— underground research laboratory

PREFACE

Almost every modern country faces problems with radioactive waste (RAW) disposal, as nuclear technologies are now used in many areas – power generation, medicine, science, defense, safety tools, etc. As a result of using these technologies, the world has accumulated about 250 mln m³ of solid RAW and an unknown amount of liquid RAW. Each country solves the problems of handling RAW (including disposal) according to its government's abilities and the amount of waste accumulated.

Currently the most common strategy for a long-term handling of the high-active and medium-active long-lived radioactive waste is deep geological disposal, which means the allocation of waste in geological formations at depths of several hundred meters. The idea of deep burial of radioactive waste came about in the 1960s. The repositories Morsleben and Asse-2 were built in salt mines in East and West Germany. Asse-2 is currently in poor condition and does not provide isolation of radioactive waste from the environment.

The world consensus regarding particular methods of deep burial has not been reached, and different countries prefer to explore burial possibility in different geological formations. For the disposal of high-active, long-lived and heat-emitting RAW and NW there are suggestions to use clay (France, Belgium, Switzerland), salt formations (Germany), or crystalline rocks (Sweden, Finland). In the United States the possibility of RAW disposal in deep boreholes at a depth of 3-5 km is under active investigation. Alternatively, some are studying the possibility of a near-surface storage of RAW (The Netherlands) in the hope that new radwaste handling technologies will be developed in the future.

Unfortunately, it is not possible to use direct experimentation as a method to assess the reliability of a particular method of waste disposal. Since the goal is to isolate the waste for hundreds of thousands of years, real-time experiments are not possible and we have to rely on calculations and modeling of geological processes in a situation of uncertainty.

The general approach of European countries to the institutional solution for the problem of finding long-term and sustainable methods of handling RAW is the creation of a national body, independent from the nuclear industry, and an agency or company, controlled by the government, which is responsible for long-term radioactive waste management (eg. in Sweden there is a non-governmental company SKB under the supervision of the Ministry of the Environment; in Finland there is a non-governmental company Posiva, in France – the national agency ANDRA, in Germany – the federal body BfKE).

However, the technological choice of dealing with RAW and finding locations for repositories are the responsibility of national governments and (or) parliaments. At the same time both national legislation and the UNECE Convention "On Access to Information, Public Participation in Decision-making and Access to Justice in matters relating to the environment" (Aarhus Convention) require not only informing the general public about projects related to RAW, but to ensure public participation in the decision-making process.

In each and every country, the general public participates in discussions on RAW handling and tries to influence (with varying degrees of success) decisions made by governments and companies involved in RAW handling processes.

This report reviews some practices of public participation in decision-making concerning RAW disposal in five EU countries and Russia. The report's authors were involved in a research project on public participation practices, supported by the EU-Russia Civil Society Forum, the Public Council of Rosatom State Company, the German-Russian Exchange and the BELLONA Foundation.



SWEDEN

Sweden currently operates 10 reactor units. The Swedish Government’s policy doesn’t imply any use (reprocessing) of spent fuel unloaded from reactors. Thus, Sweden regards spent fuel as nuclear (radioactive) waste. As of late 2015, Sweden has accumulated about 12,600 tons (20,000 m³) of spent fuel. According to the government’s policy, spent fuel unloaded from reactors must be kept within onsite storage and then sealed inside crystalline rock.

Sweden has also accumulated 15,000 m³ of long-living LAW and MAW, and 155,000 m³ of short-living LAW and MAW. The country is planning to store long-living RAW in a geological disposal facility about 300 m deep underground. Short-lived RAW is stored near the Forsmark NPP about 60 m deep under the Baltic Sea bed.

Legislation and Responsible Authorities

Swedish legislation for RAW sealing and radioactive waste disposal sites (RWDS) is informed by the Environmental Code and a number of laws on radiation safety, planning, construction, atomic energy use, and funding.

Fig. 1 shows that the operator’s actions (the Swedish operator is SKB, shown in the center) on RAW handling are regulated by various legal norms. The operator’s abilities to work and carry

Engagement, Authorities and legislation

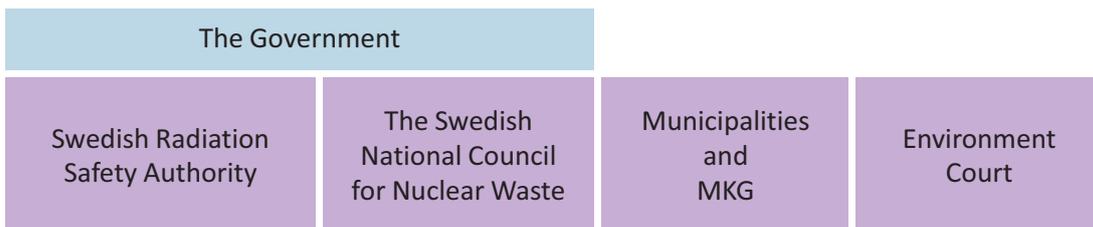


Fig. 1

out specific RAW handling projects are also influenced by decisions of the Government, the Environment Court, and municipal bodies.

The Swedish Government establishes national policies of RAW handling. The Government also issues licenses, defines payments to the RAW Fund and the dictates the amounts of financial assurance needed by licensees. License applications for RWDS construction are handled by the regulatory body for nuclear safety and human protection from the adverse effects of ionizing and non-ionizing radiation (SSM). The Ministry of the Environment prepares laws regulating RAW and spent fuel handling. The Swedish RAW Fund is a government body whose main purpose is to manage funds collected from NPP operators and is intended to cover the costs of spent fuel and RAW disposal projects.

Independent Science

In 1992, the Swedish Government created the Swedish National Council for Nuclear Waste (Kranafallsradet). The National Council is a group of scientists in natural sciences, technology, human and social sciences, funded by the Swedish Government. They research various topics concerning nuclear (radioactive) waste, as well as the decommissioning and dismantling of nuclear facilities. The National Council establishes recommendations for the Government and serves as a knowledge base for government agencies, municipalities, non-governmental organizations, mass media, and other stakeholders. In 2016, the National Council published a report called Risks, Uncertainties, and Future Challenges. Among other matters, this 167-page document reveals and defines the risks and uncertainties of Swedish RWDS projects related to earthquakes, prospects of long-term funding and monitoring of RWDS condition, and health impacts of radiation in small doses. Earlier, the National Council published reports on copper corrosion and bentonite clays erosion. Copper and bentonite clays serve as the primary artificial safety barriers in the project of deep geological disposal of RAW and spent fuel in clay-isolated copper canisters 500 meters deep in granitic rocks (the KBS-3 concept). The National Council revealed numerous uncertainties and unaccounted for risks that undermine the long-term safety of RAW and spent fuel disposal. Non-governmental organizations helped bring these findings to the general public, and now the Swedish Environmental Court is blocking the license until any uncertainties in the project's safety are resolved. Reports by the National Council, an independent research body acting by order of the Swedish Government, play an important role in decision-making on spent fuel and RAW handling. They also help to establish public opinion on nuclear and radioactive waste disposal projects.

Communities and Municipalities

In Sweden, RWDS construction is impossible without a municipal sanction. In all cases, a municipality is a stakeholder in decision-making. Therefore, municipal experts always review technical aspects; however, RWDS location and disposal technologies are chosen by the nuclear industry. Municipal experts are financially independent from nuclear industry companies because their work is funded by the Spent Fuel Fund. Thus, they are reasonably independent in project assessment. Municipalities and local communities hosting candidate sites for construction will get financial support, totaling ca. \$240 million when the project is completed.

Swedish municipalities have the right to veto government decisions to build RWDS on their land. This right is secured in the Swedish Constitution. A veto may be exercised either by voting in a municipality's representational body, or by local referendum. A municipality may use its veto for RWDS construction at any time until construction is begun. The Östhammar Municipality, hosting Forsmark NPP and a possible location of RWDS construction for spent fuel and HAW, held a vote

for detailed research to determine if RWDS construction is possible. A majority of residents (80%) voted in favor of such research. The municipality is currently planning to hold a local referendum on facility construction. The Government is able to override municipal vetoes, but it has never done so.

Non-Governmental Organizations

An NGO coalition for nuclear waste issues (MKG) actively works in Sweden. MKG is a coalition of five non-governmental organizations working on nuclear and radiation safety issues. The coalition is funded by the governmental Nuclear Waste Fund. Though MKG has just two full-time employees, it is influential both in Sweden and on the EU level. The MKG coalition focuses only on radioactive and nuclear waste; it doesn't express any opinion on the feasibility of nuclear energy use. When the Government and nuclear industry make decisions, it is most important that the general public controls the observance of fundamental principles, i.e. precaution and use of best available technologies, says Johan Swahn, the MKG's director. Swedish experience shows that a decision-making system well organized by the state, as well as public participation, make it possible to balance various interests and prevent the dominance of nuclear industry over all other stakeholders. Decisions are made in several stages, including scientific research to determine if it's possible to dispose RAW in a specific area and what may happen over the long term. For example, the RAW disposal site in Forsmark was chosen in 1976, while lab construction started later, in 1993, and the facility itself in 2006.

It is important to note that until it was finally decided to build RWDS in the Forsmark Municipality, the Government and the national operator were patiently convincing local residents that the project was safe and that construction has positive impacts. However, the biggest positive factors are new jobs for a part of Forsmark's residents, as well as revenues for the municipal budget. All participants in the project strictly observed all democratic procedures and Swedish laws, moving stepwise and not forcing the process. For example, the discussion of RAW containers lasted for several years, and no final decision has yet been made.



FINLAND

Finland is currently operating four reactor units. Like Sweden, Finland has adopted a strategy of direct RAW disposal, i.e. spent fuel is categorized as nuclear waste. As of late 2015, Finland has accumulated about 2,000 tons of SNF and about 10,000 m³ of RAW (LAW and MAW).

Radioactive waste (LAW and MAW) is buried 60-100 meters deep underground in deep disposal facilities in Loviisa and Olkiluoto. Spent nuclear fuel is planned for encapsulation and burial in a geological disposal facility 500 m deep underground in a solid rock at Onkalo site near Olkiluoto NPP. The Onkalo repository, currently under construction, is not projected to receive waste from the new Hanhikivi NPP in Northern Bothnia, now in early phases of construction. Fennovoima, the NPP's operator, is planning to build a new repository near Hanhikivi NPP, to solve the future waste problem.

Legislation and Responsible Authorities

A comprehensive program of radioactive waste management was launched in Finland in 1983, when the Finnish Government made a fundamental decision on SNF and RAW handling. In the same year, preliminary assessment started for sites potentially suitable for SNF burial.

In 1987, Finland adopted the Nuclear Energy Law which demands all nuclear waste produced in Finland to be stored and disposed of domestically. The same law strictly prohibits handling, storage, and final sealing of nuclear waste from other countries on Finnish land. All expenses related to nuclear waste handling are to be borne by NPP operators (SNF and RAW producers).

The Government issues licenses for nuclear facilities (including storage sites) and promulgates fundamental laws and regulations. RWDS sites are licensed after due procedures according to the Act on Environmental Impact Assessment Procedure (EIA 468/1994). The report on the facility's environmental impact is provided at least 6 months in advance of the license issuance. According to Euratom recommendations, the report must be provided to the European Commission.

The Land Use and Building Act (132/1999) prescribes the procedures necessary for land lot allocation. Regional maps and a layout plan of the RWDS facility for high-active RAW form a basis of land use plans, thoroughly developed on the local level, along with plans for construction and development. The facility must be surrounded with a 5 km safety belt, where land use is restricted. Specifically, the belt's population must not exceed 200 people; high population density is not allowed; hospitals or businesses staffed or visited by large numbers of people are not allowed in the belt. Any activities that can be affected by accidents on the RWDS are not allowed in the belt. In coastal areas adjoining seas or other water bodies, no construction permits are issued until a detailed plan of the area is provided.

The Ministry of Labor and Economy (MEE) oversees all activities related to RAW handling and R&D efforts. The Ministry also ensures that operators' activities are in line with the national policies. Together with the State Fund for Nuclear Waste Management, MEE ensures that there are enough funds for RAW handling activities in the future. The Nuclear Waste Management Fund is formed from Finnish operators' payments and is managed by MEE (see Fig. 2).

Division of responsibility for nuclear waste management

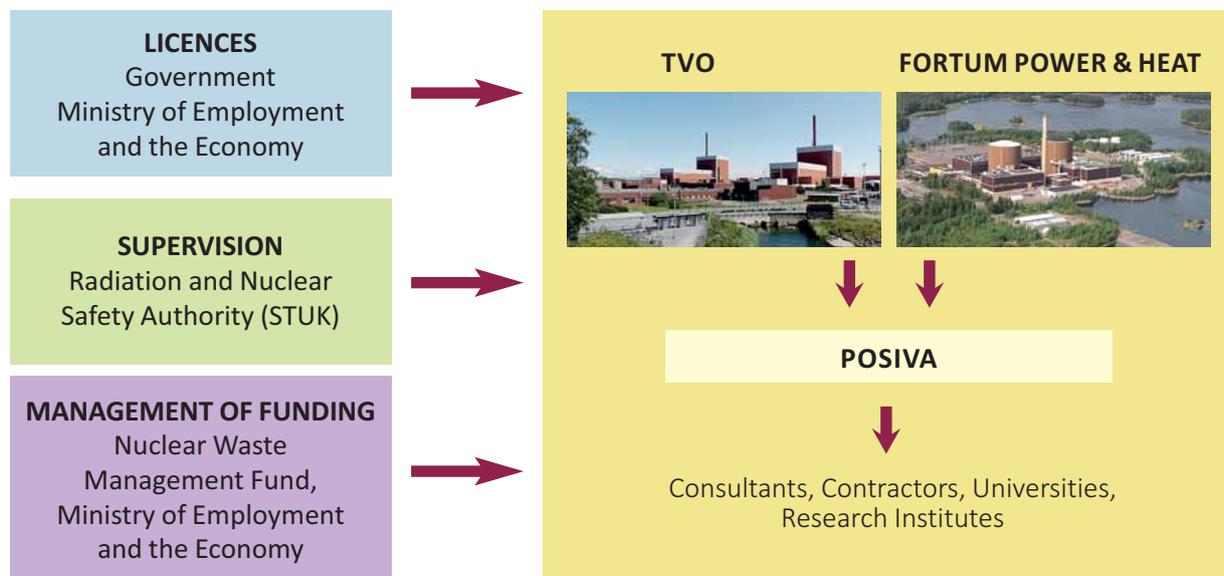


Fig. 2

The Radiation and Nuclear Safety Authority (STUK) performs supervision, develops and issues standards and regulations for nuclear and radiation safety.

All NPP and RWDS activities are controlled by a public Council that meets 3-4 times a year. The Council encompasses 5 municipalities. Each municipality assigns its political representatives.

It is worth mentioning that the decision-making process for RAW handling activities in Finland requires permissions on 4 levels of project implementation. First, the project's environmental impact is assessed. Then, the Finnish Parliament makes a fundamental decision about the construction of a new nuclear facility. On the third stage, a construction permit must be obtained (e.g. for RAW storage facility). Then, on the final stage, a commissioning permit must be obtained.

Independent Science

Unlike Sweden, Finland has no scientific authority for RAW handling. The very concept of the repository now being built in Onkalo is criticized by some Finnish scientists, but this criticism makes no discussion point for the Government. Satu Hassi, a Finnish MP, told us about the studies of Matti Saarnisto, a geology professor, who has concluded that Finland has no site suitable for deep burial of radioactive waste, as no safety can be guaranteed in the event of a new glacial advance or an earthquake. So, even in Finland some scientists doubt about the long-term (500,000 years) safety of the chosen concept, but their opinion makes no difference.

Communities, Municipalities, and the General Public

In 1995, two Finnish NPP operators — TVO and Fortum — established a joint company Posiva Oy, in order to implement the program of final RAW and SNF sealing. In the following years, four different candidate sites were analyzed for RAW and SNF burial. Environmental impact analysis (EIA) was performed for each of the sites. The selection procedure considered not only geological factors, but also the attitudes of local residents to the project. The final choice was Olkiluoto site in Eurajoki municipality, close to an existing NPP. Opinion polls show a high degree of trust to nuclear energy in that municipality. "In Finland, we are used to trusting the government. There is a state supervision body (STUK, similar to Rostechndadzor in Russia). It is hard for local residents to figure

it all out, so they can only trust us,” — said Juha Hyvarinen, Head of Environmental Department in Rauma Municipality. While 56% of Finnish people generally favor nuclear energy, in Eurajoki this figure is 75%.

As a part of the decision-making process, local newspapers in Eurajoki and all adjacent municipalities published links to all relevant information about the planned facility. During several months, any person could freely express their opinion to governmental authorities (it is worth mentioning, however, that ordinary citizens rarely use this opportunity — Rauma Municipality reported only 11 people in the whole Finland having expressed their opinions about the RWDS on the EIA phase). In general, there are large volumes of information available for public discussion, but the information is often too complicated for ordinary citizens.

However, when an NPP or a RAW storage is considered, the local municipality always organizes a public event (known as “public hearing” in Russia). At the event, local residents are able to express their opinions about the project. Usually there are no opponents to the projects, even though people live in close proximity to the facilities; the sites are surrounded by country houses, and schools are not far away. There is also a situational momentum — while everything goes well (like with nuclear industry in Finland), people do not care much about nuclear safety.

In Finland, there are high levels of trust to the Government and nuclear industry. Thanks to the nuclear industry’s good record in Finland, the general public trusts the technology and people working with it. Besides that, TVO and Posiva Oy are major employers in the regions where they operate. STUK also enjoys a high degree of trust.

Apart from public discussions on specific plans, programs and projects, Finnish nuclear industry operators also inform the public on a routine basis. For example, they organize summer visits to the NPP visitor’s center for local residents. On Saturdays, 3-4 times during the summer, they also install a special stand on the municipality’s market square, where people can ask any questions about NPP operation. The companies also publish a regular news bulletin and send it to every family in the municipality several times a year. Eurajoki Municipality also organizes bi-annual meetings with Posiva Oy and TVO representatives.

Finnish municipalities also have the right of veto. According to the Nuclear Energy Act, the Finnish Government cannot make a fundamental decision until a municipality expresses its approval for construction.

Municipalities receive compensation for nuclear facilities located on their land. However, the compensation is not direct payment; rather, it takes the form of indirect assistance from companies. The Finnish taxation system allows real estate taxes to be paid to municipal budgets. Given the facility’s scale, the sum is significant. This is the primary financial benefit to the municipality.

For example, Posiva Oy provided the Eurajoki Municipality with a loan to build a new medical center for the elderly. Posiva Oy also partly compensated the expenses for renovation of the previous building; the remaining funds were provided by the municipality and the EU. Posiva Oy moved its headquarters to Olkiluoto, and Posiva’s offices occupy a part of the renovated building. The remaining premises are open for visitors and used by the local community. The company has rented the premises for 40 years; they will pay the complete rent in the first 20 years, and the municipality will use this income to repay the loan to Posiva.

Municipalities are not assumed to receive any direct compensations or rewards. However, nuclear facility operators pay the municipal property tax at the highest rate of 2.85%, and the tax goes directly to the municipal budget. It is estimated that during the whole lifespan of the geological burial site, the municipality will be receiving about 35,000 euro annually (a total of 3,5 mln euro in 100 years). The municipality can use this income at its own discretion. This income accounts for just 0.09% of the municipality's annual budget. However, property tax income is considered the most obvious benefit of such projects to the municipality.

The RAW disposal facility, once completed, will also provide over 100 new jobs related to its operation, maintenance, and monitoring.



GERMANY

Germany at present is gradually phasing out nuclear power. The country operates 9 reactors, and 8 more have been taken off the grid. Germany does not reprocess its own SNF, instead using services offered by France and the UK.

By late 2013 Germany had accumulated 113,885 m³ of conditioned RAW with low heat emission and 721 m³ of heat-emitting RAW. Germany currently has three disposal sites for RAW with low afterheat — Condrad (not yet open for disposal), Asse, and Morsleben, as well as the Gorleben surface storage site for RAW with high afterheat and SNF. RAW burial sites created in the 1960's — Asse 2 and Morsleben — are in such bad shape that they are considered to be in "alert condition." In the 1970's, the West German Government determined it would bury the country's RAW at Gorleben, a site near the border of the DDR on the Elbe River. A RAW handling center was built there with a temporary repository for high-active waste. The waste left over after reprocessing German SNF in France was regularly delivered to the Gorleben site. Plans were to build a final deep burial site for high-active RAW inside an underground salt dome. Research has been conducted there since 1979 and two shafts were bored. A horizontal tunnel was built at a depth 840 m. Research at the site cost about 1.5 bln euro. But the results of that research project now present two different conclusions — some consider Gorleben suitable for waste burial, while others oppose it. In 2013, officials decided to cease research at Gorleben and revisit siting other repositories. They also reopened the RAW issue to public discussion. The reason officials gave for abandoning the research is that it had gathered insufficient data in its initial stages.

Legislation and Responsible Authorities

The RAW disposal situation in Germany remains complicated and uncertain. The distribution of functions and responsibilities between various authorities is shown on Fig. 3.

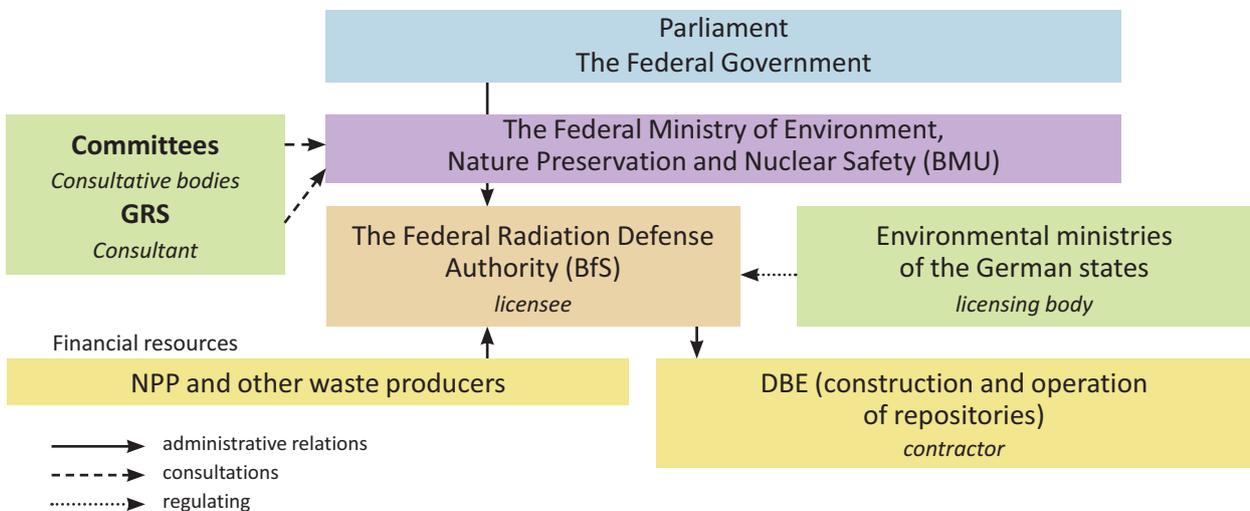


Fig. 3

According to the Nuclear Energy Act, the final responsibility for RAW burial is borne by the Federal Government.

German legislation defines RAW disposal principles, for instance the principle of being able to retrieve RAW after its been interred. The Repository Site Selection Act (StandAG) says that waste be buried in a retrievable state for 500 years after a repository is fully loaded and sealed.

Germany's Ministry of the Environment, Natural Preservation, and Nuclear Safety (the BMU) is responsible for setting the country's RAW handling policies. It also oversees the Federal Radiation Defense Authority as well as licensing agencies. These agencies include the Federal RAW Handling Department (BfKE) as well as the environmental ministries of each of the German states.

The Federal Ministry of Economy and Energy (BMWi) is responsible for research on the construction of RAW burial sites. The Federal Research Institute (BGR), which is subordinate to BMWi, studies geological and geophysical aspects of final RAW burial.

After scandals and failures rocked the Asse 2 and Gorleben, the government launched a search for new internment sites. A new law was written to outline new requirements for RWDS site selection. Specifically, the new law established a special government committee to develop recommendations for the site selection procedure. The procedure consists of the eight following stages (Fig. 4)

The new legislation assumes that deep burial of waste, with the possibility of its retrieval, will become the prevailing method of handling RAW in Germany. The Bundestag's Commission for the Storage of High-Active Waste Materials has a membership that breaks down as follows: 16 members from Germany's political parties (without voting rights); eight scientific members;

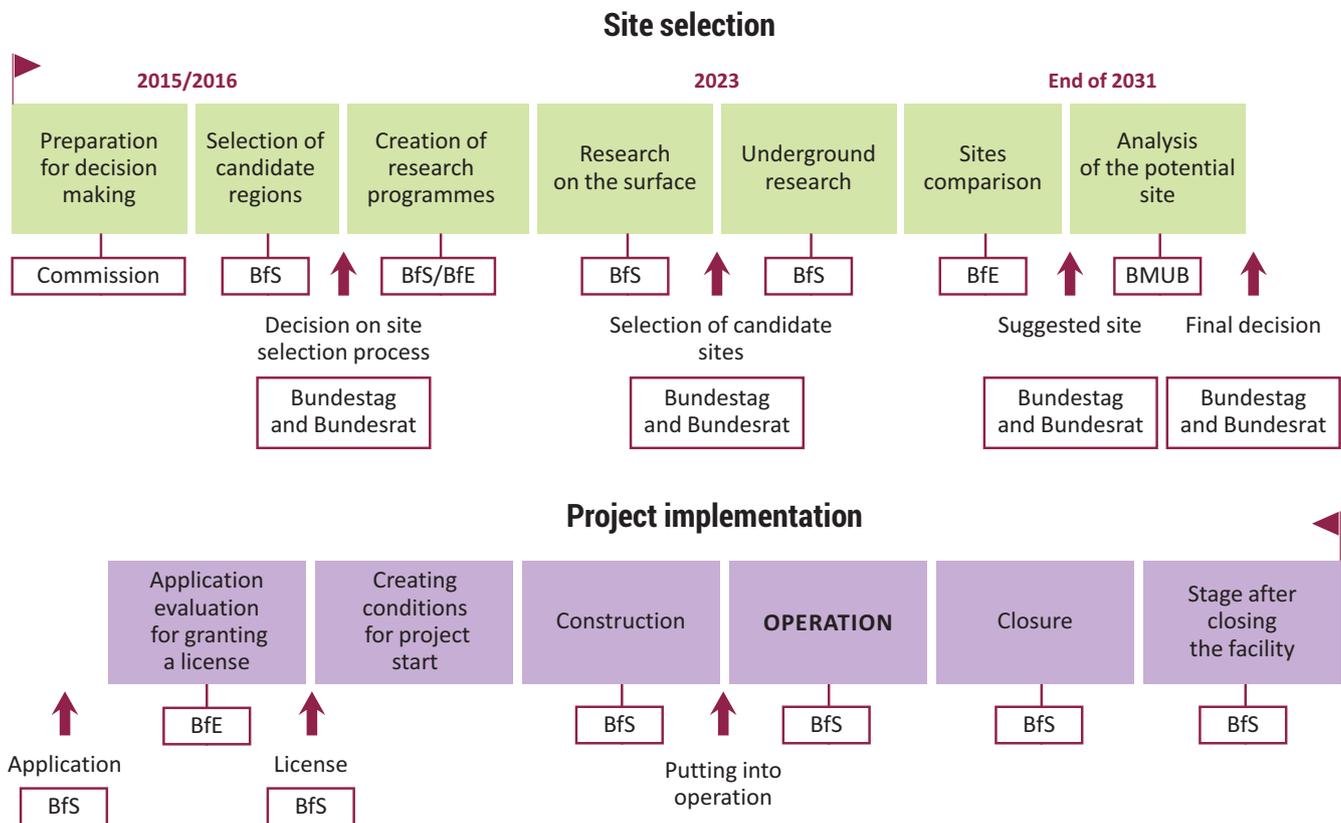


Fig. 4

two religious community members; two labor union members; two members representing the business community, and two members representing environmental NGOs. The Commission studies radioactive waste disposal options.

Sylvia Kotting-Uhl, a German MP and RAW Commission member, told us that the decision-making process is independent of politics, and encompasses all parliamentary fractions, not only the ruling coalition.

Independent Science

The 1980s saw a bloom scientific institutes in Germany that specialized in nuclear energy and waste issues. These institutes helped build a scientific case for Germany to abandon nuclear power.

The anti-nuclear movement of that epoch gave birth to the Öko-Institut (Institute of Applied Ecology) and a handful of small scientific communities criticizing the Government's actions. Later, in 1991, the larger Wuppertal-Institut was formed, with an additional specialization in climate change, environment, and energy.

In the 1990's, especially after 1998, when the Green Party entered the German government, these institutes' findings were used for decision-making on the federal level. The institutes started cooperating with the government and performing government funded project, but retained an independent scientific approach. In recent years, these institutes are working less actively on nuclear industry issues, as the government decided to gradually phase out nuclear power as a result of public consensus. The remaining scientists continue their work.

Federal States and Municipalities

Germany is a federation, meaning that decisions on how to handle RAW involve all of the country's individual states. This is important, because it means any decisions will stand regardless of how the political landscape changes. Municipalities and local residents do not have the right of veto over repository construction projects. Further, municipalities and residents don't receive any financial compensation for hosting waste repositories.

The General Public

Contemporary German policies are aimed at involving the general public on the level of discussion and decision-making on RAW handling, a major facet of which is establishing an acceptable public decision-making process for handling accumulated RAW. This process must be centered on the public interest, not that of the Government, the nuclear industry, or other companies involved in the process.

NGOs have various opinions about how involved they wish to be in Commission for the Storage of High-Active Waste Materials. Some, such as many youth organizations, take an active role in the Commission's activities, while others refuse on matters of principle. The NGO BUND sends delegates to the Commission, for instance, while BI, one of Germany's most active Gorleben protests groups, abstains. BI's demand is that Gorleben be excluded for consideration as RAW burial site. NGOs therefor decide for themselves if they wish to engage with the Commission; point is that they are all welcome. For some NGOs, participating in the decision making process on RAW handling is a crucial ethical issue. Still other NGOs consider it the responsibility of the nuclear industry – not the government – to solve issues of RAW storage for as long as it is producing RAW.



FRANCE

France operates 58 nuclear reactors. The French nuclear program uses a closed nuclear fuel cycle, so SNF is not categorized as waste. France has accumulated ca. 1,460,000 m³ of RAW of various categories. Part of this has already been put in disposal facilities.

Legislation and Responsible Authorities

RAW handling in France is regulated by the Law on Nuclear Materials and RAW Management Program, adopted in 2006. This law dictated that DDFs be constructed with an eye to the possibility of retrieving RAW for up to 100 years.

No DDF can be licensed until a possibility to remove the waste is guaranteed. The license establishes the minimum time span during which waste can be removed (not less than 100 years). The law also requires a reconsideration of the National RAW Management Plan every 3 years.

The relationship among various authorities and institutions involved in RAW management, including selection of construction sites for HAW and long-living MAW disposal facilities, is shown on Fig. 5.

The French Parliament establishes the national policy for RAW management. The Parliament forms the National Expert Council CNE (Comission National d'Evolution) that evaluates all programs and R&D related to RAW management and reports to the government.

The national government authority for SNF and RAW management is the Ministry of Environment, Energy, and Sustainable Development (MEEDDM), represented by the Energy and Climate Bureau (DGEC).

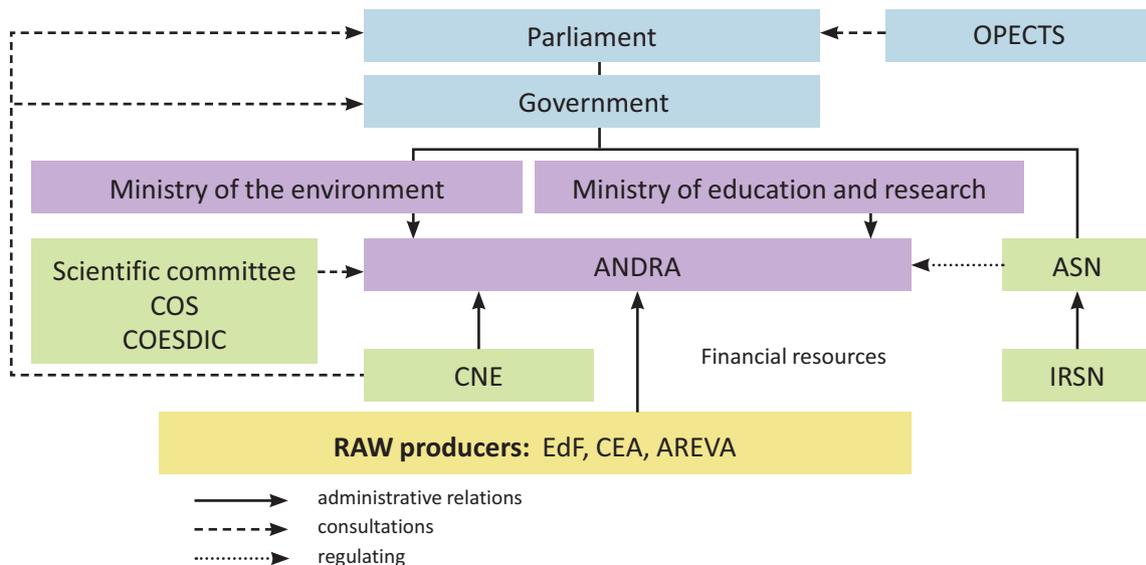


Fig. 5

The Nuclear Safety Agency (ASN) is the national regulatory body for nuclear and radiation safety. The Agency is also responsible for informing the general public about nuclear safety issues.

The National Agency for Radioactive Waste Management (ANDRA), created in 1991, is a public agency directly accountable to the Ministry of Environment, Energy, and Sustainable Development (MEEDDM), as well as the Ministry of Science in research issues. ANDRA is responsible for long-term RAW management. The Agency operates disposal facilities and is responsible for designing new facilities, siting areas for their construction, and performing the construction process.

The three principle tasks set for ANDRA are:

Perform R&D to find a solution for long-term RAW safety;

Participate in operational procedures, such as determining criteria for acceptability, choosing sites, performing construction, operating and sealing the facility, monitoring and control;

Report to ASN about the national register of radioactive materials and waste, maintain dialogue with stakeholders on national and regional levels.

The High Council for Transparency and Information on Nuclear Safety (HCTISN) informs the general public and holds public hearings on the issues related to the impact of nuclear facilities on human health and environment. There is also an independent authority – the Commission for National Public Hearings (CNDP) – which organizes public hearings for all nationwide construction projects of significant social-economic and environmental risks.

Science and Expert Evaluations

In 1991, France adopted the Law on Scientific Research and Development in RAW Management (Bataille act), which established the procedure of political decision-making and a mandatory R&D period of at least 15 years prior to making any decisions about long-term RAW handling, including burial.

R&D activities by ANDRA are evaluated by several governmental and science authorities. The French Parliament has created the National Expert Council (Comission National d'Evolution – CNE) for expert evaluations of various programs involving HAW, long-living MAW, and LAW handling. The Parliamentary Committee for Science and Technology (OPECTS) evaluates all R&D programs for RAW handling evaluated by CNE. The results of the studies are published annually for open access.

ANDRA has established two advisory boards (COS) of experts in geology and social sciences.

The geology advisory board analyzes experimental programs realized in URL (Meuse/Haute-Marne). The social advisory board, consisting of experts in social sciences and public relations, develops recommendations for public awareness campaigns and public consultations involving site selection projects and geological RAW disposal.

Independent institutions are also invited for research and evaluation of projects involving deep geological RAW disposal. For example, the Institute for Energy and Environmental Research (IEER) was invited to evaluate the scientific feasibility and credibility of the information obtained in R&D by ANDRA in Bure commune, and to reveal any gaps or inaccuracies.

Regions and Municipalities

The decision-making process for RAW management is organized to include all levels of government.

On the basis of public hearings, the government passes laws prescribing ANDRA to conduct certain works, i.e. the government makes decisions in all phases of project implementation.

According to the requirements set by the Law on Nuclear Materials and RAW Management Program, 2006, the process starts with a campaign to search volunteering municipalities in the regions deemed potentially suitable for RWDS construction. This is followed by additional research and preliminary geological surveys in the municipalities expressing their interest.

On the local level, decisions to build RAW disposal facilities are made by departmental authorities (local councils). Advisory voting on local and regional levels is mandatory to obtain a URL license. Though the voting is only advisory, the agency must win a majority of votes by local residents for the project to be approved by the government. For example, a URL licensing process in 1997 involved voting not only in several departments, but also in two regional councils, as well as 33 communes where residents live within 10 km of the URL's main shaft.

It is worth mentioning that municipalities have a right of veto and a right for money payments into the municipal budgets. For example, 312 municipalities in Bure commune gained financial benefits from URL construction since 2006. Meuse and Haute-Marne departments obtained 9.1 mln. euro each for the work of their action groups in 1999–2006. Each of the action groups will get a total of up to 30 mln. euro from 2007 and up to the final RWDS construction decision. According to the planning law, two thirds of the budget must be spent for the development of local economy and job market, and one third for the development of scientific and technical support, as well as professional training. The law also prescribes that 14% of the social economic development budget be transferred to the communes where residents live within 10 km of the URL. The communes can spend these funds at their own discretion.

The general decision about spending of the funds obtained by the department is made by a specially created action group. There are strict rules defining where these funds can be spent. Any project by a commune implies matched funding (50/50). This makes it possible to guarantee that any project or activity by a commune brings benefits on all levels (by creating new jobs, benefits for enterprises participating in the project, or any other social economic benefits).

When it has been decided to build a geological disposal facility, it is considered a basic nuclear facility and enjoys a special taxation system for that type of nuclear facility. Local residents can also benefit from new infrastructure created by major waste producers.

The General Public

According to the Law on Scientific Research and Development in RAW Management, 1991, a special Committee for Information and Public Control (CLI) must be created in each region where a URL is planned. The CLI's main tasks are to monitor all activities performed by nuclear facility operators, and to inform local residents about all aspects of nuclear and radiation safety.

The commissions are made of volunteers, half of which are elected representatives of governmental authorities. At least 10% of CLI members represent stakeholder groups – non-governmental environmental groups, labor unions of nuclear facility operators, specially authorized persons.

Thirty-one local information commissions comprise the National Association of Committees and Commissions for Local Information (ANCCLI). Each CLIS is headed by a prefect elected from among local governmental authorities.

According to the Law on Nuclear Materials and RAW Management Program, 2006, applications for a license must be preceded by a public hearing with a safety report presented. The discussion of 2013 took the form of a civil conference.

Yves Marignac, director of WISE-Paris (World Information Service on Energy, Paris branch), gave us an exclusive interview on RAW handling options in France and the related political, technical and ethical problems. He believes that prior to the Law on Scientific Research and Development in RAW Management, 1991, the nuclear industry avoided democratic procedures. Democracy came too late to the subject of RAW handling. By this time, the Government had already made its decision on RAW handling method, i.e. deep geological disposal. One of the outcomes of the 2005 discussions was the favor of the general public to long-term temporary RAW storage, until the deep disposal technology is justified or a different approach is found. The general public believes that the society is able to remain stable and safely store the waste; they don't believe in feasibility and safety of RAW burial in geological structures. Ultimately, this is a question of trust or distrust by engineers or society, Marignac told us. The principle of removability within 100 years (stated by the law) can be considered an acknowledgement that the waste must be stored under control in the long term.



THE RUSSIAN FEDERATION

Russia has accumulated over 500,000 m³ of RAW of various categories (ca. 440,000 m³ of LRW and 72,000 m³ of SRW). These are stored in ca. 1,200 storage sites of various types and safety levels.

Radioactive waste is mainly located in Rosatom facilities (see Table).

Most LRW (73%) is located in storage ponds of the Techa cascade (Mayak Production Association). The rest is located in storage ponds on SHK and GHK, as well as in tailing ponds on other sites (Priargunskoye Chemical & Mining Production Association). About 95% of the accumulated LRW (excluding the waste dumped into geological formations) is located on potential sites for special RAW storage (Techa ponds cascade and ARMZ Uranium Holding facilities). This means that storage facilities on these sites will be conserved, and LRW will be disposed of on site. A small part of it will probably be reprocessed. Obviously, no LRW will be removed from dumping sites (GHK, SHK, and NIIAR).

The average amount of RAW accumulation in Russia is currently 1,300,000 m³ of SRW and 2,100,000 m³ of LRW.

The largest amount of LRW is accumulated by Mayak PA – ca. 600,000 m³ annually. A small part of high-active LRW is vitrified; the rest is dumped into the V-17 storage pond (Staroe Boloto) and Techa ponds cascade (TKV).

GHK, SHK, and NIIAR together produce ca. 772,000 m³ of liquid RAW (400,000 m³, 320,000 m³, and 52,000 m³, respectively), which is fully dumped into collector beds.

NPPs produce ca. 4,000 m³ annually. The remaining LRW (ca. 850,000 m³) is produced by uranium mining facilities (ARMZ), nuclear weapons facilities (VNIIEF, FEI), and TVEL plants (MSZ).

Divisions	Major facilities	RAW accumulated, m ³ x 10 ³	
		SRW	LRW
Rosenergoatom	NPPs	117	140
Nuclear weapons division	VNIIEF ¹	5	–
	VNIITF ²	2	1
	Mayak	620	318 000
	MSZ	–	230
TVEL	AEHK ³	3	–
	SHK	350	5000
	ChMZ ⁴	4500	–
Back-end division	GHK	225	400
Innovations division	NIIAR	400	3
	FEI ⁵	23	1
Other organizations (ARMZ etc.)		65 363	114 039
TOTAL		71 608	437 814

¹ Russian Federal Nuclear Center – All-Russian Scientific Research Institute for Experimental Physics, Sarov

² Russian Federal Nuclear Center – All-Russian Scientific Research Institute for Applied Physics, Snezhinsk

³ Angarsk Electrolytic Chemical Plant, Angarsk

⁴ Chepetsk Engineering Plant, Glazov

⁵ A.I. Leipunsky Physics & Energy Institute, Obninsk

About 100,000 m³ of liquid radioactive waste of the total annual production is reprocessed (with solidification), 772,000 m³ is dumped into collector beds, and the rest (1,400,000 m³) is accumulated. Most accumulation occurs in technical ponds of Techa cascade (Mayak) and on ARMZ facilities.

Inventory checks show the following storage ponds in critically dangerous condition: V-9 and V-17 on Mayak; B-1 and B-25 on SHK; 354a, 365, and 366 on GHK.

Non-critically dangerous are Techa ponds cascade (TKV) on Mayak; VH-1, VH-3, VH-4 PH-1, and PH-2 storage ponds on SHK. Mayak and GHK also have 31 storage tanks for high-active LRW (25 on Mayak and 6 on GHK).

As seen in the Table, most SRW (ca. 65,363,000 m³) is very low-active or low-active waste on uranium mining facilities.

The total amount of high-active SRW is ca. 77,000 m³ (0.1%); it is mainly accumulated on Mayak PA in the form of vitrified LRW.

The annual SRW production is 1,263,000 m³. The principal SRW producers are the uranium mining facilities of Rosatom (1,243,000 m³ annually).

Medium-active and high-active SRW is produced by NPPs (7,100 m³ annually), Mayak (4,500 m³ annually), and GHK (2,250 m³ annually). Other facilities account for less than 0.5% of annual SRW production.

Out of the total RAW amount suitable for reprocessing (including SRW), less than 30% is currently being reprocessed.

Legislation and Responsible Authorities

The Federal Law on Radioactive Waste Management and Making Amendments to Specific Legislative Acts of the Russian Federation⁶ (hereafter – the Law) was passed in July 2011.

According to the Law, the Russian President, the Russian Government, federal executive authorities, and regulatory authorities for nuclear energy pass legislative acts regulating RAW management activities.

Rosatom State Corporation is the national administrative body for RAW management. Rosatom prepares all suggestions to be approved by the Russian Government.

The Russian Government:

- 1) By Rosatom suggestion, defines (creates) the national RAW management operator;
- 2) Makes decisions for design, location, construction, operation, decommissioning, and closure of RAW storage facilities of federal or interregional importance;
- 3) By Rosatom suggestion, classifies RAW storage facilities as: RAW storage facilities, long-term RAW storage facilities, special RAW storage facilities, special RAW conservation facilities;
- 4) Defines the procedures of federal regulation for RAW disposal tariffs, including the basic principles of pricing and the rules of federal regulation and control; defines the state executive authority entitled to set such tariffs (the Government has decided that the tariffs are set and regulated by the Russian Ministry of Natural Resources and Environment);
- 5) Establishes the procedure of RAW transfer for disposal, including RAW produced during the development, production, testing, operation, and disposal of nuclear weapons and military nuclear power facilities;
- 6) Controls that the Russian Federation fulfills its obligations on international treaties, and coordinates international cooperation in RAW management;
- 7) Sets the criteria to classify solid, liquid, and gaseous waste as RAW, criteria to classify RAW as special RAW or removable RAW, criteria to classify removable RAW.

One of the main purposes of the Law is to create the National System for RAW Management (EGS RAO). This system will set the conditions to stop accumulating RAW and start solving problems in this area.

⁶The Federal Law on Radioactive Waste Management and Making Amendments to Specific Legislative Acts of the Russian Federation (Rossiyskaya Gazeta, July 15, 2011, <http://www.rg.ru/2011/07/15/othodi-dok.html>).

The Law sets some basic norms for EGS RAO creation and safety problems solution:

1. All RAW, accumulated or newly produced, is to be mandatorily disposed of. The Law defines RAW disposal as safe positioning in disposal facilities (RWDS).
 2. The Law creates a designated authority (national RAW management operator) for RAW disposal.
 3. The Law sets the following principle: RAW producers must pay. RAW produced before the Law was passed will be safeguarded at the expense of the federal budget.
 4. The Law establishes new concepts for RAW management, as well as new categories and criteria for RAW classification.
 5. The Law defines the powers of government authorities in RAW management.
 6. The Law defines a list of possible RAW owners and storage sites.
 7. The Law expressly prohibits importing RAW into the Russian Federation for storage, reprocessing, or disposal.
 8. The Law prohibits creation of new deep disposal facilities for liquid RAW.
- The Law is setting a strategy for the future work on RAW disposal issues.

Independent Science

Russia has no independent scientific expert groups specializing in RAW management and openly expressing their position on RAW disposal. When it is needed to engage experts or scientists, stakeholders usually apply to Rosatom's internal scientific bodies or institutions of the Russian Academy of Sciences, e.g. IBRAE.

Regions and Municipalities

The powers of regions and municipalities are defined by the Federal Law on Radioactive Waste Management and Making Amendments to Specific Legislative Acts of the Russian Federation (190-FZ, 11.07.2011), Federal Law on Nuclear Power Use (170-FZ, 21.11.1995), Federal Law on Radiation Safety of the General Public (3-FZ, 09.01.1996), Federal Law on Sanitary and Epidemic Wellbeing of the General Public (52-FZ, 30.03.1999), Federal Law on Protection of the Environment (7-FZ, 10.01.2002), Federal Law on Mineral Resources of the Russian Federation (2395-1, 21.02.1992), Federal Law on the State Nuclear Power Corporation Rosatom (317-FZ, 01.12.2007), the Water Code of the Russian Federation, and laws of the Russian Federation subjects.

It is worth mentioning that, unlike in other countries, regions and municipalities cannot veto any projects of federal importance, like nuclear facilities. However, the nuclear agency must obtain approvals from regional authorities for construction of any nuclear facilities, including storages and RWDS. The approval process in a particular region is defined by local laws. In the area where a facility is to be constructed, consultations and public hearings are held on multiple stages, including evaluation of the facility's environmental impact, obtaining licenses for location, construction, operation, and decommissioning of potentially dangerous facilities. According to the current laws, regions or municipalities cannot get direct compensations for risks related to the construction of potentially dangerous facilities on their land.

The General Public

Environmental NGOs, including anti-nuclear NGOs, are having a tough time in modern Russia. The Chernobyl disaster led to the creation of organizations and public programs with significant expert resources. After 30 years, many of these organizations are closed, and the resources are exhausted. The new law on RAW management launched some activities, but these mainly cover specific situations. There is some interest for the places and territories where new RAW handling objects are planned or under consideration for construction. Public groups mainly express two positions – “You can build it, but not on our land,” or “You can build it, but we want a compensation.”

The expert potential of NGOs has fallen to a minimum. Expert programs on nuclear and radiation safety, previously led by the Russian Environmental Policy Center, Greenpeace, and the International Social Environmental Union, have effectively stopped. The Russian Social Environmental Union created the Program against Nuclear and Radiation Danger, but it did not move beyond several claims.

Humble attempts to create expert workgroups, made by some organizations and single activists, meet financial, organizational, and even political impediments. Multiple environmental organizations incur the the “foreign agent,” label abandon their projects or close.

However, in 2013, most Russian NGOs working in the field of nuclear and radiation safety managed to agree upon a joint Position on Nuclear Technology Use (hereafter – the Position).

The Position pays much attention to RAW handling issues. In particular, NGOs, experts, and activists agree that handling of radioactive and nuclear waste, including spent fuel, as well as new projects and programs initiated by the Russian nuclear agency, require public participation and control, in order to improve safety, protect people, the society, and the environment.

Effective tools must be used on all stages of NW and RAW management, to protect each person, society as a whole, and the environment from negative effects of ionizing radiation, now and in the future. Though there is still no field-proven technology guaranteeing long-term (for millennia) safety of high-active RAW and NW, the technologies currently used for NW and RAW handling must comply with the whole set of requirements for the best technologies available, and leave the future generations able to take effective measures to protect themselves from nuclear and radiation dangers. All designed parameters must be controlled in temporary storage, long-term storage, and disposal facilities. It must be possible to remove NW and RAW in a case of necessity. NW and RAW condition in storage facilities, as well as safety barriers, must be monitored and controlled during the whole period of potential hazard.

The Position also sets specific requirements for Rosatom to inform the general public and take into account the opinions of experts independent from the nuclear industry:

“Stressing the importance of dialog and public participation in decision-making related to the issues of nuclear power use, including RAW and NW management projects, the conference participants are strongly urging Rosatom:

to reveal the complete and timely information to the public (including foreign states being impacted) about all projects on their early stages;

[...]

before making decisions to construct facilities posing a nuclear or radiation hazard, consult with the public and gain approval from regional governments and municipalities. Stop the practice of using “black” PR technologies to promote decisions posing a nuclear or radiation hazard;

[...]

Invite the general public (including local communities) to evaluate new nuclear-hazardous facilities, perform public environmental control of existing nuclear-hazardous facilities and their impact areas. Create a procedure of resolving disputes, provide well-argued explanations if public experts have a different position;

adopt the practice of creating workgroups together with the public, to agree upon safety issues in new project planning;

stop the practice of “fake” (pseudo-public) public hearings, where all participants are factional and dependent on the nuclear industry.”

(See Appendix for the complete text of the Position.)

Regardless of presence or lack of NGOs, specific projects of RWDS construction are publicly discussed in several regions, according to the law. A public hearing was held in Krasnoyarsk Krai for the initial stage of RWDS project – construction of an underground research lab. Another public hearing was held in Novouralsk for the construction of RWDS for 3rd and 4th class RAW.

SUMMARY

This report outlines a project to study the practices of public influence and public participation in RAW management in the European countries mentioned in the text.

We also wanted to collect information on current laws regulating RAW disposal procedures, and hear from public representatives about the cooperation of governmental and non-governmental institutions and agencies on RAW disposal issues in their countries.

As a result, we are trying to understand how advanced foreign experience may be suitable for Russia, and if it is possible or reasonable to copy foreign practices in RAW management issues.

1. Strategic Approaches.

Most countries, including those listed in the outline, are still in search of best practices for RAW management, including disposal. There is a consistent pattern – countries with more RAW accumulated make faster conclusive decisions (France). If the amount of RAW has not yet reached the “critical mass,” or the country has decided to close major RAW producers (Germany), then the disposal issue grows into a long-lasting debate between the society, experts, and politicians, with no conclusive decisions being made. But even the countries with established RAW disposal programs (France, Sweden) leave themselves an opportunity to revert to different solutions, in the case that a new technology is developed, or there is a danger to the land or people. Almost all countries adhere to the principle of reversibility in RAW disposal.

French and Swedish experiences show that no stages can be missed in RAW solutions. Prior to finding specific places for URL and RWDS construction, all possible options for long-term RAW handling must be comprehensively discussed; it is important to review various technologies of deep disposal, as well as other approaches, like long-term controlled storage.

Russia has accumulated ca. 500,000 m³ of RAW. In some regions (South Urals, Kola Peninsula, Tomsk, Krasnoyarsk, the Far East, etc.), the RAW situation is close to critical. So, the policy of long-lasting debate with no solution is hardly acceptable for Russia. It is more reasonable to follow the policy of those countries that make decisions on disposal while leaving some opportunities, in the case that these decisions happen to be unsafe, or better technologies appear.

2. Legislation and Other Regulations in Russia.

Legal regulatory framework is crucial for creating a nationwide system of RAW management (including disposal).

The Federal Law on RAW Management (190-FZ, 11.07.2011) finally addresses the problem of accumulation and many uncertainties in RAW handling. However, the Law’s downsides are now becoming apparent.

First of all, the Law offers a complicated system of concepts and RAW classification. The term “RAW disposal” is ambiguous; its ambiguity requires defining the concept of disposal. French and German laws clearly define the disposal process as reversible, i.e. the technologies of long-term RAW storage must leave the opportunity to remove the waste from repositories. This norm must be secured in the Russian law, to abandon the frequently used terms “burial site,” “nuclear (radioactive) dump,” etc.

The Russian Governmental Decree No. 1069 (2012) creates a detailed RAW classification, defining six classes of RAW. These six classes, together with unclassified “special RAW,” “removable RAW,” “accumulated RAW,” “special LRW,” “research waste,” mentioned in the Law, make it difficult to understand the problem not only for the general public, but also for specialists. This, in turn, can generate misunderstanding, suspicion, and mistrust.

The Law defines **seven categories** of facilities for RAW handling. This vast classification of storage sites makes it difficult to understand differences between the categories and guarantee the adequate safety.

The Law **does not define** any forms or procedures for public control of RAW handling, mechanisms of collaboration between the public, enterprises and organizations involved in RAW handling. As RAW handling issues are highly specific (long-lasting impact, responsibility of future generations), they require more public participation and discussion than envisaged by the current Russian legislation for public hearings. Those who try to solve this important issue constantly face impediments.

3. RAW Handling System.

Russian environmental NGOs are still discussing the role of the national RAW management operator (RAW MO) and its place in the Russian nationwide system for RAW management. In many countries, this structure is independent of the nuclear industry and accountable to the national government. This issue is not so clear in Russia as in other countries for reasons such as complicated national bureaucracy and its clarity on its functioning, and the special place of the nuclear industry in the state. This issue will probably raise more interest when EGS RAO starts working. But today, even though Rosatom is responsible for the national operator’s performance, RAW MO sees more challenges than successes.

Unfortunately, even though the Law mentions RAW Management in its name, it pays very little attention to RAW handling during accumulation, transporting, temporary storage, conditioning, and reprocessing. Neither the Law, nor any other regulatory documents establish a clear RAW handling procedure until the RAW is transferred to the national operator. There is no RAW circulation system and no procedure for RAW transfer from the producer to the national operator. No procedures are defined for RAW reprocessing and conditioning. There is no clear chain from the RAW producer to its temporary keeper and processor, to the national operator; no mechanism of collaboration between these organizations. As a result, Russia currently has ca. 1,000 sites of RAW storage, several hundred enterprises and organizations owning the RAW, and no clarity about the places, quantities, and types of RAW to be reprocessed (conditioned). Many organizations and enterprises, including science institutions, the military, NPPs, etc., have to cope with RAW handling challenges – a task out of their specialization.

4. Independent Science, the Public, and Local Authorities.

Worthy of study is the Swedish experience of using a group of science experts independent from the nuclear industry to evaluate projects and develop suggestions to the Government and the public about specific RAW management issues. Creating a similar structure would be practical in Russia, but it requires resolution of some issues – most importantly funding of this

work and providing access to the necessary information. Until all stakeholders, particularly the nuclear agency, understand the necessity to resolve this issue, the project is unrealizable.

Legislation in many countries offer a right of veto and a right for local referendum, which can be used in RAW management projects. Russia offers no such right of veto. Local referendums are allowed by the Russian law, but only in specific conditions, which are actually unachievable. It is a long-term issue; it depends on the future development of governmental, legal, and public institutions, civil society and the state as a whole. Currently, when RAW management projects are discussed, an overwhelming majority of stakeholders take the position of “You can build it, but not on our land.” Given that Russia has already accumulated 500,000,000 m³ of RAW, this public position is a dead-end. The society has no trust in the government, in specialists, or in experts. A negative reaction from society and local authorities can be overcome by investments, material benefits, privileges, etc., but this requires a legal foundation that is currently absent in Russia.

The foreign experiences we have reviewed in this project show that the society cannot just start believing that nuclear and radioactive materials can be handled (including their storage and disposal) safely, with no danger to humans or the environment. The public strongly believes that any technologies used in RAW handling are **potentially dangerous per se**. Trust in these technologies may develop if the public gets the necessary and timely information, participates in decision-making, trusts in specialists and administrators, who, in their turn, put safety issues above their institutional or personal interests.

POSITION of participants of the nuclear energy use round table

October 6, 2013
Moscow

The representatives of non-governmental public associations, scientific organizations and the media, having discussed issues related to the use of nuclear energy at the round table (called on the initiative of the nuclear and radioactive safety program of the International socio-ecological union, Bellona, Greenpeace Russia, Eco defense and Green Russia faction of the political party YABLOKO), **point out** that radioactive waste (RAW) handling issues and nuclear waste (NW, including SNF), as well as new projects and programs initiated by the Russian nuclear agency, require public participation and control in order to increase safety, protection of humans, society and the environment.

Recognizing the importance of the transfer of accumulated nuclear and radioactive waste in a safe state, the roundtable participants **agree that**:

- at all stages of NW and RAW handling effective safety methods against potential hazards should be applied in order to protect individuals, society and the environment from harmful effects of ionizing radiation now and in the future;
- currently there is no technology to ensure the safety of long-term (in the millennium perspective) burial* of high-active NW and RAW;
- technologies that are currently used in the NW and RAW handling must comply with the entire range of requirements for best available technologies (BAT), and leave future generations able to take effective measures to protect from the dangers that can come from inherited nuclear and radioactive waste;
- in temporary storage, long-term storage / disposal (hereinafter – repository) all parameters established by the project should be monitored, and it shall be possible to withdraw NW and RAW if needed;
- monitor and control the status of NW and RAW in repositories, as well as the safety barriers, must be maintained throughout the period of their potential hazard;
- trans-border movement of NW and RAW should be abandoned;
- contamination of the oceans, seas, rivers, lakes and underground aquifers and other waters by dumping (uploads) of NW and RAW should be avoided;
- burial (pumping) of liquid radioactive waste (LRW) into the bowels (geological horizons) should be abandoned;
- while handling the NW and RAW it is necessary to take into account ecological, biological, chemical, terrorism, geopolitical and other risks, which may arise, in addition to nuclear and radiation risks;
- at the design stage before construction of facilities (repositories, vehicles, containers, etc.) for the NW and RAW handling it is necessary to perform a safety and environmental impact assessment (SEE and PEE) carried out by structures, independent from the operating organization;

* NW and RAW burial means the safe disposal of nuclear and radioactive waste in the radioactive waste disposal site without intention (but with the possibility) to extract them.

- design of facilities for the NW and RAW handling should have conceptual plans for their decommissioning and disposal, it is also necessary to create a fund for that purpose on the “polluter pays” principle;
- processing of nuclear waste (including SNF) should be abandoned, because it results in the formation of new RAW (or increasing the volume of secondary RAW) and new nuclear materials, which can be used for nuclear weapons;
- development of specific projects for decommissioning of nuclear power plants and creation of special funds for these purposes should be initiated. The use of these funds for other purposes should be illegal.

Convinced that new projects and technologies suggested by the Russian atomic agency can carry nuclear and radiation hazards, as well as the increase of NW and RAW, the roundtable participants **are strongly opposed to:**

- technologies that produce plutonium;
- military nuclear programs;
- energy technologies with uranium-plutonium fuel;
- extension of the operational terms of nuclear and radiation hazardous facilities, as well as nuclear installations working with the power, greater than it was projected;
- construction of new nuclear power plants, including those abroad.

Stressing the importance of a dialogue and public participation in decision-making process on the use of nuclear energy, including the implementation of NW and RAW handling projects, the roundtable participants **urges the Rosatom State Corporation:**

- in the early stages to provide full and timely information about planned projects to the public (including the public of affected foreign states);
- ensure possibility of public control over the movement of NW and RAW to the repositories;
- before making a decision on the construction of nuclear and radiation hazardous facilities to consult with the public and carry out reconciliation procedures with regional authorities and representative bodies of local governments. Abandon the practice of “black” PR while promoting the nuclear and radiation hazardous technologies;
- on the territories near populated areas, where nuclear and radiation hazardous facilities are planned and constructed, programs of complex medical and biological, psychological and sociological research should be conducted;
- involve the public (including local communities) to perform examinations of nuclear facilities, as well as to carry out public environmental monitoring of existing nuclear facilities and territories impacted by them. A mechanism for dealing with disputes should be created, and while rejecting public experts position, a full reasoned explanation should be presented;
- employ practice of creating joint working groups with interested public to discuss and harmonize safety issues when planning new projects;
- abandon the practice of fake (pseudo-public) public hearings, where only those dependent on the nuclear industry participants participate;
- act honesty and openly, follow legal and ethical norms accepted in the society.

The roundtable participants express concern that the Rosatom State Corporation continues to initiate dangerous new projects related to increase in the amount and use of plutonium and uranium, as well as the extension of the operation time of the old, worn-out nuclear power plants.

Organizations, which participate in the round table, intend to join their efforts to further active opposition to the dangerous projects, mentioned above, pushing the atomic agency to abandon them and seek ways to reduce nuclear and radiation hazards.

The position has been agreed and signed by representatives of 48 Russian NGOs.

NOTES

NOTES

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