Radioactive Waste Management: A Civil Society Perspective

Brussels, 17 October 2024

(Selected Relevant Transparency and Public Participation related)

Practices from Slovakia

Miroslav Kövér

National Nuclear Fund of Slovakia

NÁRODNÝ JADROVÝ FOND

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Contents

- Nuclear installations in Slovakia
- Relevant milestones in the Back-end
- Civil society
- Position of the CS in the decission making process
- Current /recent „hot“ topics
- The National strategy and the National programme (according to the Directive 2011/70/EURATOM)
- Further development
- Conclusions

Nuclear sites in Slovakia

Nuclear installations at Bohunice site

Facility	Type	Status	Licence holder
NPP A1	HWGCR	decommissioned	JAVYS , a. s.
NPP V1 (EBO1,2)	WWER 440/230	decommissioned	JAVYS , a. s.
NPP V2 (EBO3,4)	WWER 440/213	in operation	SE, a. s.
ISFS	wet type	in operation	JAVYS , a. s.
Treatment of RAW	various technologies	in operation	JAVYS , a. s.
New NPP		site, preparation	JESS, a. s. (?)
Integral RAW Storage	dry type	in operation	JAVYS, a. s.

Nuclear installations at Mochovce site

Facility	Type	Status	Licence holder
NPP EMO1,2	WWER 440/213	in operation	SE, a. s.
NPP EMO3,4	WWER 440/213	constr./operation (UJD 04.10.2024)	SE, a. s.
Treatment of LQ RAW	Bituminization Cementation	in operation in operation	JAVYS, a.s.
Near Surface		in operation	JAVYS , a. s.
Ra-waste Repository	LLN	in operation	JAVYS , a. s.
Ra-waste Repository	VLLW	in operation	JAVYS, a. s.

Brief history of the Back- end in Slovakia

1957 – start of the built of NPP A1

1972 – operation of NPP A1, start of built of NPP V1

1976, 1977 – 2 accidents at NPP A1,

1979 - decission on A1 decommissioning

1979, 1980 – operation of NPP V1, 1984, 1985 – operation of NPP V2

1993 Slovak Republic, Nuclear Regulatory Authority

1995 – establishment of State Fund for Decommissioning, subsidiary of SE, SE-VYZ

1998, 1999 – start of operation of NPP EMO1,2

2000 – Bohunice Radioactive Waste Treatment and Conditioning Centre (BSC RAO)

2001 – National Radioactive Waste Repository (RÚ RAO) Mochovce

2005 – privatization of SE, establishment of GovCo, than JAVYS

2006, 2008 – shut down of NPP V1, since 2011 in decommissioning

2008, 2014 – Strategy of SR for decommissioning and SF treatment

2015 – Slovak national policy and program for decommissioning, RAW and SF treatment

Decommissioning of NPP A1

- Experimental/production prototype reactor type KS-150, output 143 MWe
- Heterogeneous, using natural uranium as fuel
- Cooled by CO_2, moderated by heavy water

Start of construction	Start of operation	End of operation	Gov. resolution of decommissioning	Putting the NPP A1 into radiation safe state	1st Decommissioning licence
1958	1972	1977	1979	1994	1999

End of 1st phase	Start of 2nd phase	Start of 3rd phase	Start of 4th phase	Start of 5th phase	Main Production Unit - conversion into the TSÚ
2008	**2009**	**2017**	**2021**	**2025**	**2033**

Progress in Nuclear Energy 120 (2020) 103192

Contents lists available at ScienceDirect

Progress in Nuclear Energy

journal homepage: http://www.elsevier.com/locate/pnucene

Understanding political institutional support for completing the Mochovce nuclear power plant

Peter Mihók

3.3.2. *Limiting public participation in EIA*

In 2007–2008, the Slovak Parliament approved several amendments to the EIA Act and related legislation (further referred in this subsection as 'these Laws') that significantly limited rights of NGOs and individual citizens to take part in EIA and project permit procedures. When approving some of these Laws, Parliament even overrode a presidential veto, cast because of a potential non-compliance with the Aarhus convention.

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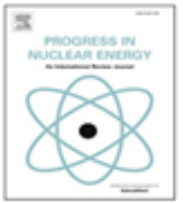

Understanding political institutional support for completing the Mochovce nuclear power plant

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1 February 2008

NGO Appeal submitted to the EC

Slovak NGOs appealed to the EC against amendments to the EIA Act, claiming violations of public participation rights under the Aarhus Convention.

18 September 2008

Reasoned opinion issued by the EC (Infringement Proceedings)

The EC launched infringement proceedings against Slovakia, and requested that the Slovak EIA legislation be amended, to achieve compliance with the Acquis Communautaire.

Slovak Government response only on 25 February 2009

Only when the EC informed the Slovak authorities that it could disapprove co-financing of large infrastructure projects from the Structural Funds and the Cohesion Funds, worth almost € 8 billion, should these projects be permitted under 'these Laws', did the Slovak Government ask the Ministry of Environment to prepare correcting amendments to 'these Laws' (Government Resolution no. 169/2009).

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However, the quickly drafted and adopted 'correcting Act proposal'[19] was found by the EC to still be in non-compliance with the *Acquis Communautaire* with respect to the amended definition of the 'public concerned'. The Slovak parliament only corrected the EIA Act in line with EC requirements in March2010[20]. But this was done in such a way that it included a very controversial indirect amendment to the FOIA that significantly limited transparency, specifically and solely for commercial nuclear sector information.

(25 February **2009** - ▶)

Transparency (1/3) – limited already prior to the 2010+ FOIA amendments

(Energy for the 3rd millenium). At least in seven cases of requests for information submitted by this NGO to the Slovak Nuclear Regulatory Authority (NRA) in the period 2007–2009, the requested information, or its crucial parts, was not disclosed. Information treated by the NRA as classified included:

- changes in the design of the Mochovce NPP (Units 3 and 4) made after the approval of the construction permit for this NPP in 1986,
- the results of the Probabilistic Risk Analysis of accidents for the Mochovce NPP (Units 3 and 4) and relevant safety studies made both before the construction permit given in 1986 and after the changes made into the design of the NPP in 2000s,
- comparisons of sizes of accident zones planned for the NPPs in Slovakia and in selected countries (USA, Switzerland, Sweden and Belgium).

(NRA, 2010: Decisions no. 374/2007, 235/2008, 268/2008, 273/2008, 11/2009, 12/2009 and 14/2009).

Source [of partial screenshots]:

Peter Mihók

Risk communication and knowledge management in a nuclear sector: a case study about the experience of Slovak non-governmental organisations

Knowledge Management Research & Practice (2011) 9, 228–235

www.palgrave-journals.com/kmrp/

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Transparency (2/3) – Example of a practice to eliminate transparency

More worryingly, some even consider a regression in the rights to access to information for instance (Slovakia, Belgium or Sweden) because of a law allowing denial of access to files due to telecommunication, bank, and postal secrecy (page 22).

The state-owned company responsible for SNF and RW management claims not to be liable under the Slovak Freedom of Information Act (page 30) – This is no longer possible due to the amendment of the Freedom of Information Act (Act no. 428/2022), in force since January 2023.

NTW
NUCLEAR TRANSPARENCY WATCH

HOME ABOUT US ACTIVITIES DOCUMENTATION MEDIA

Overview of activists' submissions addressing lack of public access to nuclear sector information in Slovakia

19 November 2020

From Peter Mihok, member of NTW.

https://www.nuclear-transparency-watch.eu/activities/transparency-and-public-participation/overview-of-activists-submissions-addressing-lack-of-public-access-to-nuclear-sector-information-in-slovakia.html

Update on transparency and eNGO participation in nuclear sector EIA within:

European Commission | EU Funding & Tenders Portal

Home | Funding | Procurement | Projects & results | News & events | Work as an expert | Guidance & documents

Home > Funding > Partner search > UNIVERZITA MATEJA BELA V BANSKEJ BYSTRICI > Economic and Social Considerations for the Future of Nuclear Energy in Society

Economic and Social Considerations for the Future of Nuclear Energy in Society (ECOSENS)

101060920

Internal navigation

- General information
- Abstract
- Participants

General information

Call
HORIZON-EURATOM-2021-NRT-01

Programme
EURATOM2027

DG/Agency
RTD

Activity
No activity available

Keywords
stakeholder engagement | nuclear energy sustainability | nuclear energy costs | social discount rate | circular economy

D1.3 Practical recommendations for enhanced mechanisms of interaction between citizens, civil society, decision-makers and researchers (CIEMAT) (M36)

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/how-to-participate/org-details/998462517/project/101060920/program/43298916/details

Review of public participation in SEA and EIA procedures in the nuclear sector in Slovakia

Peter Mihók, Matej Bel University, Slovakia
Adela Mršková, DECOM, Slovakia

Table 4: Participation of NGOs in nuclear sector EIA and SEA procedures (2006 – September 2011)

No.	Short name	Type of procedure	Greenpeace	Energy of the 3rd millenium	For Mother Earth	Energia 2000	CEPTA
8.	NPP V1 Decommissioning	EIA		√		√	
9	NPP Mochovce cap. increase	EIA		√√			
10.	Strategy of back-end cycle	SEA	*	√ **	*		√√
11.	Mochovce NPP Units 3&4	EIA	√√	√√	√√	√√	
12.	iRAW facility Mochovce	EIA					
13.	LILW rep. enlargement and VLLW rep. Construction, Mochovce	EIA					
14.	Integral solid RAW repository in Jaslovske Bohunice	EIA					

Legend: √ - commenting in writing, √√ - both written comments and participation at the public hearing, * - barriers of participation (see chapter 2.3 of this Deliverable), ** the only relevant NGO representative could not participate at the public hearing due to health and personal reasons.

Sources: Final opinion document, available at EIA Information System (procedures 6-10) or via Freedom of information Act.

The significant amendment of the National Nuclear Fund Act, planned for 2018, should ensure that value of the contributions made by the NPP operators to the fund are no longer set by Parliament but instead by an independent body, presumably the National Nuclear Fund (MoE 2015: 15).

Delays in Finding a Solution
The Governance of Nuclear Waste Disposal in Slovakia.
Peter Mihók

(page 177)

Care about future generations...

NÁRODNÝ JADROVÝ FOND

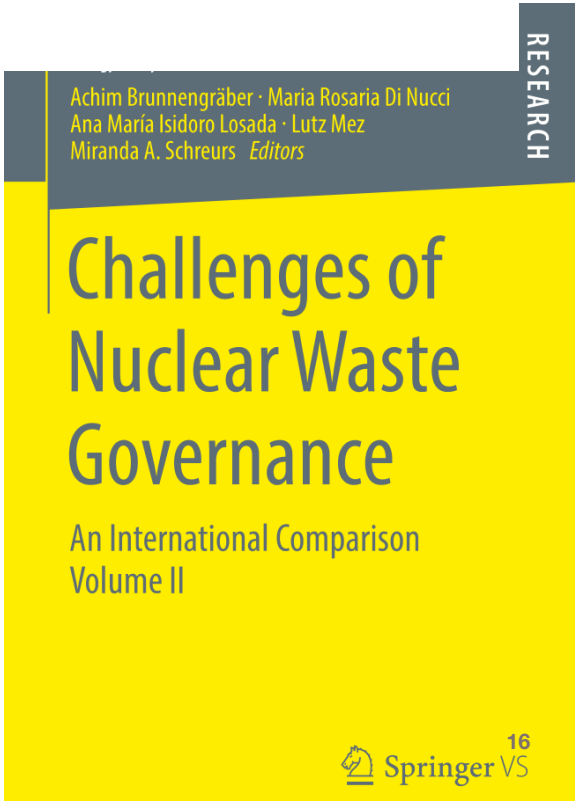
ACT NO. 308 COLL. ON THE NATIONAL NUCLEAR FUND

https://www.njf.sk/en/documents/

METODIKA STANOVENIA POVINNÝCH PRÍSPEVKOV A PLATIEB

▶ Metodika stanovenia povinných príspevkov a platieb

https://www.njf.sk/dokumenty/dokumenty-jadroveho-fondu /



Slovak SNF DGR siting - status as of August 2024

JAVYS (i.e. the state owned company "entrusted" with the SNF DGR preparation/siting):

*The conclusion from **2018**,*
*the year in which we have **the last outputs** from the project of the SNF DGR development in SVK,*

is that we plan to carry out geological exploration in two locations
and in the other three locations we plan to develop a project of the geological task.

***We have in no way narrowed down the number of candidate sites for the construction of the SNF DGR**,*

but for economic and technical reasons we have chosen the two most prospective sites where we want to start geological exploration.

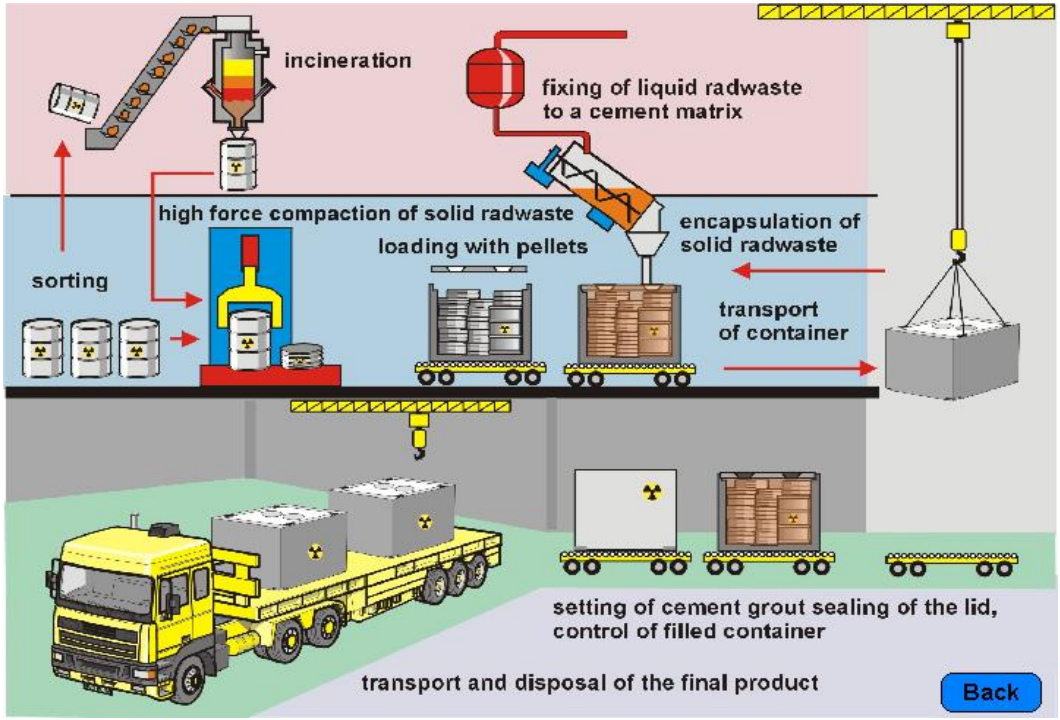
Source: Answer to request for information [using FIOA], dated 5 September 2024, no. 2024/06610/0002/Žia; no. s/2024/1552_

… This approach enabled to entrust JAVYS, as a state owned company, by duties of waste management agency.
This happened in autumn 2011. …

Source: **IPPA Deliverable 2.5** **Slovak experience with novel approaches in risk communication and public participation** (page 6)

RAW Management technical base

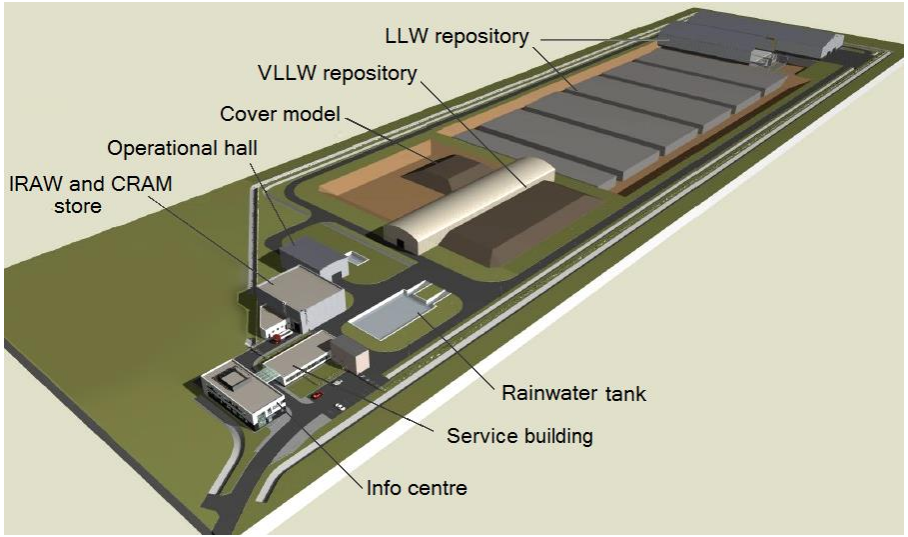
(initial question: „Who is the civil society ?“, Bucarest, 25 April 2024)



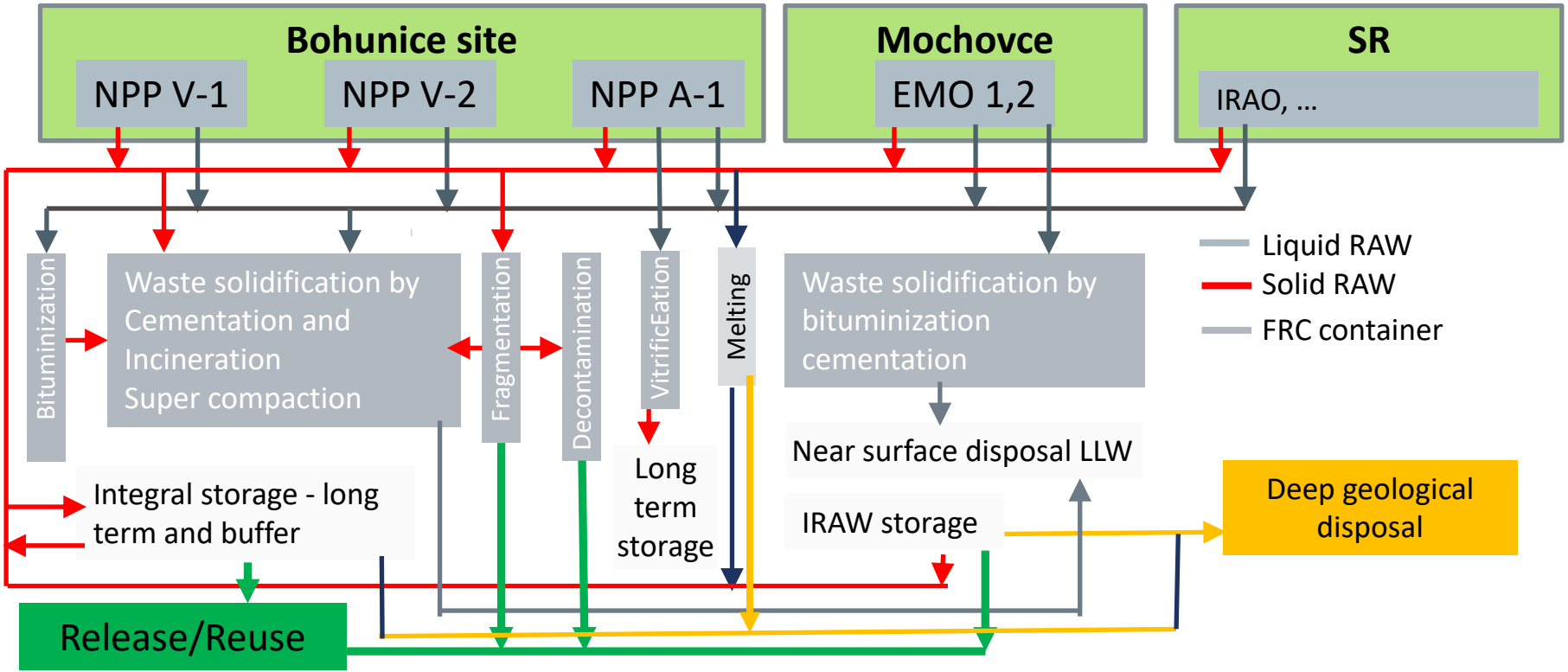
RAW Disposal (LLW)

Producer	The number of FCC disposed as of 31 December 2023 [pcs]	Amount of VLLW disposed as of 31 December 2023 [m^3]
A1 NPP	2675,4	22913
V1 NPP	2526,2	1028
V2	1008,8	0
EMO 1,2	973,3	0
other	214,1	
TOTAL	7398	23941

RAW Disposal



RAW management scheme



The national policy

- **2008 Strategy of the Final Stage of Nuclear Power Engineering in the Slovak Republic**
- **2014 1st update**
- **2015 Modified to National Policy and National Programme according to the Directive 2011/70/EURATOM**
- **2020 – 2024 update (ongoing)**

A.1.2 **Principles Based on Specific Conditions in the Slovak Republic**

a) Future decisions in the field of SNF and RAW management shall reflect at all levels the technical and legislative developments that are taking place in the European Union and in the world in the given issue.

b) The treatment of RAW originating from the Slovak Republic is a priority.

c) The import of RAW from other EU countries for the purpose of its treatment using technologies (with the exception of incineration) and the return of the radio-nuclide inventory is possible provided that the affected entities were accepted, the relevant authorities gave their consent and permit, and it has been proven that it will not limit the procedure for managing RAW from of the Slovak Republic, and that the activities connected with it are of benefit to the Slovak Republic, have been assessed and accepted from the point of view of environmental protection and radiation protection of residents and workers, and comply with the current legislation of the Slovak Republic.

d) The disposal of RAW other than RAW generated in the Slovak Republic on the territory of the Slovak Republic is not allowed.

The working team

1. Ministries: MH SR – Ministry of Economy of the Slovak Republic

2. Regulators: ÚJD SR – Nuclaer Regulatory Authority of the Slovak Republic
   ÚVZ SR – Public Health Authority of the Slovak Republic

3. Licence holders: Slovenské elektrárne – Slovak electricity
   JAVYS – Nuclear and Decommissioning Company

4. Universities/science: UK/STU/Geology research institute

5. Experts: VUJE

6. Civil society: CHZK

7. Coordinator/contact point: NJF – National Nuclear Fund

National programme 2015, tasks / particular objectives

For area for disposal of radioactive wastes and spent nuclear fuel			
12.	To construct Repository of Very low-level wastes	2018	JAVYS, a. s.
13.	To construct another repository structure after filling of the second double row of RÚ RAO	2018	JAVYS, a. s.
14.	To take decision on continuation or termination of dual track in development of deep repository – to review completely the idea of common international deep geological repository	2020	MH SR
15.	To develop plan for other stages of renew development of deep geological repository	2026	JAVYS, a. s.
16.	Take decission on siting of Deep Repository of SR (in case of cancellation of dual track	2030	JAVYS, a. s.
17.	To commission deep geological repository	2065	JAVYS, a. s.
In area of research and development			
18.	To develop framework programme for development and research in area of deep geological repository and create internal conditions for its implementation	2018	JAVYS, a. s.
In area of transparency			
19.	To develop and prepare implementation of system for economic stimulation of localities affected by development and operation of repositories.	2018	MH SR JAVYS a.s., NJF

Structure of the updated National programme (2024)

A. National policy for the management of SNF and RAW in the Slovak Republic
- A.1 National policy principles
- A.2 Bases of national policy
- A.3 Policy objectives
- A.4 Procedure for achieving policy objectives

B. Legal, regulatory and organizational framework for the management of SNF and RAW
- B.1 Legislative framework
- B.2 Infrastructure and management of National policy and National programme

C. National program of the management of SNF and RAO in the Slovak Republic
- C.1 Description of nuclear installations and origin of spent nuclear fuel and radioactive waste
- C.2 Management of SNF and RAW in the Slovak Republic;
- C.3 Decommissioning of NI
- C.4 RAW repositories
- C.5 Education, science and research
- C.6 Transparency and public involvement
- C.7 Financing of FSNPE
- C.8 Tasks and objectives
- C.9 Key indicators for monitoring progress
- C.10. References
- C.11 Annex (Inventory of recommendations and suggestions from the ARTEMIS mission in the Slovak Republic)

The updated National programme

A.3 National policy - Objectives

6. To ensure transparency in SNF and RAW management and ensure the timely, systematic and sufficient information and effective involvement of actors in the decision-making processes in SNF and RAW management.

7. To ensure a functional infrastructure, the sustainable development of science, research, as well as the preservation and transfer of information, skills and knowledge in the field of the final stage of the peaceful utilization of nuclear power engineering and the management of sources of ionising radiation.

8. To continue in the development of a deep geological repository in the Slovak Republic and, in the future, possibly of other disposal capacities so that, in the due course, the Slovak Republic has a secure disposal of SNF and all types of radioactive waste. Update the deep geological repository development plan every six years.

9. To fulfil the obligations of the Slovak Republic resulting from the international conventions, international recommendations, and EU directives in the field of the spent nuclear fuel and radioactive waste management.

10. To create conditions for the acceptability of the affected population with a long-term environmental burden in the management of SNF or disposal of RAW.

ARTEMIS - Recommendations and suggestions

Area		R S G	Reccommendations, Suggestions or Good practice	Responsible
1.	NATIONAL POLICY AND FRAMEWORK	R1	The Government should expedite the decision for the undertaking of further work on geological disposal.	MH SR/MŽP SR
		R2	The National Nuclear Fund should establish documented procedures for the timely and regular updating of the National Programme for spent fuel and radioactive waste management.	NJF
		R3	The Government should establish a programme of proactive involvement of interested parties including the public regarding radioactive waste and spent fuel management, particularly in the siting of a geological disposal facility and its planned evolution.	MH SR/MŽP SR
		R4	The Government should establish formal arrangements for the effective coordination of regulatory functions in cases where multiple regulatory organizations have responsibilities for spent fuel management, radioactive waste management, decommissioning and **environmental remediation.**	UJD/UVZ

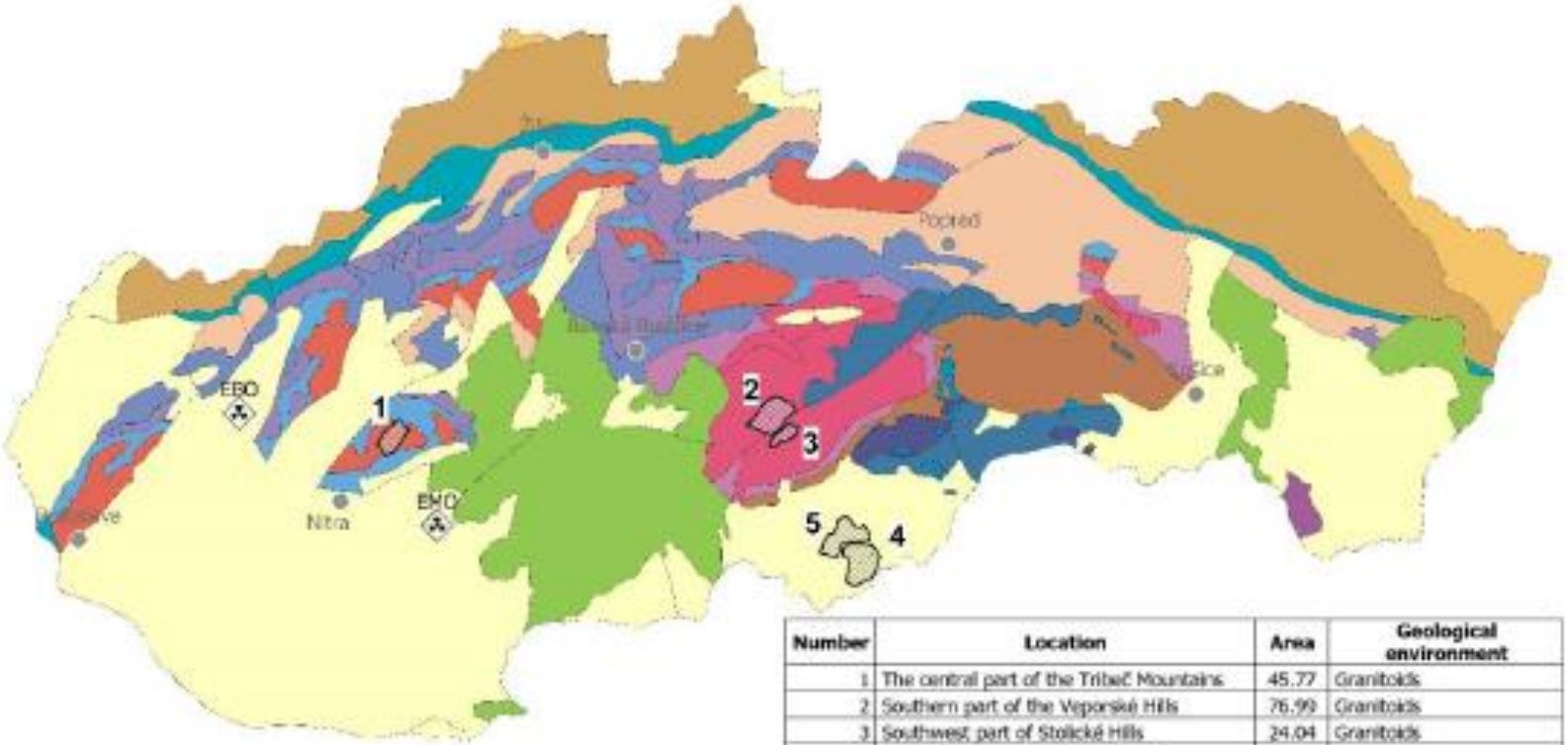
ARTEMIS - Recommendations and suggestions

2.	NATIONAL STRATEGY	R5	JAVYS, as implementing organization for geological disposal, should update the existing implementation plan with interim targets and timelines in support of the National Programme milestones.	MH SR/JAVYS
3.	INVENTORY OF SPENT FUEL AND RADIOACTIVE WASTE	R6	The Government should make arrangements for the establishment and maintenance of a comprehensive national inventory for radioactive waste and spent nuclear fuel.	JAVYS
4.	CONCEPTS, PLANS AND TECHNICAL SOLUTIONS	R7	The Government should ensure that a programme is established for the research and development activities to be undertaken in support of the implementation of the geological disposal programme. The research programme should establish clear priorities with defined timeframes, responsibilities and the associated resources for its timely execution.	MH SR/JAVYS
		GP1	The application of an immediate dismantling strategy combined with the treatment of all materials arising was considered to be outstanding. The integrated approach of JAVYS and other participating organizations to the decommissioning project V1 effectively supported optimized execution of all technical activities in a timely and cost effective manner. Furthermore the openness of JAVYS in sharing their experience can be highly beneficial to a number of comparable present and future decommissioning projects.	

ARTEMIS - Recommendations and suggestions

5.	SAFETY CASE AND SAFETY ASSESSMENT	R8	JAVYS should initiate development of an understanding of the features of the geological disposal facility and its host environment that influence safety, to support the siting decision making process.	JAVYS
		R9	The regulatory bodies should develop comprehensive guidance for demonstrating compliance with the requirements on siting of the geological disposal facility and subsequent steps in implementation of the geological disposal programme.	UJD
		S1	The regulatory bodies should consider undertaking a detailed review of existing requirements and confirm their applicability to the geological disposal programme.	UJD
7.	CAPACITY BUILDING, EXPERTISE TRAINING AND SKILLS	R10	JAVYS should develop and maintain the competence and resources necessary for the implementation of the geological disposal programme.	JAVYS
		R11	The regulatory bodies should develop and implement a plan to establish and maintain the competence and resources necessary for the regulation of the geological disposal programme.	UJD/UVZ/MŽP SR

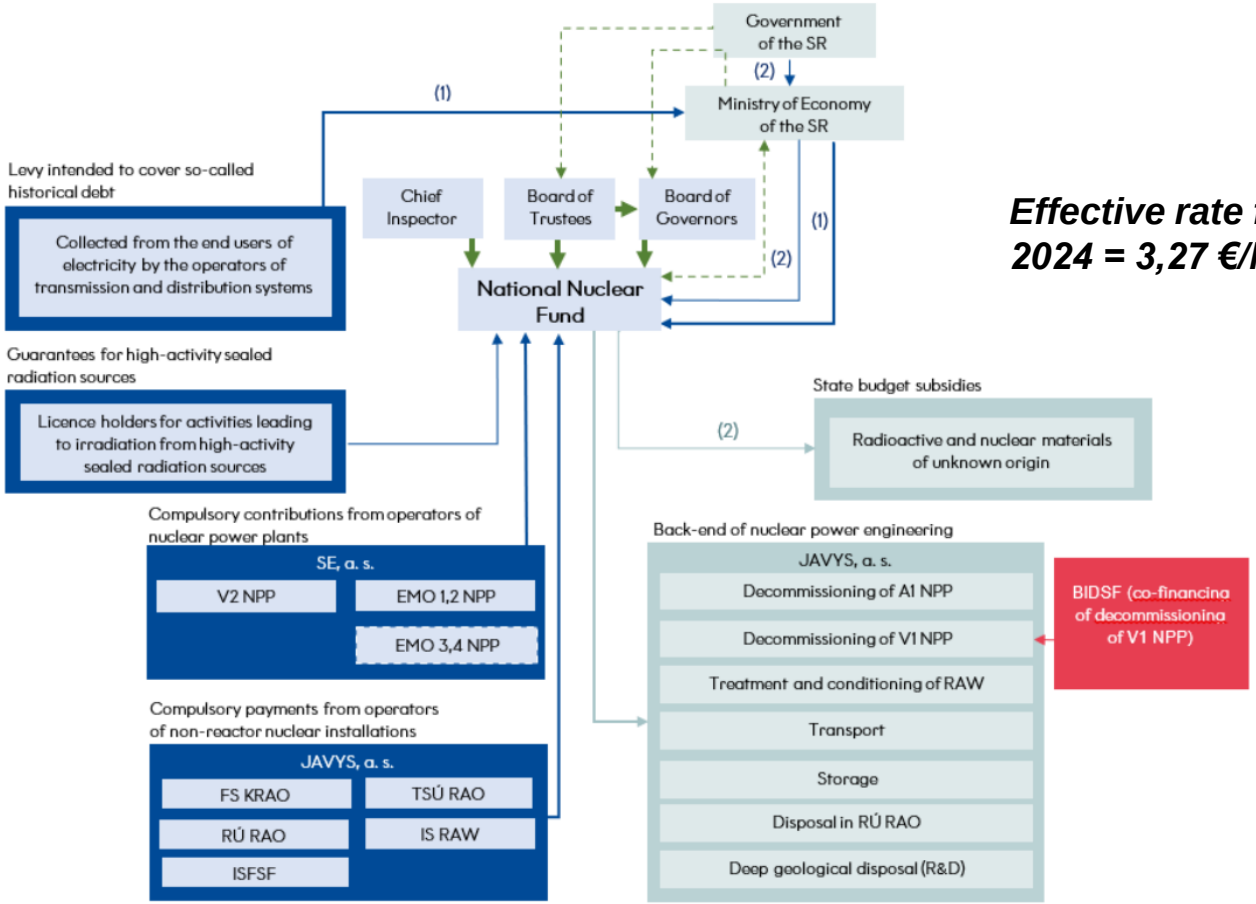
Considered sites for DGR



Number	Location	Area	Geological environment
1	The central part of the Tribeč Mountains	45.77	Granitoids
2	Southern part of the Veporské Hills	76.99	Granitoids
3	Southwest part of Stolické Hills	24.04	Granitoids
4	Eastern part of Cerová Highlands	85.24	Sediments
5	Western part of the Rimavská Basin	86.64	Sediments

No.	Task/objective	Deadline	Responsible
19	To prepare an update of the schedule for the development and construction of DGR taking into account the current reality and the need for nuclear power plants in the Slovak Republic, including the conditions of the EC taxonomy.	2025	R: JAVYS, a.s Co-R: MEc SR, ME SR SR, NNF, SE, a.s.,
20	On the basis of scientific, technical, natural, social and economic values, to propose a site for the location of a deep geological repository in the SR.	2030	R: JAVYS, a.s., Co-R: MEc SR, ME SR SR
21	To ensure the update of the feasibility study of the DGR as well as the elaboration of a technical-economic analysis of the commissioning of the DGR taking into account the current realities of the FSNPE in the SR and the EU (impacts of the adopted Taxonomy, etc.).	2024	JAVYS, a.s.
	In research and development		
22	To develop a plan for the development and provision of research, development, technical and advancement, provision of professional human resources in the field of nuclear energy and its final part in the SR.	2025	R: MEc SR Co-R: MERDY SR
	In the area of FSNPE funding		
23	In order to ensure sufficient financial resources for the FSNPE, to prepare an expert analysis and a proposal for measures which result in an assessment of the NNF´s financial resources at least above inflation.	2025	R: NNF, Co-R: MEc SR, MF SR, SE, a.s.,
24	In order to verify and assess the correctness of the costs for decommissioning of NI, which are set out in the conceptual plans for decommissioning of NI, create possibilities to verify the estimated costs with a reputable agency or experts dealing with the costs of FSNPE.	2025	NNF

Financing of the Back-end in Slovakia



Effective rate for levy 2024 = 3,27 €/MWh

Further development

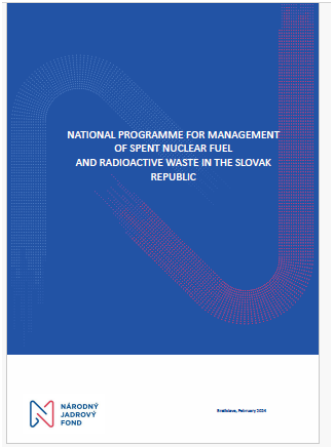
- SEA of the National programme
  https://www.enviroportal.sk/eia/detail/vnutrostatny-program-nakladania-s-vyhoretym-jadrovym-palivom-radioakti
- Commenting
- Approval by the government
- Submission by the EC
- Feedback by the EC

Key Milestones of the DGR Development Project

Stage I – Site Selection (2023 – 2030)

- Communication with the public in selected locations; 2025 – 2030;
- Geological survey of the environment of the Tríbeč site and the Rimavská kotlina site, including an assessment of the environmental impact of deep drilling; 2025 – 2027;
- Geological survey of the environment of the Veporské vrchy, Stolické vrchy and Cerová vrchovina sites, including an assessment of the environmental impact of the deep drilling; 2028 – 2030;
- The research, development, design and other works necessary for the decision on the location of the DGR and for obtaining the planning permission; 2025 – 2030;
- Final and backup site selection; 2030.

Stage II – Site Characterisation – Site Confirmation (2030 – 2038)



Conclusions

- Presented situation in the Back - end and the position of CS
- The main challenges were pointed out and discussed
- The updated (proposal) for the National programme and its importance has been introduced

A prerequisite for a successful and sustainable decision on the selection of the deep geological repository site is transparency of the process with an active involvement of affected municipalities and the public pursuant to the Council Directive 2011/70/Euratom following the recommendations of the European Nuclear Forum working groups. The creation of a transparent framework with a clearly specified role of the affected municipalities in the process of selecting a repository site is then a prerequisite for creating an atmosphere of trust between the participants in the process, and it helps reaching a consensual solution.

Thank you for your attention (resp. interpretation to other langueges)!

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