
View of a representative of the Federal Ministry for Environment, Nature Conservation and Nuclear Safety (BMU)

Mr. Robert Harbers
Art. 12.2: “The national programme together with the national policy may be contained in a single document or in a number of documents.”
One Programme, Five Reports

National Programme
Programme for the responsible and safe management of spent fuel and radioactive waste

• Lead document lays down, with a high level of abstraction (23 pages), the strategy for managing spent fuel and radioactive waste.
• Submitted to European Commission in August 2015.
• The National Programme was subject to review, but the recommendations of the German Parliament’s Commission on the Storage of High-Level Radioactive Materials did not result in major changes.
• A strategic environmental assessment (SEA) was carried out for the national programme including public participation.
Formal Status and Content Highlights

• The National Programme was prepared by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety.

• The National Programme was agreed upon by the German government.

• The National Programme has to be considered by all actors in the planning of waste management and administrative decisions.

• Concise description of waste management options for all existing and anticipated radioactive waste.

• Site specific inventory of all radioactive waste was published.

• Cost estimation for waste management was published.
A strategic environmental assessment was conducted for the National Programme.

Drafts, environmental report and responses to all statements received were published.

A petition with several 10,000 signatures was received.

With a view to the not yet known location of the disposal facility for high-level radioactive waste transboundary consultations were offered to all neighbouring countries.

- No significant adverse transboundary impacts were identified.
- Comments received by Austria, Czech Republic, Netherlands, Poland and Switzerland.
- The following statement was added to the National Programme:
  “Should measures be implemented in border areas in the course of implementing this programme, the bordering countries concerned will be offered consultations in accordance with international binding provisions.”
Policy, Framework and Programme

Directive 2011/70/Euratom:

- “Member States shall establish and maintain national policies.” (Article 4.1)
- “Member States shall establish and maintain a national legislative, regulatory and organisational framework (‘national framework’)” (Article 5.1)
- “national programmes shall set out how the Member States intend to implement their national policies” (Article 12.1)

Already implemented system in Germany:

- A historically grown and established national legislative, regulatory and organisational framework exists and is implemented on all levels of the regulatory structure.
- A historically grown and established waste management programme with waste treatment, storage and disposal facilities exists.
- The National Programme describes the existing system which for most parts is already implemented.
Policy and Policy Changing

- Policy is defined/implemented in:
  - Laws and Ordinances
  - Guidelines
  - National Programme
  - etc.
- **New laws and ordinances** dedicated to disposal (e.g. Site Selection Act, Disposal Safety Requirements Ordinance)
- Main policy changes are based on **broad political consensus**
- Preparation of major decision/policy changes through recommendations by dedicated commissions (e.g. Commission on Storage of High Level Radioactive Waste, Commission on Financing Nuclear Phaseout)
Site Selection Act

- Site selection is based on **geological criteria** laid down in the Site Selection Act:
  - Exclusion criteria (e.g. volcanic/seismic activity, existing mines, ...)
  - Minimum requirements (e.g. overburden, thickness of strata, ...)
  - Weighting criteria (e.g. fluid transport, temperature stability, ...)
- Possible host rocks: **salt**, **clay** and **crystalline rocks** (all exist in Germany)
- Three-phased procedure, possible sites are narrowed down by means of preliminary safety analyses and exploration
Site Selection Act

**Phase 1**
Starting from “Blank Map of Germany”
Application of selection criteria and prel. safety analyses based on existing data
Selection of siting regions for Phase 2

**Phase 2**
Exploration of siting regions from above ground
(Re-) Application of selection criteria and prel. safety analyses based on above-ground exploration results
Selection of sites for Phase 3

**Phase 3**
Exploration of at least two sites from below ground
(Re-) Application of selection criteria and prel. safety analyses based on underground exploration results
Selection of disposal site
Ordinances under the Site Selection Act

- The Site Selection Act provides for three statutory ordinances:
  - Safety requirements for the disposal of HLW (§ 26)
  - Requirements for preliminary safety analyses in the site selection procedure (§ 27)
  - Documentation of disposal activities (§ 38) (under preparation)

- Ordinances according to §§ 26 and 27 have been prepared by BMU and approved by the Federal Parliament on 10 Sept. 2020

- Drafts for ordinances have been published and were open for comments from mid-July till mid-November 2019 via 3 channels:
  - Interactive website: [www.dialog-endlagersicherheit.de](http://www.dialog-endlagersicherheit.de)
  - Public symposium: 14th-15th Sept 2019 in Berlin, ca. 100 participants
  - Written statements
Ordinances under the Site Selection Act

Safety Requirements for the disposal of HLW

- Ordinance determines the licensing conditions for a HLW disposal facility e.g.
  - Safe containment of radionuclides for one million years.
  - The disposal system must ensure passive containment and maintenance-free operation by means of a robust system of multiple barriers with different safety functions.
  - For expected developments: max. $10^{-9}$/a of radionuclide mass released from primary barriers, dose limit 10 µSv/a.

Preliminary Safety Analysis during Site Selection

- StandAG stipulates preliminary safety analyses for the considered areas in each of the three phases; according to § 27 StandAG:
  - Preliminary safety analyses assess whether safe containment of radioactive waste can be expected at the respective site.
  - Assessment is based on safety requirements.
  - Preliminary safety assessments are a basis for the decision on which areas will be considered further in the selection procedure.
Ordinances under the Site Selection Act

Phase 1
Starting from “Blank Map of Germany”
Application of selection criteria
representative preliminary safety analyses

Phase 2
Exploration of siting regions from above ground
(Re-) Application of selection criteria
further developed preliminary safety analyses

Phase 3
Exploration of at least two sites from below ground
(Re-) Application of selection criteria and prel. safety analyses
Comprehensive preliminary safety analyses
Public participation during the Site Selection Process

Adoption of Site Selection Act 05/2017

BGE publishes interim report 30/2020

BGE publishes proposal for siting regions

Federal Parliament determines siting regions for above-ground exploration

Phase 1

Regional Conferences (transboundary where applicable)

Subareas Conference

Council of the Regions Conference

Phase 2

National Civil Society Board (NBG)

information platform

Phase 1 05/2017 3Q 2020
ARTEMIS Mission 2019

Outcome:

• Findings: **1 Good Practice** (National Civil Society Board), **12 Suggestions**, **3 Recommendations** (monitoring process, cost assessment, risk analysis)

• Conclusions: Germany has a **mature legal and regulatory framework** for the safety of radioactive waste and spent fuel management. Recently restructured organizational framework for the National Programme contains the necessary elements for safety and programme implementation.

• Significant challenges: Completion of HLW disposal **site selection process** until 2031 and retrieval of waste from the **Asse II** mine.

Further steps:

• Analysis of Recommendations & Suggestions → done

• Collection of proposals for the implementation of all authorities and Länder involved in ARTEMIS → done

• Creation of an action plan → in progress

• Implementation of **R&S** until Follow up mission → planned for autumn 2022
IRRS & ARTEMIS in the same year

ARTEMIS topics partly covered by preceding IRRS Mission 2019:

National policy and framework / National strategy

- **Overlap of questions** regarding e.g. overall regulatory system in Germany, national framework (site selection act), capacity building, knowledge management, safety culture,…

- Expected **synergy effects** by using IRRS report for ARTEMIS, but Expectations have not been fully fulfilled. (Different reviewers, less use of IRRS mission report)

- Establishment of an **ENSREG Subgroup** that will work on the future efficiency of IRRS-ARTEMIS. (Member states: Germany, Belgium, Czech Republic, Finland, Italy, Netherlands, Spain, Sweden)
Outlook

- A revision of the National Programme is regularly reviewed, in particular with regard to fundamental policy changes.
- An evaluation will take place 10 years after adoption of the National Programme: this is planned for the year 2025.
- At this time all nuclear power plants will be switched off, nuclear energy will be phased-out in Germany.
- The site selection procedure will be further advanced. Weaknesses and misconceptions, as well as predictable challenges can be identified in the sense of a learning process.
Thank you for your attention!