



IGD-TP - Towards operation and optimization

Tiina Jalonen, IGD-TP Chair



10th European Commission Conference on EURATOM Research and Training in Radioactive Waste Management
30 May - 3 June 2022 | Lyon, France

Implementing Geological Disposal - Technology Platform, IGD-TP

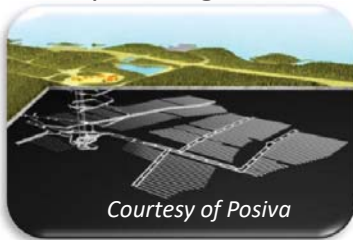
- Steers, initiates and carries out European strategic initiatives to facilitate the stepwise implementation of safe, deep geological disposal of SF, HLW and other long-lived radioactive waste
- Currently 142 member organisations across 29 countries, all interested parties endorsing the IGD-TP Vision and willing to contribute positively and constructively to the group's goals are welcomed
 - The secretariat is solely funded by the 11 WMOs and organisations responsible for implementation-related RD&D who form the Executive Group (EG)



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Moving towards the vision

- Our first vision, Vision 2025
 - ‘to have the first geological disposal facilities (GDF) for spent fuel, high-level waste and other long-lived radioactive waste in operation by 2025’
- Major progress has been made towards achieving our vision
 - Posiva has submitted the operating licence application in December 2021 and is planning the start operation in 2025
 - SKB has been granted the construction licence in January 2022
 - ANDRA is planning to enter to the initial construction phase in 2022



IGD-TP Vision 2040

2040 – Towards industrialisation of radioactive waste disposal in Europe

Safely operate

the first geological disposal facilities in Europe

Optimise & industrialise

planning, construction and disposal operations

Tailor solutions

for disposal of the diverse waste inventories in Europe

- In order to meet the challenges of the next phase the IGD-TP has updated the group's vision
 - Vision covers both small and large disposal programmes in initial or more advanced stage
 - Considers shared repositories and/or mined borehole disposal
 - **Safety is the highest concern**, however, as these are **multi-billion programmes**, optimisation for implementation is very important



IGD-TP Strategic Research Agenda

IGD-TP WMOs have agreed a Strategic Research Agenda (SRA) to guide the focus of future activities and resource allocation to the challenges common to multiple WMOs

SRA identifies issues that need a coordinated effort for making Vision 2040 a reality

Also provides valuable input to identifying topics for future EURATOM calls



Some examples of SRA topics

- Post-closure safety
 - Verification and validation of models for the simulation of the transport of radionuclides in the near-field of deep geological repositories
- Waste forms and their behaviour
 - Further development of post-closure criticality safety analysis
- Technical feasibility and long-term performance
 - Industrial-scale operations for buffer and backfill
 - Container materials and their long-term performance
- Implementation and/or optimization
 - Building Information Modelling (BIM) and “digital twinning” of the as-built repository, coupled with numerical simulation of repository behaviour and data chain from monitoring
 - Thermal dimensioning of the repository
- Safety of construction and operation
 - Strategies to evaluate the impacts of construction and operational issues on the disposal system
- Monitoring
 - Data management
- Methodologies for site characterisation
 - Exploration methods for site characterization
 - Confirmation of rock properties
- Strategy for repository project development
 - Transition from surface-based site characterisation to going underground
 - Costing
- Knowledge management
 - Develop a common WMO KM strategy



Role of international cooperation

Moving from research and development, to construction and, finally, to industrial operation of a final disposal facility, requires a huge amount of work and is very costly

Experience from other programmes might speed up the progress and make savings – this is why international cooperation is of vital importance in the whole European perspective

