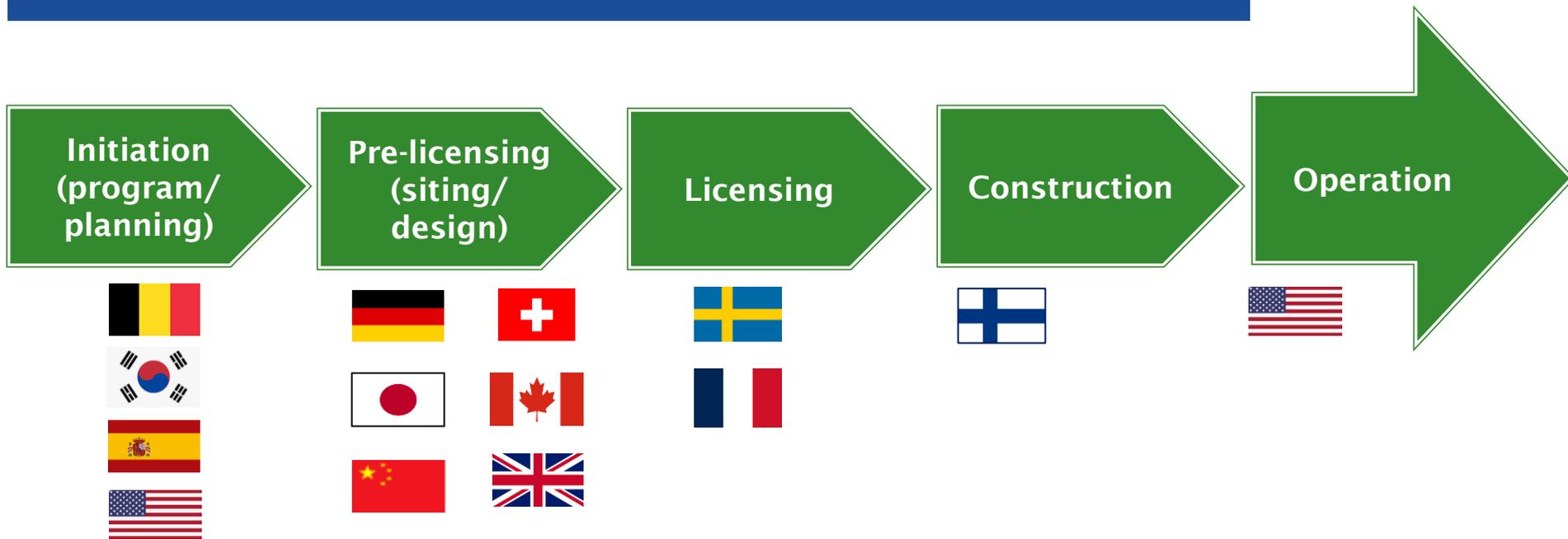




EUROPEAN AND INTERNATIONAL STATUS ON THE MANAGEMENT AND DISPOSAL OF RADIOACTIVE WASTE, DEVELOPMENT AND CHALLENGES AHEAD

Focus on Deep Geological Repositories

Geological disposal for HLW : Situation at a glance



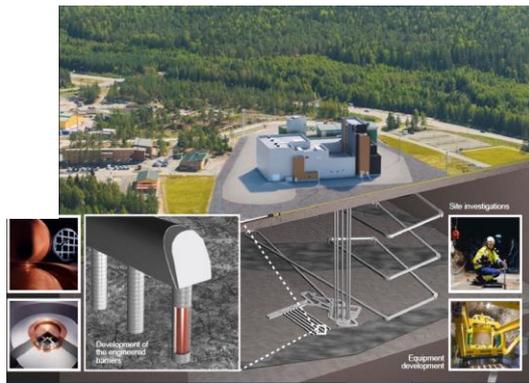
and Slovenia,
South Africa, The
Netherlands,
Ukraine,...

and Czech
Republic, Hungary,
India, Romania,
Russia, Slovakia, ...

Focus on some projects...



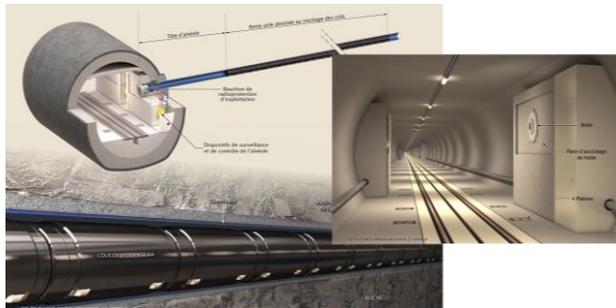
Onkalo
Under
construction



Forsmark
Licence
application



Cigéo
Licence
application



2 potential locations Ignace and South Bruce (Ontario) – investigations for decision in 2023



3 potential locations North Switzerland : Decision expected in 2022



Inshore project : near to coast
Consent-based : 3 localities to investigate (near Sellafield or SE England)

Success factors in a DGR program

Governance and interactions between stakeholders

Why ? Who? How ? ...

Roadmap
and milestones

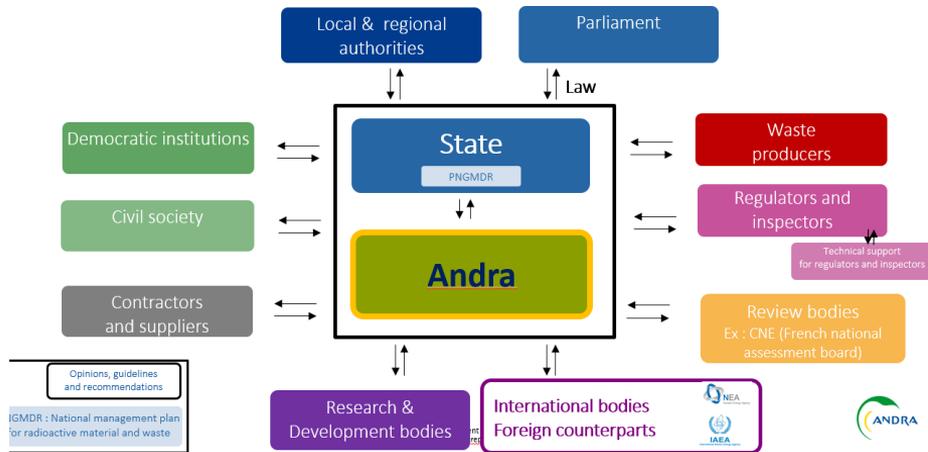
Clear decisional process, What and When

R&D
programme

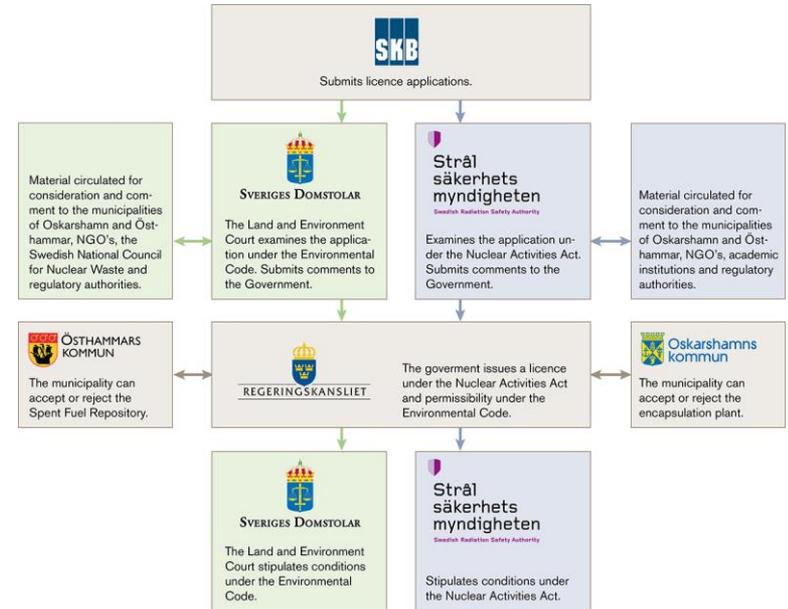
Research and Development
Programme to follow the
roadmap

Key success factors

Governance and interactions between stakeholders

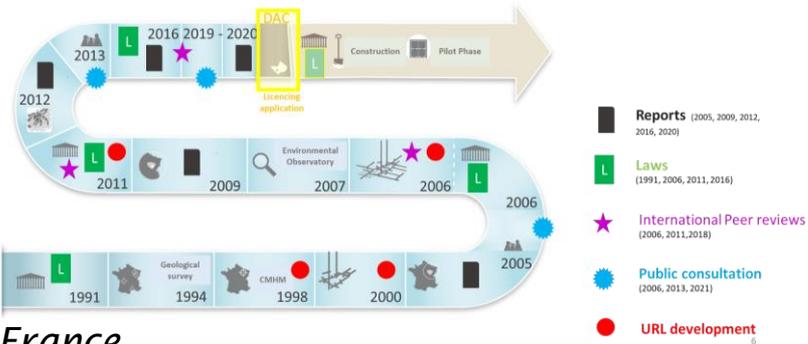


Example of France and Sweden

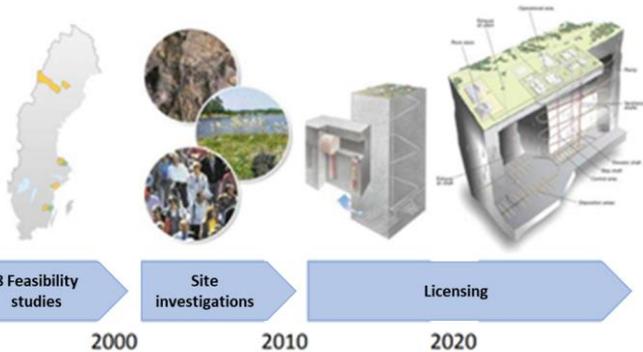


Key success factors

Roadmap and milestones

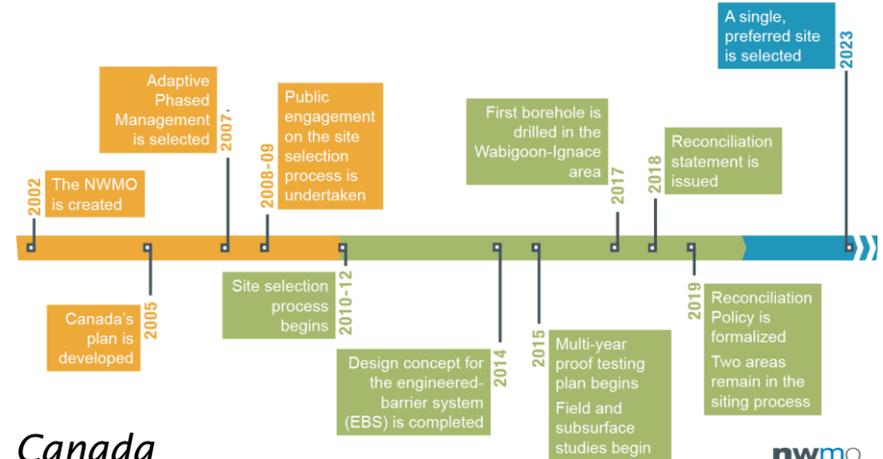


France



Sweden

Finland



Canada

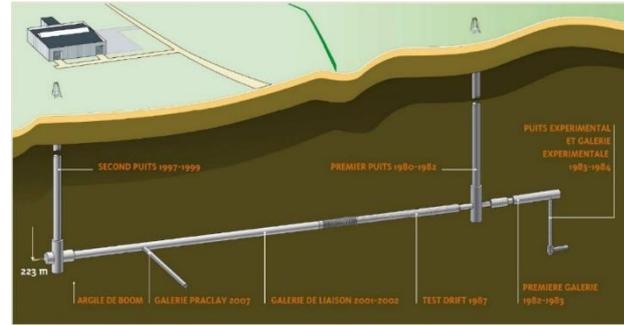
Key success factors

R&D programme

Underground research laboratory, research, technical innovation...



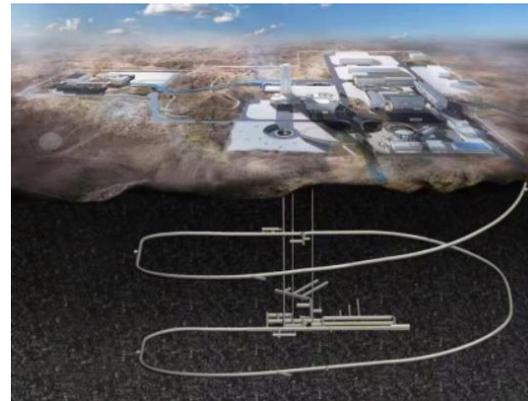
Andra URL
(France)



HADES
laboratory
(Belgium)



Grimsel
laboratory
(Switzerland)



Beishan URL
(China)

Key success factors

R&D programme

Underground research laboratory, research, technical innovation...



Copper canister for spent nuclear fuel (Finland)

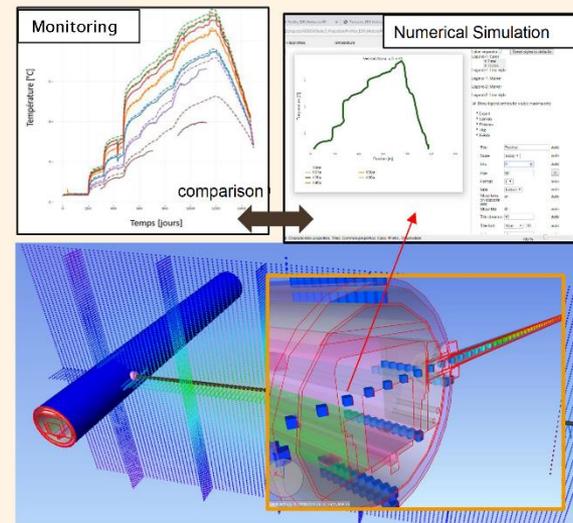


Automated transfer system to disposal tunnel (France)



Fire resistance test (France)

4D PHENOMENOLOGICAL DIGITAL TWIN



France

Challenges ahead

Licencing and construction of DGR

Licencing – Permitting : numerous procedures to follow (safety and environmental assessment) before getting autorisation)

Commissioning and starting operation of DGR

Numerous steps before a first package can be disposed of

Dialogue and stakeholders involvement

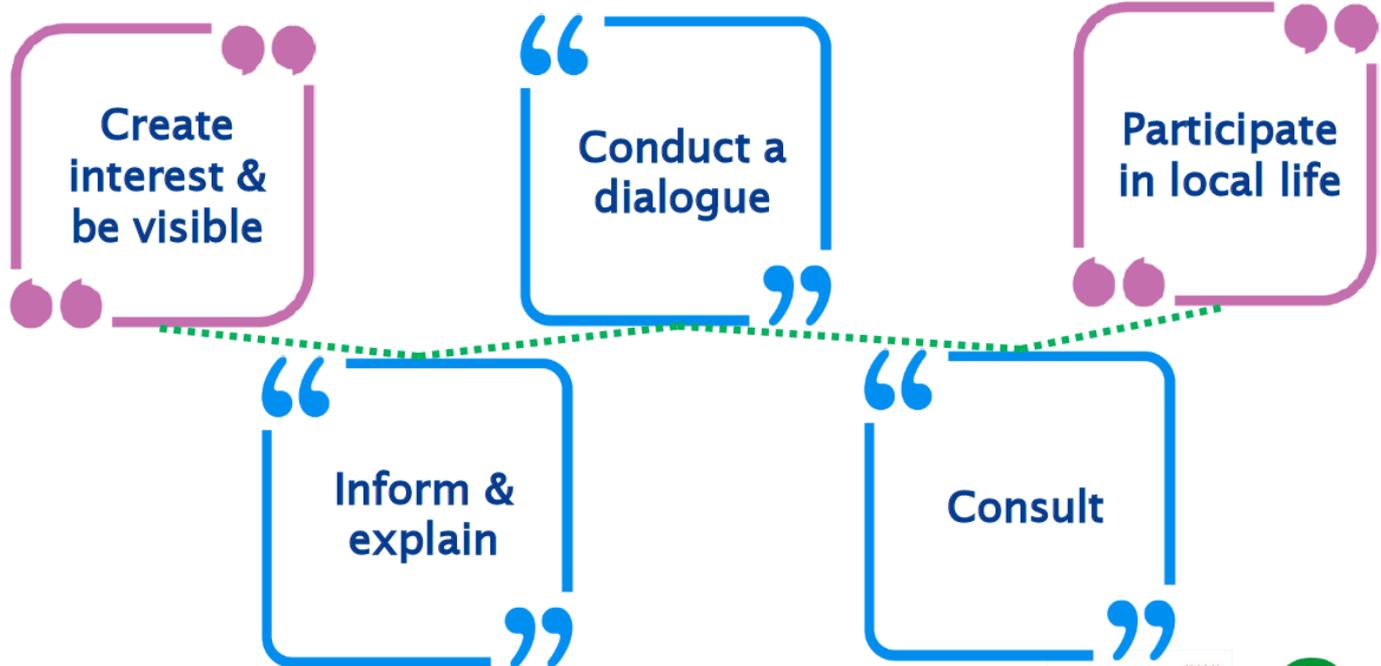
Civil society awarness, interest and participation - Get in touch and involve young generations,

Knowledge Management

KM methodology, importance to keep the right knowledge and transmission

Challenges : Dialogue & stakeholder involvement

Informing, communicating, involving public on RWM's activities and projects :
Numerous actions, interactions and innovations



Challenges : Young generation

Innovations to get in touch : Street art, conferences, podcasts, games, webinars, partnerships with youth associations and social media influencers, ...



Cartoon characters UK



Street art France

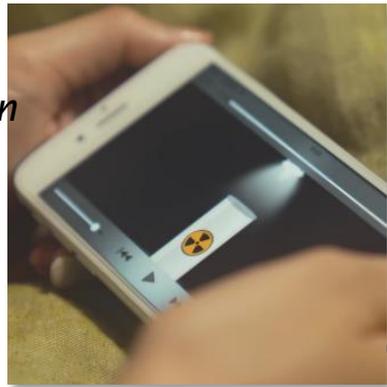


Escape Game Spain



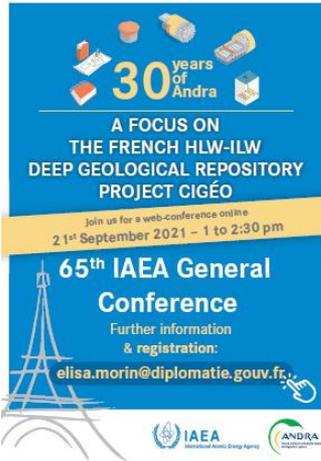
Conference Belgium

video production contest Japan



Institutional cooperation with AIEA

Sharing scientific, technical information, experience and knowledge with member states



➤ Networks and groups

Ex : URF, Disponet, Labonet, KM...

Technical Meeting, Consultancy Meeting, Experts Mission

➤ Peer reviews *ex : Artemis*

➤ Fellowship, Scientific visits

➤ Conferences

Ex : International Conférence on Radioactive Waste Management, solutions for a Sustainable Future, Nov 2021

➤ Steering groups

Ex : International Radioactive Waste Technical Committee (WATEC)

**In 2021, participation to
more than 30 IAEA events**



Institutional cooperation with OCDE/NEA

Sharing scientific, technical information, experience and knowledge with member states



➤ Radioactive Waste Management Committee (RWMC) : bureau member

➤ Working parties, experts groups

- IGSC : safety case
- Clay club
- EGOS : operational safety
- FSC : stakeholder confidence
- RIDD : regulator - implementer dialogue
- More : KM, nuclear law, decommissioning and legacy management...

➤ Conferences



In 2021, participation to nearly 30 NEA events

International Cooperation : EURAD



European Joint Programme on Radioactive Waste Management

23 European countries

116 organisations

- Waste Management Organisations
- Technical Support Organisations
- Research Entities
- 51 Mandated Actors, 62 linked third parties & 3 international partners



5 years
2019-2024



59,9 M€
50 %EC contribution

Objectives :

- Implement a robust and sustained state-of-the-art **Science and Technology Programme**
- Identify and elaborate upon complex issues by bringing together interested actors to jointly conduct **Strategic Studies**
- Consolidate efforts across Member-States, organisations and generations on **Knowledge Management**
- Foster mutual **understanding and trust** between participants (incl. from Civil Society) and other stakeholders

Looking ahead:

2 remaining years in the current programme

Preparation of the next EJP started yesterday (workshop)

Conclusions

- Deep geological disposal is the reference solution for HLW management
- DGR programs are lasting a few decades from initiation to commissioning : several generations concerned
- Earlier stakeholder involvement in recent programs
- 10 years from now DGR should be in operation