



Participation & Audience

30 May – 3 June 2022, Lyon, France



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

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A global audience



550+ Participants, **49** Nationalities



Euratom4U iOS Android App. & desktop version



51
Companies



35
Universities



29
Gov. Organisations



28
Research Centres



13
NGOs



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Young Generation goes nuclear!



FISA 2022
EURADWASTE'22

ENS-YGN **High-Level Opening**

+150 participants

Open Call MSc/PhD/R&D Awards Competition,
Nuclear **Innovation Prize**, **Poster Exhibition**,
and **ENEN PhD Event & Prize**



3 ENS-YGN Workshops, **Meet & Match**, **+500** Attendees



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EURADWASTE'22

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EURADWASTE'22 KEY MESSAGES AND FUTURE PERSPECTIVES

Hans Forsström, SKB International AB



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Developments since EURADWASTE'19

- Radioactive waste disposal remains a challenge in many countries
- Good progress in GDR development
 - Finland, Sweden, France close to operation or start of construction
 - Site selection process developing in Switzerland, UK, Czech Republic, Canada
 - Progress in the restarted siting programme in Germany
- EURAD joint programme and PREDIS project up and running



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

Research, development and demonstration

- Instrumental for the development of GDR designs and their safety assessment. Scientific-technical basis exists.
- Mainly funded from the WMO with clear RD&D programmes
- Much international cooperation since the 70ies (Stripa project)
- Cooperation between WMO on RD&D within IGD-TP
- International projects tend to have more trust than national
- EC-supported activities from several small projects (until 2018) to one large joint project EURAD (and PREDIS)



European Joint Programme on Radioactive Waste Management - EURAD

- Research needs identified through three colleges, WMOs, Expertise organizations and Research entities.
- Roadmap, Theme overviews and Strategic research agenda (to be updated)
- Broad participation from advanced and less advanced programmes, and from research organisations and civil society
- Step change compared to earlier EC co-funded projects
 - 10 R&D WPs, 2 Strategic studies WPs and 3 Knowledge management WPs within one EJP
- Administrative structure well developed and works well. Important to keep the momentum
- Project selected in two waves, the 2nd within EURAD
- EURAD complemented with a project on Pre-disposal waste management, PREDIS to be merged into EURAD-2
- Results from EURAD WPs and from PREDIS presented at this conference



European Joint Programme on Radioactive Waste Management EURAD

Advantages to earlier EC-projects

- Increased cooperation and enhanced information exchange.
- Better understanding of the role of specific R&D in the total system (Specialists – system perspective)
- Good interaction between different disciplines
- Excellent platform for early-stage programmes to participate and learn
- Possibilities for transfer of knowledge from advanced programmes to less advanced programmes
- Potential synergies between countries with small inventories and those with large
- Involves many young researchers
- Enhances the mutual understanding and trust between partners
- More efficient management. Simpler for the WP-leaders



EURAD Colleges

- To provide input to the definition of the EURAD programme three separate colleges are organized.
 - IGD-TP (Implementing geological disposal – technology platform)
Many WMOs and other organisations sharing the vision First GDR in operation 2025
 - SITEX (Sustainable network for Independent Technical EXpertise on radioactive waste management)
Organisations providing expertise to regulators and Civil Society.
 - EuRadScience
Research entities involved in RWM R&D
- Each college prepares it's own SRA as input to the preparation of EURAD SRA



EURADWASTE'22 –Three sessions

1. Collaborative Research, Development and Demonstration in Radioactive Waste Management
2. Strategic Research Studies in Radioactive Waste Management
3. Knowledge Management in Radioactive Waste Management



Collaborative Research, Development and Demonstration in Radioactive Waste Management

- The progress of the RD&D projects within EURAD and PREDIS and some earlier projects were briefly presented, covering e.g. waste characterization, near field retention of radionuclides, evolution of engineered barriers over time and spent fuel management.
- Appetizers for posters.
- Interesting and useful results
- The connection to the needs of the safety assessment and design was not obvious in most presentations
- Important for the revised SRA to bring this connection back



Strategic Research Studies in Radioactive Waste Management

- Broad presentations were given on the EURAD strategic studies on uncertainty management (UMAN) and cradle-to-grave management of odd wastes or small inventories (ROUTES), and of the work of DG ENER and IAEA, as well as the ERDO project.
- UMAN tries to identify uncertainties at different stages of programme development and find methods to deal with them, including being prepared for the unknown. Important to connect the uncertainty to the risk.
- Strategic studies are based on networking and the networking works well when common needs can be identified.
- An important component of the strategic studies is the involvement of the Civil Society providing good and critical input. But who are the Civil Society. A challenge for EURAD to involve a broad cross section.
- Good steps were shown towards close cooperation and coordination between IAEA and EURAD and possibly with NEA. Complementarity in their work.



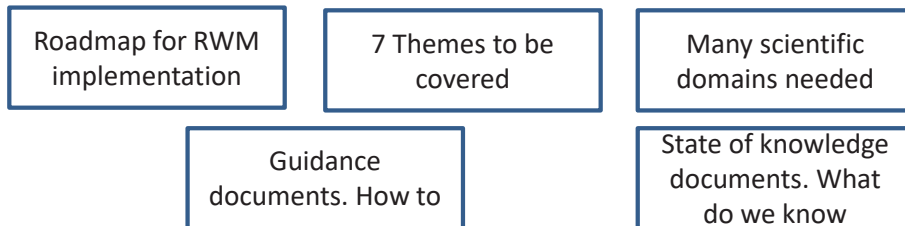
Knowledge Management

- The time period for a GDR is more than 100 years (plus long term)
- Ensuring knowledge over this period is thus of paramount importance
- KM has two components, information and know how. Information can be documented. Know how requires continuity and successive transfer.
- Each WMO will have it's own KM focused on the implementation and long-term safety case, and background material
- But how to develop at an international level a broader KM available for other users



Knowledge Management (continued)

- The three components of KM in EURAD and PREDIS were presented and discussed:
 - Training and mobility
 - State of knowledge documentation
 - Guidance based on experience



- IAEA and NEA presented similar work at a different level. Opportunity for synergies.
- How to maintain information base. IAEA?

Future RD&D

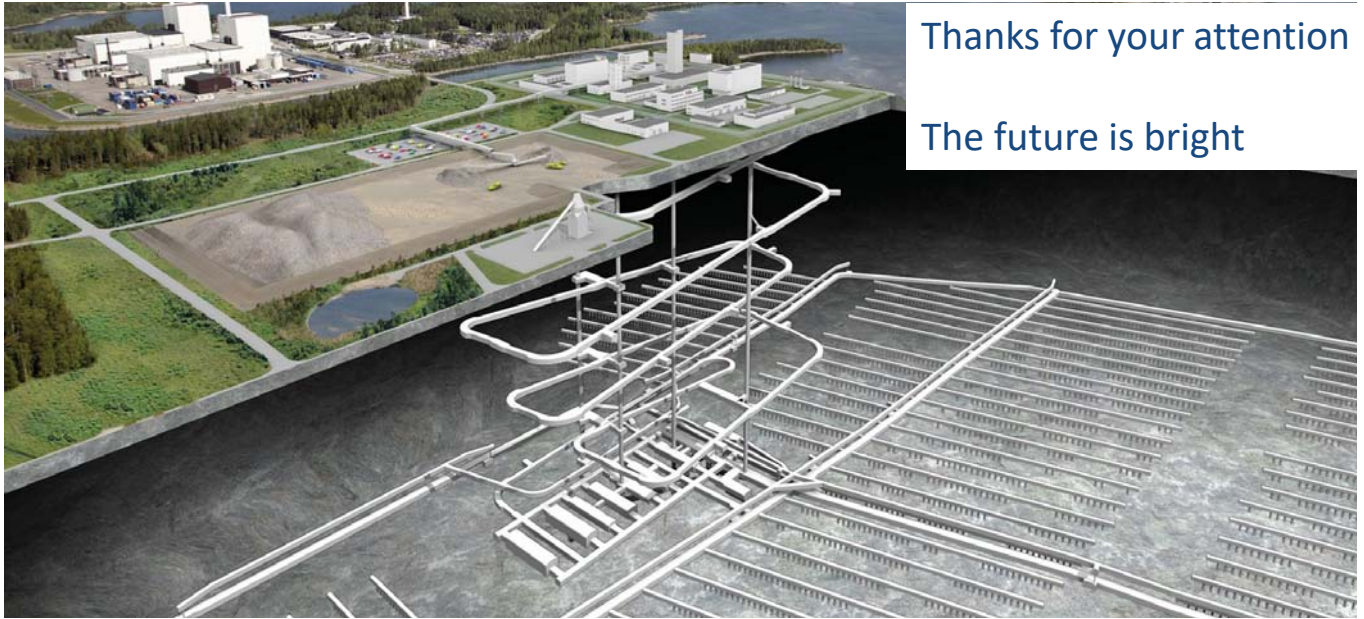
- Although some programmes are close to licence approval future research will be needed to:
 - Improve and optimize designs and operation. Simplifications
 - Adapt to the conditions of new facilities
 - Take new and improved developments in other fields into account
 - Keep a watching brief on new scientific knowledge
 - Ensure availability of capable staff and availability of R&D capacity
- Some areas will be deemphasised. Position papers or common opinion from EURAD based on State of knowledge reports?
- WMO funding might decrease over time.

Looking ahead

- EU-supported R&D will continue to be of importance
- EURAD-2 will include EURAD and PREDIS, i.e. cradle to grave approach
- Input for shaping EURAD-2:
 - Basic structure
 - Updated SRA with strong input from the different users, based on understanding the detailed needs of different MS, including advanced and early/medium stage programmes and small inventory programmes.
 - Close some areas based on “how good is good enough for implementation”
 - New areas, e.g. IT-based technologies for repository implementation
 - Ensure inclusiveness, new-comers to the programme, waste producers, regulators
- Stimulate even more active engagement by advanced programmes, not least in developing KM and guidance and becoming drivers within communities of practice.

FISA - EURADWASTE

- Excellent that the two communities meet at the same time
- Did we really meet?
- Apart from the political opening session this is the only session where we are both in the same room.
- New reactors and systems have been discussed in FISA – even their impact on waste management – but not with RWM people.
- A clear message from EURADWASTE:
Don't develop new systems without ensuring beforehand that the waste can be taken care of .



Thanks for your attention

The future is bright



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