

Helsinki, 6 April 2022

6<sup>th</sup> International Conference on Geological Repositories – Session 3A:  
Elements for building and maintaining competence

# Maintaining the needed competences – some introductory remarks

Piet Zuidema, Chief Scientific Officer EURAD



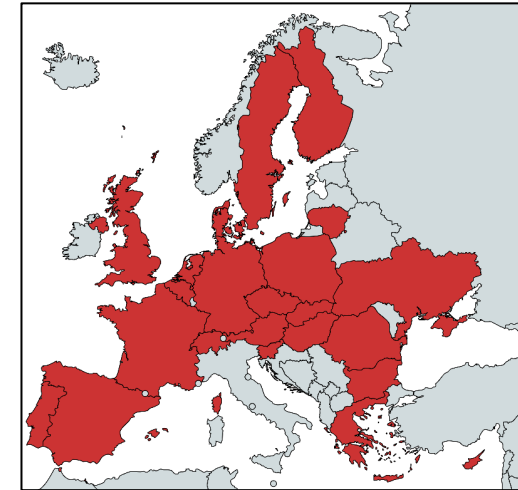
*This project has received funding from the European Union's Horizon 2020 research and innovation programme 2014-2018 under grant agreement N°847593*

# EURAD – European Joint Programme on Radioactive Waste Management

Ministries from **23 European countries** (20 Member-States, 3 Associated Countries), recognising their role of directing RD&D at the national level, provided mandates to **51 organisations** acting as **Beneficiary** within EURAD:

- Waste Management Organisations (**WMO**)
- Technical Support Organisations (**TSO**)
- Research Entities (**RE**)

... with **61 linked third parties** & **3 international partners** also participating



**19 Waste Management Organisations** *Whose mission covers the management and disposal of radioactive waste*



**13 regulatory Technical Support Organisations** *Providing S/T basis for supporting regulators' decisions*



**19 nationally funded Research Entities** *Working on the RWM challenges under the responsibility of MS*

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• **Provide added value to member states in their timely implementation of radioactive waste management activities**

• ... V



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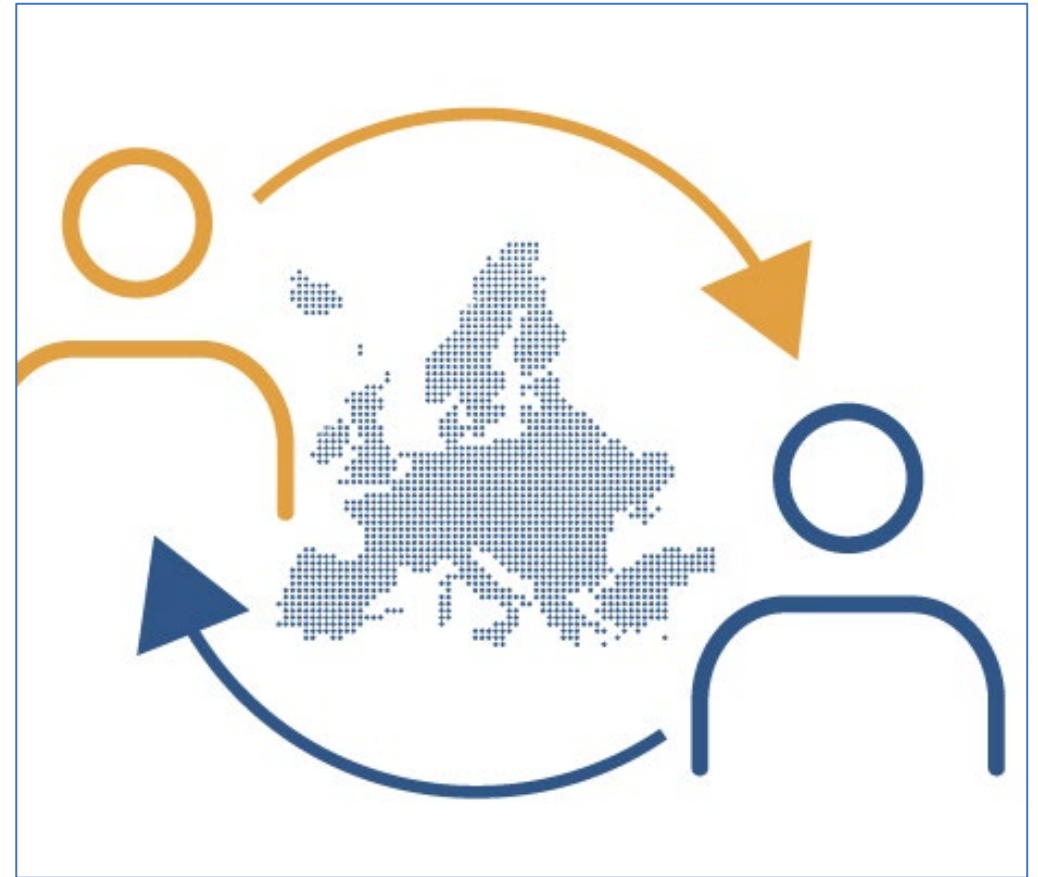
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## EURAD Objectives

- Based on **Strategic Research Agenda**, implement a cutting-edge **Science and Technology Programme**
- Identify and **elaborate upon complex issues** by bringing together interested actors to jointly conduct **Strategic Studies**
- Support knowledge transfer between Member-States and between generations with a strong **Knowledge Management Programme**
- Foster **Mutual Understanding** and **Trust** between Colleges and Civil Society participants and other stakeholders



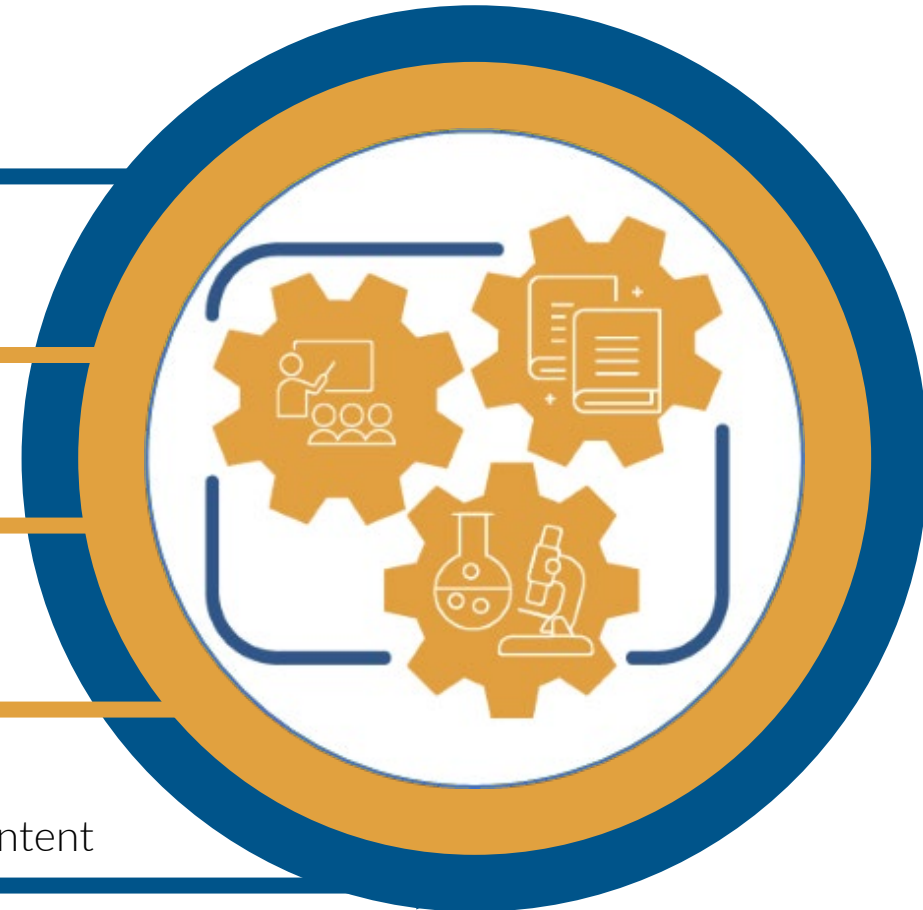
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# EURAD Knowledge Management & Networking Programme

- 1 Roadmap**  
A common framework to structure knowledge
- 2 State of Knowledge**  
What we know and why it is important
- 3 Guidance**  
Best practice and lessons learned
- 4 Mobility & Training**  
Transfer of experience and know-how
- 5 Networking & Tools**  
Connecting people to people, and people to content



## Implementation of geological repositories: critical issues

- Repositories for long-lived waste **rely on geology** as part of the multibarrier system
- As **geology** is to some extent **different from one site to the other** ....
- ... and **each country has slightly different boundary conditions** (legal, waste inventory, societal needs, etc)
- ... **each repository** is to some extent a '**prototype**' and will need **some project-specific work** for its implementation
- Thus, **each programme needs key capabilities** (competencies & infrastructure)
- For a broad range of capabilities a '**market**' **exists**, but other capabilities are very specific to geological disposal and **no 'market' is available**
- For these capabilities, coordinated **actions may be needed** to ensure their availability
- This applies to **advanced programmes** (transfer of knowledge between generations) and to **early stage programmes** (transfer of knowledge from advanced to early stage programmes)

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## Maintaining the needed capabilities: key elements

- **The persons involved – the human 'capital':** important issues to make them effective
  - we need **highly qualified people** with **enthusiasm & team spirit** → be able to **understand information**, to acquire **experience** (with team) & to **apply knowledge** for disposal issues
  - requires **availability & easy access** to **information**: importance of **structure & context**, in hierarchical system, through integration of **roadmap & knowledge management** (see e.g. EURAD)
  - ability to **act as an generalist** to integrate the information into the project – needs **experience & broad view** through **involvement in active programme** for many years
- **What is needed to get there**
  - **attract bright scientists** – make disposal projects **attractive** ('big project', interdisciplinary science & interesting working environment with broad contacts, incl. society)
  - **integrate** new scientists in **team** (within active project) & **communities of practice**
  - maintain contacts to **scientific community**
  - importance of **international cooperation & joint activities** (e.g. EURAD)

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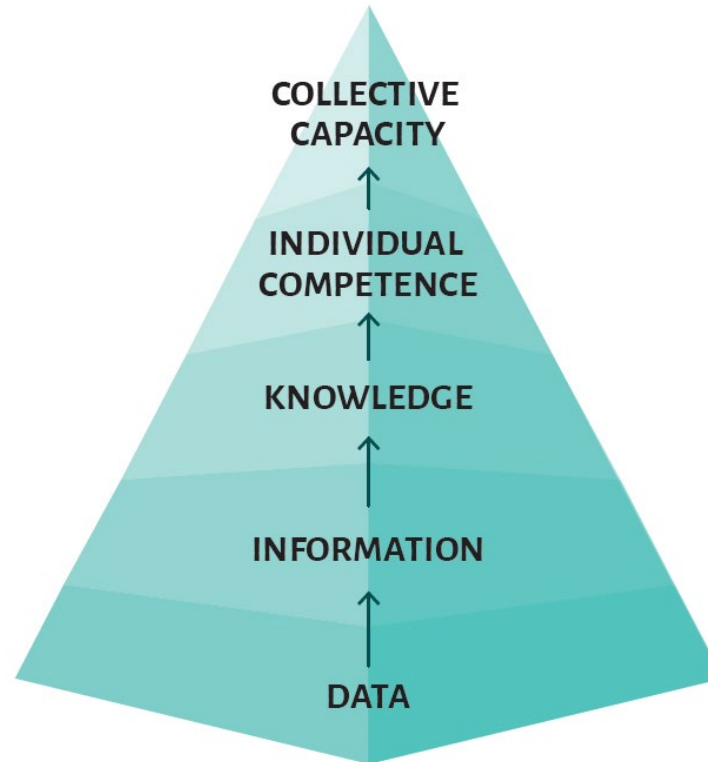
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→ be able to **understand** **knowledge** for disposal issues  
of **structure & context**, in **project management** (see e.g. EURAD)  
the project – needs **experience & expertise** over many years

• **What is needed to get the most out of the project?**

- **attract bright scientists** & interesting working environment
- **integrate** new scientists
- maintain contacts to **scientific community**
- importance of **international cooperation & joint activities** (e.g. EURAD)

the 'project', interdisciplinary science (e.g. **interdisciplinary science**)  
**capabilities of practice**



Knowledge pyramid – the path to success

## Today, in session 3A we will hear about these challenges & opportunities

- **Haidy Tadros** (Chair NEA CDLM; Director General CNSC, Canada) -
- **Janette Meacham**, Sandia *National Laboratories*, United States – NEFC Knowledge Management Pilot Project (*without active program*)
- **Irina Gaus** (Chair IGD-TP, Nagra, Switzerland) – Building and maintaining technical and scientific competence for DGRs: Observations from *Implementers (range of programs)*
- **Felix Altorfer** (NEA chair; Director ENSI, Switzerland) – Competency Management of *Regulators*
- **Joaquín Farias Seifert** (Head, ENRESA (*implementer*), Spain) – ENRESA: the DGR programme (*with longer pause*)
- **Gerald Nieder-Westermann**, *International Atomic Energy Agency* (IAEA) – *Roadmap* to Implementing Deep Geologic Repositories and the Role of Underground Research Facilities
- **Mark Gobien** (*Young Professional Representative*), Nuclear Waste Management Organization (NWMO), Canada – xx (*implementer*)

# Thank you for your attention



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