

Preparing for the future

The findings of the OECD-NEA RK&M project concerning the short term

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Constructing Memory

International Conference & Debate on the Preservation of Records, Knowledge and Memory
of Radioactive Waste Across Generations
Centre Mondial de la Paix, Verdun, France – 15-17 September 2014

- **Introduction**

- Background
- “Short term”

- Some RK&M **project findings** informing the short term

- RK&M loss
- Regulation
- International mechanisms
- Insights from US DOE Legacy Management

- Food for **discussion** and preliminary **conclusions**



Introduction

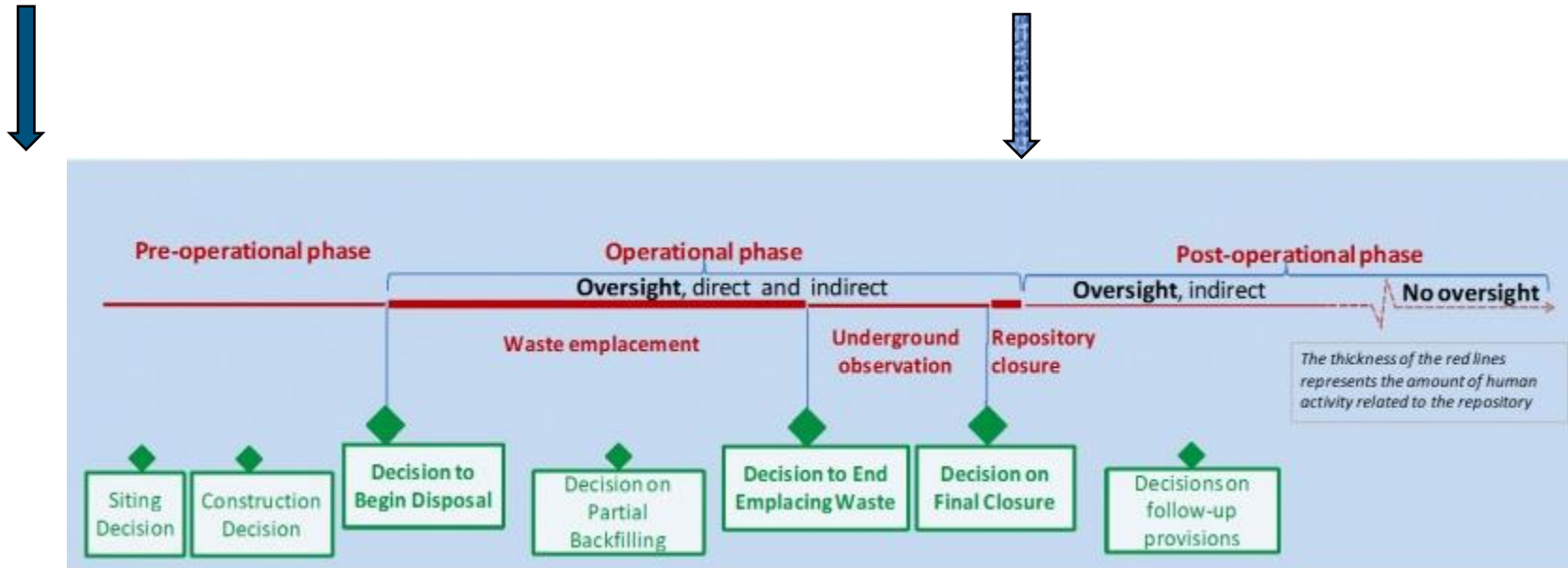
Preparing for the Future: Background

1. **Long term RWM thinking** has evolved to include **oversight** and **informing future generations**
 2. If we don't act, information will certainly **get lost** or **become inadequate**
- **Short time RWM** has to be adapted accordingly
- "Long Now"



Project glossary: Period of time that ends with repository closure

- Includes both the **pre-operational** and the **operational phases** of the repository.
- Timescales are in the order of 100 years



- **Not that "short" & dynamic**
- **Supporting ongoing activities + preparing the future**

Project findings

Loss of RK&M (1)

Project finding: *RK&M get lost* – insights can be gained from existing cases on how to start the prevention of RK&M loss *today*

Dedicated project study: *Loss of Information, Records, Knowledge and Memory – Key Factors in the History of Conventional Waste Disposal*

Crucial factors contributing to RK&M loss:

- Lack of (human, financial and regulatory) resources
- Neglect, ignorance
- Unlawful activities



Project learning

- Human, not technical factors are determinant
 - 'Dumping raw data' into an archive is not good enough
 - Buried 'far away' is relative
 - RK&M reconstruction is challenging
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- Relevance of the short term
 - Important reason for past losses:
never properly / seriously thought of keeping RK&M !



Project finding: *loss of records and memory in the short-term can frequently be attributed in part to **insufficient regulation, inadequate enforcement**, and attitudes of **indifference***

Dedicated project study: *RK&M Regulatory Catalogue*

Current Regulation:

- Delineated largely in terms of **immediate responsibilities** of waste producers and implementers
 - Focus on keeping records for compliance demonstration
- **Archiving requirements** are **very general** ('keep all relevant information')

Project learning

- Regulation shows that RK&M is still an emerging field
- How can sensible regulation be formulated that
 - A. Goes **beyond "getting the license"**?
 - Link R, K & M ?
 - B. Elaborates **roles and responsibilities** and their **transfer**?
 - Link short & longer term ?



International Mechanisms (1)

Project finding: *There are a number of mechanisms, also outside radioactive waste management, that can foster and constitute a potential resource for geological disposal related RK&M preservation.*

Dedicated project study: *continuous identification of relevant mechanisms*

Four tracks of mechanisms, related to

- Controlling **radioactive waste and materials circulation** (e.g. IAEA Joint Convention)
- Sharing information on **geology & geography** (e.g. EC INSPIRE)
- **Environmental** protection (e.g. UNECE Espoo & Aarhus Convention)
- **Cultural heritage** preservation (e.g. UNESCO World Heritage Convention, Long Now Foundation (USA), Memory of Mankind (Austria))

International Mechanisms (2)

Project learning

- Many potentially relevant governmental, non-governmental and (semi)commercial mechanisms out there
- Including variety of scopes, members, resources and disciplines
- **Sustainable funding** is important
- A **multi-level, multi-stakeholder** approach is recommendable
 - Importance of the local level
- **“Value”** is both crucial and complex



Insights from U.S. Department of Energy Office of Legacy Management (1)

What can LM's **Long-term stewardship** activities learn RK&M with regard to preparing the future today?

- Combining a **variety of methods**:
 - Records archives
 - Interpretative centers
 - Annual site management activities (e.g. weed control, groundwater sampling, ...)
 - Conditional re-use of sites
 - Ecological projects (e.g. with controlled hiking/walking trails)
 - No cost grazing / hay production agreements
 - Sports fields
 - Solar energy systems
- As a means to
 - Prove **Records**
 - Maintain and develop **Knowledge**
 - Regenerate **Memory**



Insights from U.S. Department of Energy Office of Legacy Management (2)

- LM is responsible for “post-closure” sites BUT the “**condition**” of these **sites can change** (natural processes, land-use changes, ...)
- Full restoration (**lack of visual clues**) may lead to inadvertent land use
- **Transfer of responsibilities** needs to be prepared
 - Transfer of RK&M is key in this process
- Need to **closely cooperate** and **coordinate with** variety of **stakeholders**
 - Good connection with the **local level** is essential
- Knowing **what is there and why** (content and context) is crucial
- An **adequate budget** is indispensable



Preliminary conclusions and food for discussion

- **Loss**

- How to encourage **people** to produce, update, preserve and use RK&M?

- **Regulation**

- Beyond present compliance demonstration?
- More precision?
- Roles & responsibilities and their transfer?

- **International Mechanisms**

- Supply redundancy ?
- Standardization?
- Funding?

- **Systemic approach**

- Practical components ?
- Institutions and actors ?
- The interplay among and between both, today and over time ?

Preliminary conclusions

- RK&M loss takes place rapidly if it is not acted upon in a conscious, ongoing and systemic manner
 - that involves various actors and
 - does more than dumping records into archives
- The success of RK&M preservation cannot be judged today by “whether they will last for 1000s years”. It’s about establishing and maintaining **awareness of the need and responsibility** for RK&M preservation in people’s minds
- RK&M preservation across generations needs to be prepared for in the present, while the interest-level in RWM is high and funding is available

Thank you for
listening and contributing!