

PRESERVATION OF RECORDS, KNOWLEDGE AND MEMORY ACROSS GENERATIONS

AN INTERNATIONAL PROJECT OF THE NEA/RWMC



Preservation of Records, Knowledge and Memory (RK&M) across generations is needed to support lengthy and complex decision-making processes across long operational and post-operational lifetimes of radioactive waste repositories. It is a recognised management task that spans unprecedented time-horizons in which technical, scientific, societal and cultural information is interwoven.

Experience indicates that RK&M need to be actively managed from the start of the waste management programmes. Several radioactive waste disposal programmes are now approaching implementation. The NEA Radioactive Waste Management Committee (RWMC) has created an international project addressing the preservation of RK&M across generations. This collective statement summarises the current understanding of the relevant needs and challenges to be faced. It underscores the willingness of the RWMC member organisations to work together and support national programmes to move forward in this area.



Why do we need to preserve records, knowledge and memory?

Long-term projects of any nature are vulnerable to risks of RK&M loss. The reasons and mechanisms leading to loss of RK&M are very diverse, but preserving RK&M is a fundamental aspect of quality in establishing and running any long-term project. It must be taken into account in implementing national radioactive waste disposal programmes in order to:

- Maintain confidence in the safety and security of the system by allowing for accurate and reliable review by the authorities and providing for visible and transparent oversight of disposal projects across time;

- Address concerns and answer requests from the public, especially local communities;
- Ensure that future generations can base their decisions on relevant and pertinent data;
- Promote awareness of past activities.

A central issue is therefore to formulate and continue developing RK&M preservation methods and processes that are as durable as possible. In order to ensure robustness, an understanding is needed of the processes or incidents potentially leading to RK&M loss.

Definitions adopted in the RK&M project (see also project Glossary)

RECORD	<i>An object or a selected piece of data / piece of information that has been committed to a medium and that is kept, together with the appropriate context and structure, for later uses.</i>
KNOWLEDGE	<i>The ability to understand and utilise the available data, information and records.</i>
MEMORY	<i>The awareness of events, people, places and levels of knowledge in the past.</i>

Where do we stand?

A number of studies have been undertaken in the past decades, both on the national and international level, to explore a variety of methods for preserving RK&M across different timescales. Archives and markers are the methods studied most. It has been observed that providing for cultural, long-lasting links between the host communities and the site can also contribute to preserving RK&M over time. Overall, multiple approaches and methods, requiring active and less active care, need to be considered from the start of the programme and refined in the course of time.

National and international guidelines also exist on why and how records and knowledge should be preserved and trans-

mitted over time. Much less work is available on the contextualisation of data for later use, on systematic identification of mechanisms for RK&M transfer, on implementing a culture of RK&M-keeping in organisations, and on creating cultural links between the waste and the siting communities.

International cooperation has been identified as a catalyst to ensure that a wide range of approaches and experiences is considered. At term, international cooperation will be crucial in providing shared meanings for message preservation and shared methods for RK&M preservation thus potentially reducing uncertainty related to variations in approach.

Scoping activities

In order to better frame the issues, the following scoping activities need to be undertaken:

- Reported work in the field of RK&M preservation and related areas should be collected in a bibliography and regularly updated. Clear terminology should be established in order to avoid misunderstanding. This work will help to identify gaps.
- The different stages of the disposal process should be assessed and the data and contextual information that must be collected and transferred over time

should be determined.

- The criteria for selecting information and recording tools should be discussed and compiled. Examples of poor practice in preserving records should be analysed and mitigation and correction measures identified.
- Reasons and processes leading to loss of RK&M on all timescales should systematically be identified and potentially alleviating solutions should be formulated. Multi-disciplinary studies on these issues should be encouraged.

Challenges

To develop a consistent and common approach, the following challenges need to be addressed:

- Various technical and administrative options for RK&M transfer from one generation to another and from one generation to a distant future should be assessed. This assessment requires a multidisciplinary approach, with input from the social sciences and humanities.
- Actions to mitigate and adjust potential RK&M loss should be evaluated and must be implemented in a transparent and cooperative fashion by the project proponents and by the societal organisations that oversee such projects.

- The technical and organisational perspective for RK&M preservation should be analysed taking account of the context of historical and societal evolution.
- Initiatives for international harmonised practices should be proposed in order to avoid unnecessary divergence.
- The economic challenges for long-term RK&M preservation must be analysed and allowance made for them in future programmes.
- Effective mechanisms should be established for all interested parties to work together both nationally and internationally.

THE INTERNATIONAL RADIOACTIVE WASTE MANAGEMENT COMMUNITY IS FOCUSING ON WORK TO PRESERVE RECORDS, KNOWLEDGE AND MEMORY (RK&M) ACROSS GENERATIONS. INDIVIDUAL PROGRAMMES SHOW INITIAL PROGRESS, BUT THERE IS A NEED TO INTERNATIONALISE THE THINKING, COMPARE APPROACHES, TEST POTENTIAL SOLUTIONS AND BUILD COMMON REFERENCES. FUTURE SYSTEMS FOR PRESERVING RK&M WILL NEED TO BE FLEXIBLE AND ADAPTABLE OVER TIME. THEY SHOULD IMPLEMENT THE SIMPLEST POSSIBLE TECHNIQUES AND SUPPORT MATERIALS, BUT SHOULD NOT RELY ONLY ON TECHNOLOGICAL PROVISIONS. A "SYSTEMIC" APPROACH SHOULD BE ENGAGED WHEREBY THE VARIOUS COMPONENTS OF THE SYSTEM COMPLEMENT EACH OTHER, PROVIDE FOR REDUNDANCY OF MESSAGE COMMUNICATION, AND MAXIMISE THE SURVIVABILITY OF A RECOGNISABLE MESSAGE. THE INTERNATIONAL RK&M PROJECT OF THE NEA/RWMC AIMS AT HELPING DEEP DISPOSAL PROGRAMMES TO ADVANCE PLANS AND ADOPT BEST PRACTICE IN PRESERVING RELEVANT RECORDS, KNOWLEDGE AND MEMORY ACROSS GENERATIONS.