

# Radioactive waste management - a sociotechnical challenge

## Insights of the SOTEC-radio project

S37: Public engagement in new and emerging technologies

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# SOTEC-radio Project

Full title: Methods and measures to deal with socio-technical challenges in radioactive waste management

Project partners:



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# Main objectives of SOTEC-radio

1. **Systematisation:** Understanding of sociotechnical challenges in radioactive waste management
  - Methods: Literaturreview, interviews, interdisciplinary workshop
  - report coming soon in summer 2018
2. Development of a **scientific concept** for the analysis of sociotechnical challenges
3. Development of **options for action** to deal with sociotechnical challenges in governance and management structures

# The „technical“ and the „social“ in radioactive waste management

- **Technical requirements** in radioactive waste management (RWM) are e.g. mine, waste container, technical barrier, waste management infrastructure, monitoring systems...
- **Social structures** are e.g. societal context/involvement, political and legal decisions, societal expectations...
- It is important to analyse the **mutual dependencies** between technical requirements and societal structures.
- New societal expectations e.g.
  - the call for retrievability of waste from a deep geological repository and in consequence,
  - the need for monitoring over decades, with technical and institutional challenges

# A new perspective: Radioactive waste management as a sociotechnical challenge

- The technocratic approach of the past has failed. It is widely accepted that in RWM social aspects should to be considered.
- “Traditionally” the „social“ is often linked to involving the public for more acceptance.
- Public involvement is important and necessary but it is only one aspect.
- RWM needs to be understood as a sociotechnical challenge.
- SOTEC-radio hypothesis: The sociotechnical perspective in RWM will help to get a better result because social and technical requirements are considered from beginning.
- Until today, research considers technical and social aspects mostly separately.
- There are some first tries of interdisciplinary teams to combine them.
- Concepts for analysis are missing → This is the aim of SOTEC-radio.

# Considering the „social“ in RWM is important and at the same time challenging

It is important, because:

- **Public interest** in RWM decisions is high in many countries searching for a repository site
- Today`s decisions trigger **inter- and intra-generational** implications.
- It takes a **very long time** before a repository is ready for operation.

It is challenging, because:

- The technocratic approach of the past has led to a lot of **mistrust**.

# Need for sociotechnical perspective

- The “Decide-Announce-Defend”-approach has failed.
- Technologies are socially negotiated.
- The development of a technology is not linear (from the idea, to the development to its rational use).
- But it is a development process with loops in which technic and social process interact.
- Social processes are dynamical.
- Politics and society and their expectations change over time.
- Institutions react on societal expectations.
- New forms of regulations: Change from government to governance.
- It is necessary to integrate different forms of knowledge.
- It is important to have learning systems and reversible processes.

# Possible occasions for adaptations of disposal concepts

- The sociotechnical perspective is important in order to be able to react on developments.
- Occasions for adaptations of disposal concepts and technologies or measures could be:
  - 1) Political and societal debates and changes of values and objectives,
  - 2) Updating of state of the art of science and technology,
  - 3) Shift of public attention and their opinion which could lead to (new) policy debates.
- This may lead to new conflicts and the need for social negotiations although the „old“ knowledge but at some points still be valid.



# Possible measures to strengthen the sociotechnical perspective in RWM

Creating spaces for interdisciplinary negotiations

Involving critical actors

Learning system versus path dependencies

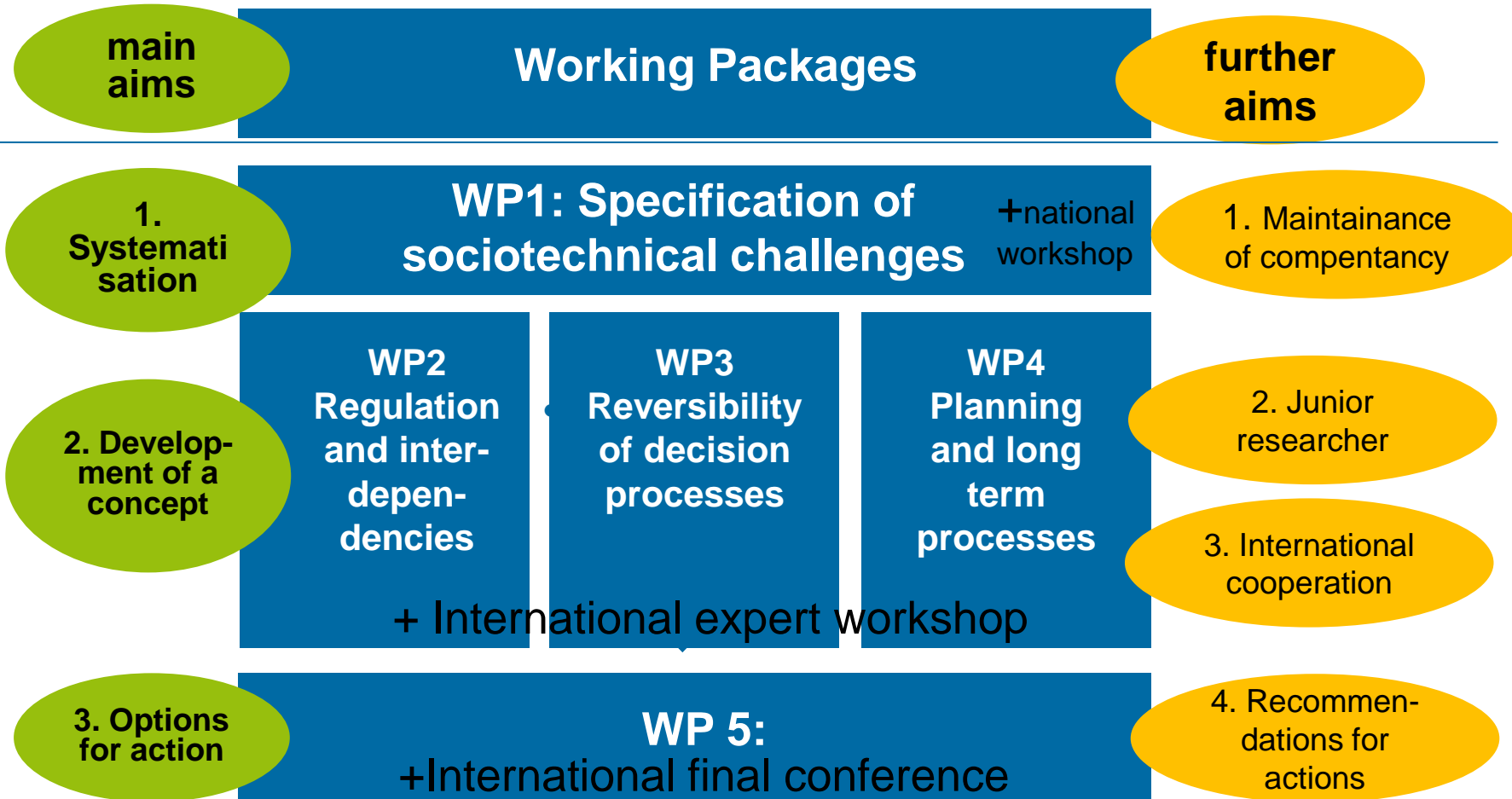
Main responsible organisations with technicians, scientists and social scientists

More interdisciplinarity at universities

More research about sociotechnical topics

Being curious about questions of other disciplines, create mutual understanding

# SOTEC-radio: What`s next?



Thank you for your attention!

Do you have any questions?



# Contact

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