

Supplement of Saf. Nucl. Waste Disposal, 2, 183–183, 2023
<https://doi.org/10.5194/sand-2-183-2023-supplement>
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Supplement of

Discourse on deep geological repositories – defining retardation moments and questioning the feasibility of prognostic approaches

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Discourse deep geological repository – outcome of SafeND-workshop defining retardation moments

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Supplement to submitted abstract. Based on the new benchmark of 2046 in connection with the German site selection procedure and the geoscientific suitability of a designated deep geological repository site a discourse on benchmark-related process approaches was part of a workshop within the scope of the 2023 SafeND.

10 The open discourse focused on addressing moments of retardation in the process of site selection. Arguments were discussed by the audience from a broad international perspective. Particularly desired was the critical questioning of radioactive waste-related lines of argument that generally seem plausible for stakeholders. The proceedings started by identifying overall eighteen retardation moments reflecting the audience's knowledge from different fields of interest. Every designated retardation moment was assigned to three tasks and subsequently discussed in three subgroups (i) Social, (ii) Science and 15 (iii) Decision. The outcome of the subgroup findings was then presented to the audience followed by final questions and remarks at the end of the workshop. At the very end of the gathering each participant was asked to highlight one only listed retardation moment to be given priority.

Consolidating the retardation moments as addressed by the audience, the following simplified statements have been put out:

- Social:
 - 20 ○ Is the host rock the most relevant part in the system?
 - Changing political and societal priorities
 - Participation and administrative processes take longer
 - Perception of the disposal problem due to prolonged interim waste storage: Distrust in decision makers as 40 years of safe storage were proclaimed
 - 25 ○ No more generational justice is given as promised by policymakers
- Science:
 - Handling regions of insufficient data and uncertainties in data availability
 - Get lost in scientific details
 - Exhausting scientific capacities by developing too many concepts in parallel
 - 30 ○ Increasing data quality and quantity (natural science, social science, humanities)
 - Increase of administrative processes

- Decision:

- Missing willingness to actually commit to a decision
- Changing political and societal priorities
- Schedule not well planned
- Paralysis in the face of decision
- Exploding costs
- No consensus between operator and regulator
- No decision is a decision
- Importance of the social aspect

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The overall résumé highlighted on the boards and given by the audience in oral and written form is the importance of the social aspects within the site selection procedure. Social aspects are reflected in science-related tasks as well as in political fields of decisions.