



TRANSDISZIPLINÄRE FORSCHUNG ZUR ENTSORGUNG
HOCHRADIOAKTIVER ABFÄLLE IN DEUTSCHLAND

Intergenerational Justice: Trade-offs in interim storage

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A central distinction

Long-term interim storage

- No plans for a final repository (e.g. underground)
- Itself a storage solution
- Several hundred years

Necessary interim storage until storage in the final repository

- Search for a repository site, plans for a final repository
- no storage solution itself
- Several decades at best*

* Could several extensions of the licenses of the current interim repositories cover several centuries?

Two justice problems – problem 1

Several extensions of the licenses would be temporally equivalent to long-term interim storage (and fully equivalent, if a final repository is not built)

- Intergenerational justice problem with long-term interim storage: the solution to the nuclear waste storage problem and the corresponding decision-making processes are passed onto the generations living in the next several centuries
 - Future generations didn't create the problem and didn't benefit from the activity that created the problem. They could have even more problems to solve than the present generations
 - (Possible counterargument: they might have better technical or financial resources to solve it)

Two justice problems – problem 2

Several extensions of the licenses would be temporally equivalent to long-term interim storage (and fully equivalent, if a final repository is not built)

- Inter- and intragenerational justice problem: no development of a concept for an extended interim storage generates a justice problem with this and the generations in the next decades:
 - Harm: they carry the risk of waste storage on the surface, the aging of the site, and the loss of know-how; and they have no longer the benefits of the former nuclear plants they hosted.
 - Transparency: a problem of long-term interim storage arises but it's not publicly assumed and handled by authorities

DIPRO-citizen dialogues: results clustered by topic

Brokdorf

1. External conditions at interim sites
2. Consent or acceptance of extensions, acceptance and compensations
3. Temporally limited licenses as a promise; time frame for extensions
4. Citizen participation
5. Justice and compensation

Lubmin / Greifswald

1. Invasive monitoring of casks („heiße Zelle“ in ESTRAL)
2. Compensation and financing
3. Problem-solving alternatives at European level
4. Extended interim storage at current sites, centralized interim storage
5. Possible paths for the storage process and transmutation

Relevant results for our questions - Brokdorf

- Future generations
 - Compensations for an interim site should be fair: they should not only benefit the „community“ but also the „citizens“, and also take future generations into consideration.
 - Compensations should encompass several generations
- Time frame for license extension:
 1. 2047 + X years
 2. 40 – X years
 3. 40 – 600 years

Relevant results for our questions – Lubmin

- Future generations:
 - „Compensations should encompass several generations“ → „how long should a community be compensated“ → it should be compensated while the risk/burden lasts and in a constant way
 - Education as compensation measure encompasses several generations
 - No compensation due, because of the benefits that past generations received from the reactor's operation.
- Time frame: 100 years
- Uncertainty due to long-term time frame at interim storage sites and in the process of searching and realizing a final repository
- Conflict with final storage process: it could be willingly delayed, if the new interim repository ESTRAL is built to last 300 years

Two trade-offs

Safety/security

Safety/security in current interim sites and change in external conditions → pressure for quickest possible availability of a final repository → risk of neglecting the primacy of safety in the final storage process, e.g. by skipping steps or not allowing setbacks

Extension of licenses

- Several extensions of licenses at interim sites could amount to 100 years or more → no need to hurry with final storage process
- Extension of licenses only for two decades (i.e. <40 years) → contrary to the current practice of extending licenses

Trade-offs - present and future actors

	present citizens interim site	present government interim sites	present authorities who give permission (BASE)	future citizens interim site	future government interim sites	future authorities who give permission	future citizens final repository site	future government final repository site
present citizens interim site							safety/ security	
present government interim sites								
present authorities who give permission (BASE)				extension licences				
future citizens interim site			extension licences					
future government interim sites								
future authorities who give permission								
future citizens final repository site	safety/ security							
future government final repository site								

- Forthcoming:
 - **citizen dialogue in Heilbronn/Neckarwestheim (09/22-23/2023)**

- Some related publications by DIPRO-Kiel:
 - K. Ott/H. Budelmann, Oder vielleicht doch nicht unter der Erde – Überlegungen zur Rolle der Oberflächenlagerung in einer Entsorgungs-strategie. In: Köhnke et al (eds.), Zwischenlagerung hoch radioaktiver Abfälle Randbedingungen und Lösungsansätze zu den aktuellen Herausforderungen, 2017, pp. 11-28.
 - R. Sierra/K. Ott, Citizen participation in the long-term process of high-level radioactive waste disposal: Future tasks and adequate forms of participation. In: TATuP, 2022, 31/3: 44–50.
 - M. Berg/Th. Hassel, Challenges in communicating the future of high-level radioactive waste disposal: What future are we talking about?. In: TATuP, 2022, 31/3: 18-23.
 - K. Ott, Ad Calendas Graecas? Ethische und politische Bemerkungen zum offiziellen „Abschied von 2031“ bei der Endlagersuche. In: A. Eckhardt et al (eds.), Entscheidungen für die Zukunft: Ungewissheiten bei der Entsorgung hochradioaktiver Abfälle (forthcoming).

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