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Research Platform

Disposal options for radioactive residues: Interdisciplinary analyses and development of evaluation criteria ENTRIA

FFU-Project

Multi Level Governance-Perspectives on nuclear Waste Storage: A comparative Analysis

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Initial assumptions

- Political Science is not well prepared for analyzing the kind of multi-dimensional problem associated with radioactive waste and its regulation due to socio-technical and political complexities and challenges
- New analytical approaches are needed in order to understand socially strongly “politicized“ problems and conflicts
- Multi-level Governance and wicked problem approaches offer suitable analytical frameworks

Complexity and uncertainty

- Interdependencies among technical, political, ecological, economic and societal problem areas => increased need for regulation and demands for participation
- High concentration of rules and regulations, but strategic fragmentation
- Diversity of actors (a disordered plurality)
- Blurred transition between hard/codified law and *soft law*
- Interconnection of *top down*- and *bottom up*-processes

→ (multiple) crisis of governance?

Nuclear waste storage: a wicked problem

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Nuclear waste storage is a “messy” or “wicked problem”

Wicked problems are:

- particularly difficult to solve as they are complex and characterized by many uncertainties

- tend to generate conflict due to deep differences in the values and preferences and the different views of stakeholders on desirable outcomes (Ney 2009; Balint, Stewart, Desai, Walters 2011)

- tend to lead to veto players that work to block policy change (Tsebelis 2002)

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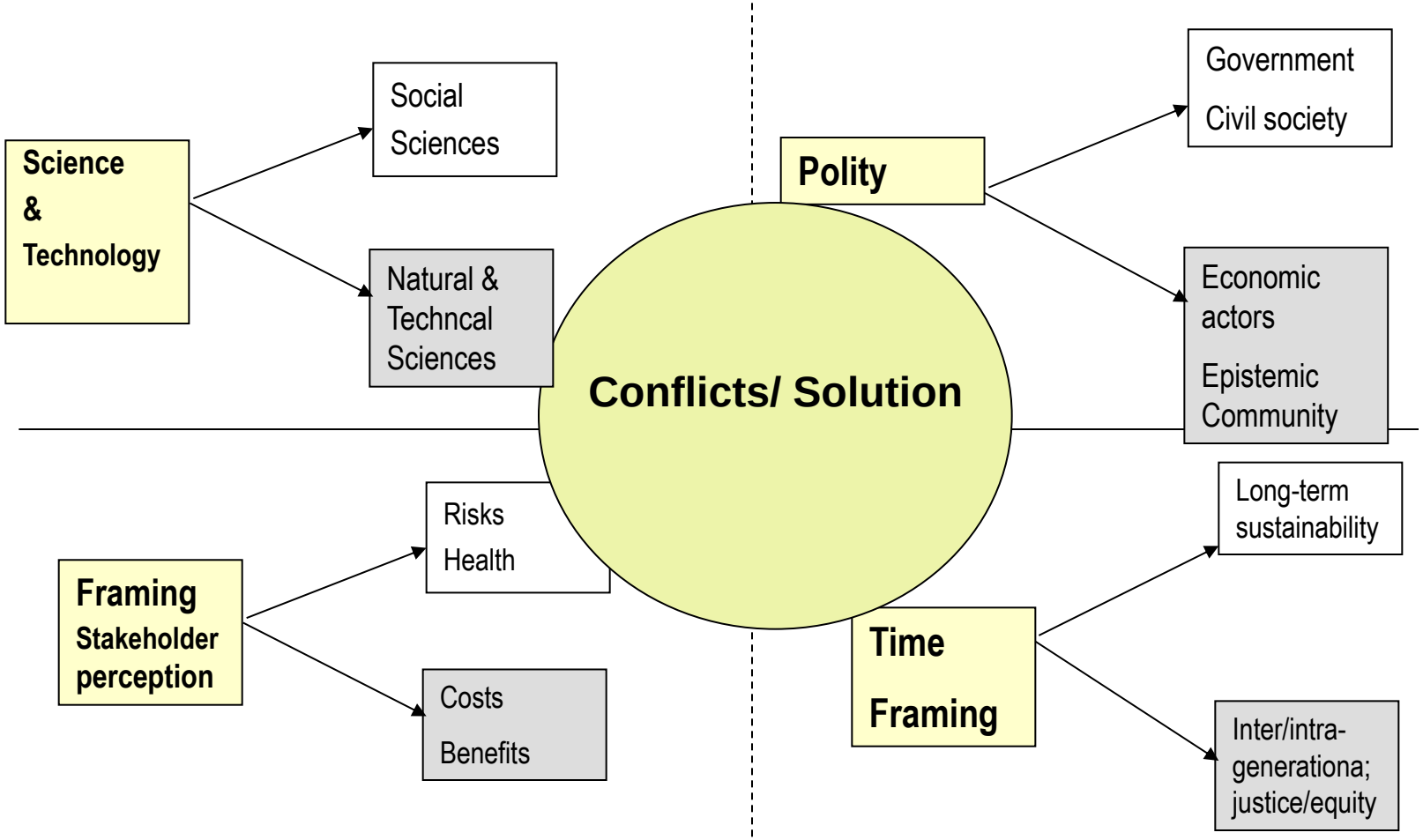
Multi Level Governance

- Complex, trans boundary configurations: intra-extra, local-global, private-public, poor-rich.
- Absence of a paramount sovereign: responsibilities, competencies and resources are distributed across tiers.
- New modes of governance.
- Participation of NGOs, TNCs or knowledge-networks at local, national and international levels.
- Generation of norms through non-state actors.

Problem definition depends on the solution/ solution depends on how the problem is framed



Conflicts ⇔ Stakeholders have contrasting perceptions & views as well as different ways for framing the problem and looking for **solutions**

Structure of the on-going project

FFU contribution:

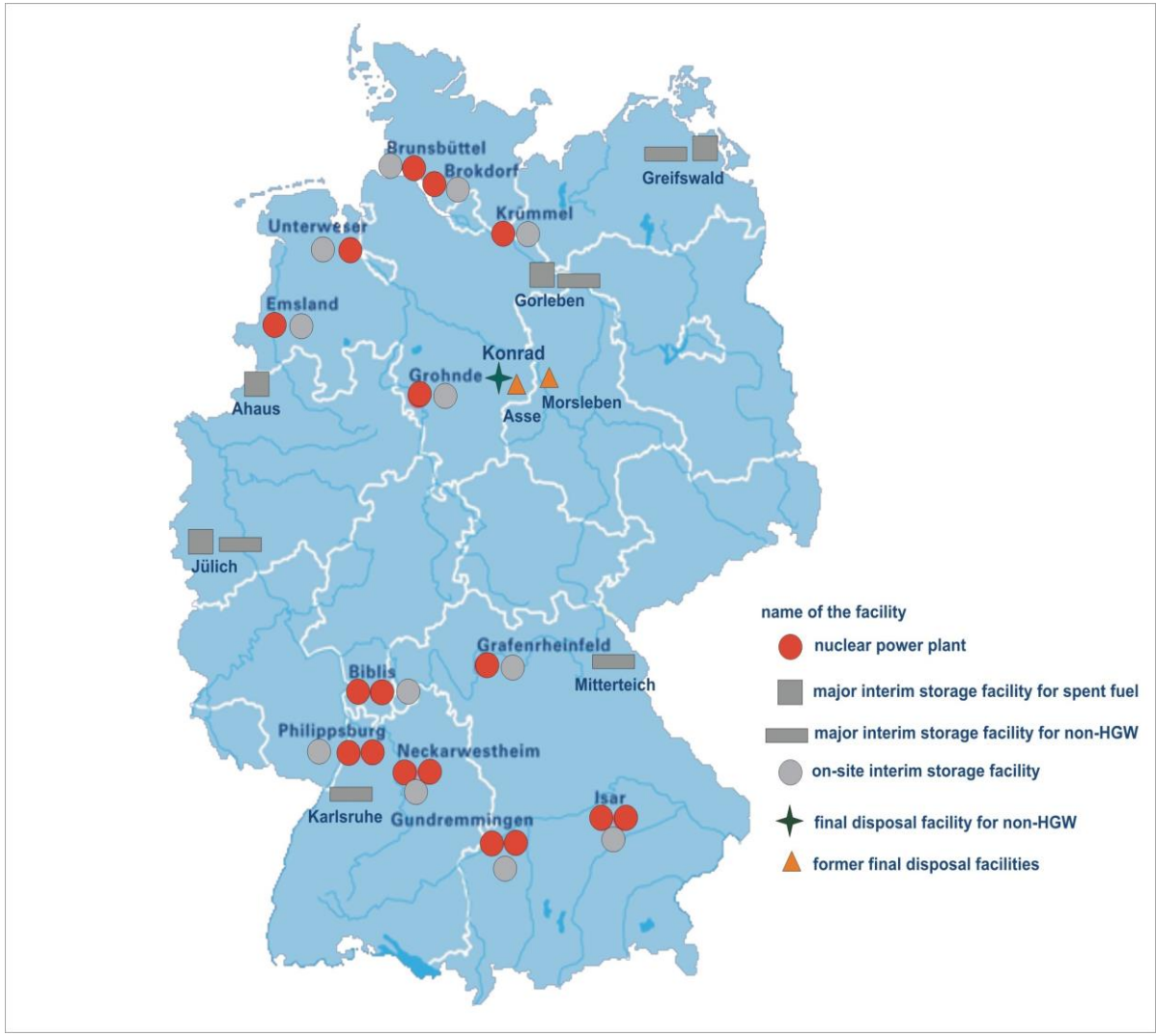
- Stake holder analysis for Germany
- Acceptance and conflict analysis (international comparison; in relation to different socio-technical options)
- Analysis of Multi Level Governance
- International comparison of nuclear waste storage approaches and concepts
- Analysis of policy instruments and institutions

126.000 barrels of nuclear waste at Asse II

Nuclear storage facilities in Germany

Nuclear waste is stored at:

- dry interim storage facilities at reactor sites
- four additional sites in Gorleben, Ahaus, Jülich and Greifswald



Source: Ökoinstitut

Complexity of decision processes

- Political debate and harsh opposition in Gorleben since 1979
- Continued refinement of site-selection procedures and criteria
- “Nuclear Consensus” between the red-green government and operators of NPPs in 2000
- Establishment of the advisory group "AkEnd “ 1999 (final report 2002), but no consensus on a specific option
- German Bundestag passed the act governing the selection of a repository site for high-level radioactive waste (Standortauswahlgesetz) June 28, 2013
- But the problem is still not solved; broad societal participation and acceptance and new institutions are needed

Roadmap for final nuclear waste disposal

- Shutdown of German NPPs according the Atomic Energy Act by 2022
- Atomic Energy Act Amendment in 2011
- Interim storage
- Euratom directive mandates notification of national plans by August 2015
- Start of final storage about 2030
- Completion of final storage activities –> 2100
- Geological period for secure disposal of nuclear waste

A brief history

- The Atomic Energy Act of 1959 stated that West Germany had to dispose its nuclear waste geologically
- Both West Germany and East Germany operated "test" disposal sites for non-heat-generating waste, at the Asse mine in West Germany and at the Morsleben Mine in East Germany
- Both mines are located in salt-domes. Instability in the rock structures have led to mechanical stability problems
- As potential locations for a final disposal site for heat-generating waste, several salt domes have been under discussion since the early 1970s
- In 1977, the West German and Lower Saxony governments decided to explore the salt dome in Gorleben
- Two interim storage units for radioactive waste at Gorleben were operated until the moratorium in 2000

Actors & responsibilities for final disposal of radioactive waste in Germany

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- Federal Republic responsible for arrangement of final disposal since 1976
- Execution of tasks: Federal Office for Radiation Protection (BfS)
- BfS is under responsibility of BMU (since 1986)
- Nuclear Waste Management Commission (ESK) – 11 independent experts – advises BMU since 2008
- DBE - entrusted by BfS with planning, construction and operation of federal final nuclear waste disposal facilities
- Federal Institute for Geosciences and Natural Resources (BGR) has geo-scientific and –technical expertise (under responsibility of BMWi)
- Planning approval by the relevant Supreme State Authority
- Additional actors: civil society, parties, NGOs, industry, media, local stakeholders, epistemic community……

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Federal election in Germany (Sept 22, 2013)

The challenge of finding an answer to a wicked problem in the (new ?) political setting