

ENTRIA

DISPOSAL OPTIONS FOR RADIOACTIVE RESIDUES:
INTERDISCIPLINARY ANALYSES AND
DEVELOPMENT OF EVALUATION PRINCIPLES

Deconstructing Acceptance - Siting of radioactive waste repository from societal and scientific perspectives - Introduction

20th REFORM Group Meeting

Salzburg August 31- September 4

*Maria Rosaria Di Nucci, Achim Brunnengräber
Environmental Policy Research Centre, FFU*

Introduction

- **ENTRIA**

- Research Platform

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

- **The bigger picture**

- national, European and international context

- **Deconstructing “acceptance”**

- the idea and aim of the workshop

ENTRIA Partners

- 12 institutes from German universities and major research institutions and one partner from Switzerland

- Disciplines represented:

- Natural sciences
- Civil engineering
- Repository research
- Philosophy
- Law
- Social sciences
- Political sciences
- Technology assessment



Objectives and Areas of Work

- **Disciplinary** and **cross-disciplinary** research regarding three waste management options
 - Final disposal in deep geological formations without arrangements for retrieval
 - Emplacement in deep geological formations with arrangements for monitoring and retrievability
 - Prolonged surface (or near-surface) storage
- Development of **evaluation principles** and knowledge about “context structures” for these options (Ethics, Law, Risk, Governance ...)
- Disciplinary and cross-disciplinary **education**
- **Communication** with scientific community and interested public

ENTRIA: Organizational Structure



FFU Contribution

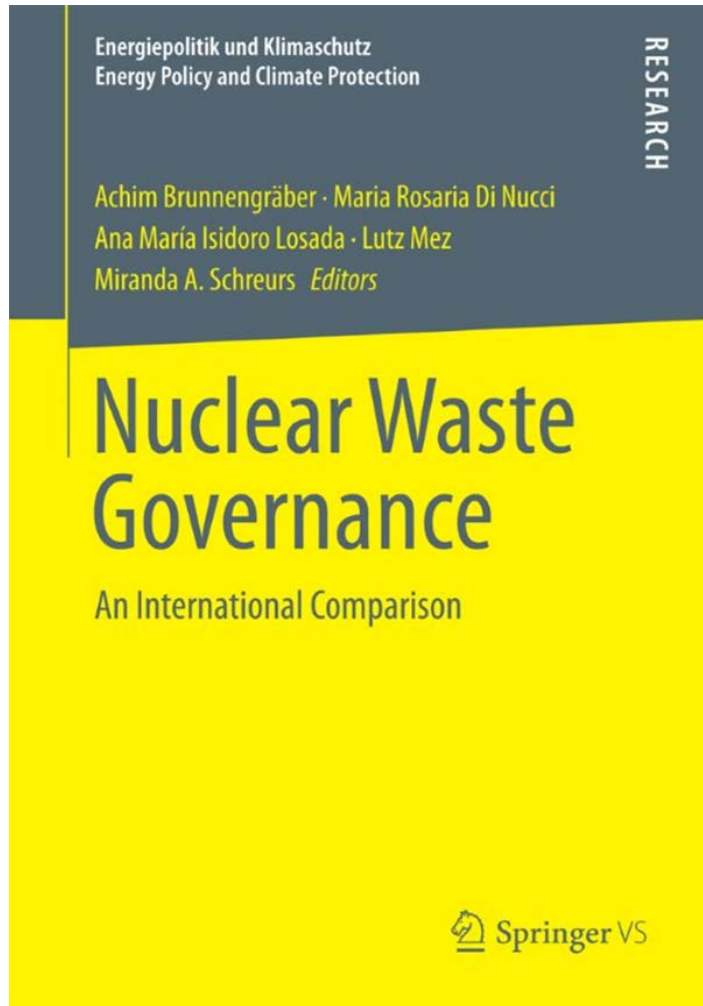
Multi Level Governance-Perspectives on nuclear Waste Storage: A comparative Analysis

- Actors screening and analysis of the actors in Germany
- Acceptance and conflict analysis
- Analysis of Multi Level Governance
- International comparison of nuclear waste disposal approaches and concepts
- Analysis of policy instruments and institutions

FFU ENTRIA Team

- Miranda **Schreurs**, Prof. Dr., Director of the Environmental Policy Research Centre
- Achim **Brunnengräber**, Dr. PD, Political Scientist, Coordinator of the FFU-ENTRIA Project
- Maria Rosaria **Di Nucci**, Dr., Economist, Senior Researcher
- Daniel **Häfner**, MA in Culture and Technology, Researcher
- Karena **Kalmbach**, Dr., Historian, Postdoctoral Researcher
- Ana María **Isidoro Losada**, Researcher, Landscape and Environmental Planning (Diploma) and Sociology, Political Science and History (Magister)
- Lutz **Mez**, Dr. PD, Political Scientist, Associate Professor at the Department of Political and Social Sciences, FU Berlin

A comparative perspective



12 Case studies

- UK
- France
- Belgium
- Switzerland
- Germany
- Sweden
- Finland
- Czech Republic
- USA
- The Netherlands
- Italy
- Spain

Further 12 case studies
forthcoming (Volume II)

N-Power /N-Waste

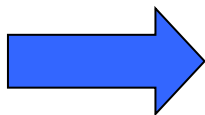
- 436 operational commercial NPPs with a total capacity of 373.5 GW in 31 countries
- Additionally research and experimental reactors
- 270,000 tons of used fuel in temporary storage worldwide
- Increase of 12,000 tons per year worldwide
- 50 countries with SF stored in pools at reactor sites or in central interim sites, awaiting reprocessing or disposal

Pressures to act

- Impacts of Fukushima
- Concerns with interim storage
- judicial demands
- regulatory requirements (nationally, EU, EURATOM)
- Nuclear energy industry needs solution
- ethical concerns (future generations will bear the consequences)

Crisis in Nuclear Waste Governance

- Until today: **no Deep Geological Repository** for high level nuclear waste (HLW)
- governments **unable or unwilling** to take on the nuclear waste challenge
- companies' strategy: leaving the problem to future generations (*private goods – public bads*)
- financial calculations that **underestimate actual costs**



growing pressure to solve the problem?

At the origin of the problem

- **Belief** that natural sciences and engineering can solve the problem
- civilian use of nuclear energy ignoring **back end NF-cycle, proliferation and geopolitical power**
- Top-down process / **marginalising** citizens concerns and anti-nuclear movements
- companies' strategy: **leaving the problem to future generations** (*inter-intragenerational equity*)
- Few - if any – models. Limitations of transferability of experiences internationally

 **acceptance not the only problem**

Changing perceptions & approaches on RWG

- Erosion of the DGD paradigm
- Reversibility and retrievability (R&R) in geological disposal now seen as a “prudent approach” (NEA/OECD)
- R&R in several national waste disposal concepts perceived as a possible way to adjust to progress in S&T and to respond to societal pressures.
- Process leading to a selection host-rock for DGD no longer only technical
- Siting processes affected by:
 - ✓ political and legal systems,
 - ✓ in-/formal rules and procedures, socio-political constraints
 - ✓ country’s nuclear history
- Processes leading to site selection unforeseeable and conflict ridden
 - ➡ From the “right to know” to the “right to object”

Deconstructing “acceptance”

- What factors shape the debate on what is an “acceptable solution”?
- Which role do compensation mechanisms and voluntarism play in generating acceptance?
- Which agents and actors are key to enhance “acceptance” for a given option?
- How to satisfy the growing demand for democracy and public participation?
- How to initiate bottom-up policy approaches?
- How to deal with the politicized problem associated with conflicts?
- Is there a room for inclusive participation, right to veto and re-start possibilities at all steps and levels of siting?

Thank you for your attention!

dinucci@zedat.fu-berlin.de
achim.brunnengraeber@fu-berlin.de

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Lessons learnt

- Interaction between politics and civil society not enough. Citizens want to **influence political decisions**
- Key conditions for an **unambiguous approach**: access to information, early involvement of the affected population and stakeholders, openness for unforeseen results, inclusiveness of the process and compensations
- Support of potentially hosting communities cannot be exclusively made dependent on **compensations**
- Capability of local authorities to **negotiate**. Size of the municipality and opportunities received for capacity building as a determining factor
- **Trust** in the institutions and preparedness to **delegate negotiation agreements** to them –perceived to be in community's interest
- **Local involvement** difficult, but necessary. NGOs not the public voice but a resource in the process to enhance transparency.
- Provision of **resources** to enhance public engagement (**capacity building**), improve decision-making and increase public confidence.
- **Cultural** influencing **factors** (France: mistrust of the political elite; Sweden and Finland: **trust and consensual approach**)