



*Supplement of*

## **Application-oriented transdisciplinary basic research on nuclear waste management: hollow phrase or sensible concept?**

**Klaus-Jürgen Röhlig et al.**

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TRANSDISCIPLINARY RESEARCH ON THE MANAGEMENT  
OF HIGH-LEVEL RADIOACTIVE WASTE IN GERMANY

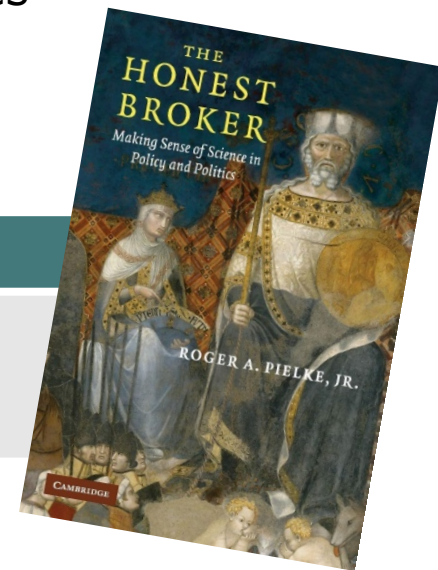
**Application-oriented transdisciplinary basic research  
on nuclear waste management:  
Hollow phrase or sensible concept?**

Klaus-Jürgen Röhlig,  
Peter Hocke, Pius Krütli, René Martin, Ulrich Smeddinck

## Research on nuclear waste management until 2016

- Societal / political conflicts
- Scientific institutions, scientists and funding mechanisms often perceived as actors in conflicts
- Often questioned: Role of „the“ science

Pure Scientist	Issue Advocate
Science Arbiter	Honest Broker of Policy Alternatives





## Request for transdisciplinary (TD) research ...

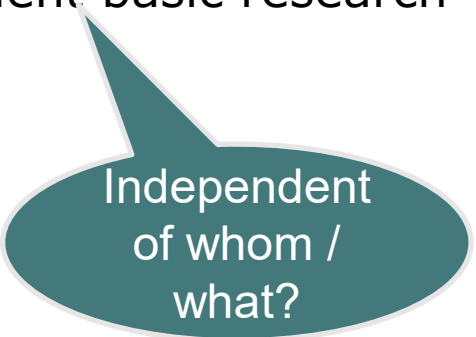
„There is the necessity for a supplementary transdisciplinary research association acting independently, neutral and holistically on the basis of internationally recognised competence in order to provide a constructive societal contribution.“

Commission on the Storage of High-Level Radioactive Materials, 2016

## ... and ideas about shaping the research and funding „landscape“

- at the implementing organisation
- at the regulatory authority
- at societal bodies engaged in the site selection procedure
- Independent basic research

Commission on the Storage of High-Level Radioactive Materials, 2016



Independent  
of whom /  
what?



## Thus: Basis for TRANSENS application (until 2019)

Transdisciplinary research on nuclear waste management in Germany

- Independent of actors in the site selection procedure
- Funding by Federal Ministry for Economic Affairs and Energy / Ministry for Science and Culture of Lower Saxony  
→ application-orientated basic research
- Areas of tension including:
  - Co-production in parallel to ongoing site selection procedure
  - Basic research vs. TD research
  - „Funding logic“ vs. co-design



## Transdisciplinary (TD) research in literature

Overstepping and integrating disciplinary paradigms	Participative research	Orientating at lifeworld problems	Universal unity of knowledge	Represented by
X	X			Defila & Di Giulio 1999, Lawrence 2004
X	X	X		Häberli & Grossebacher-Manuy 1998, Klein et al. 2001, Jahn 2005
X		X		Mittelstrass 1992, 1996, Scheringer & Jäger 1998, Jantsch 1972, Gibbons et al. 1994
X		X	X	Kokelmans 1979, Nicolescu 1996

## TRANSENS: TD according to application text

- Reflexive, integrative und method-driven scientific prinziple aiming at the solution of a societal problem and related scientific challenges
- Central: Integration of non-specialists and actors from the realm of practice into research processes accounting for their knowledge bodies, values and expectations
- Only to a limited extent „intervening“ („transformative“)
- Distance to site selection procedure,  
but observation and scientific evaluation where appropriate



## TRANSENS: „funding logic“ vs. co-design

Theme corridor:

- Constituted and defined by a research question
  - Choice and width of themes subject to changes during the research process
  - Space for communication, cooperation und agreement
  - Agreement about specific research questions, topics and methods even at advanced project stages
- Cf. e. g. presentation  
„Transdisciplinary research on repository safety“



## Four theme corridors and more

- HAFF - Capacity to act and flexibility in a reversible procedure
- SAFE - Stakeholder perspectives on the safety case
- TRUST - Trust in a context of technology, uncertainties and complexity
- DIPRO - Dialogues and process design
  
- Education and vocational training (EDU)
- Accompanying formative research (Research on transdisciplinarity)



## Our TD partners

Selection dependent on research topic / question and stage

- Actors from the realm of practice (from Germany and abroad)
- Standing groups:  
Citizen Working Group (AGBe) and DIPRO accompanying group (DBG)  
(i.e. no specialists, no lobbyists, no stakeholders)  
→ We research jointly with civil society representatives who are not directly „affected“ (e. g. by the site selection procedure).



## Citizen Working Group (AGBe): Research experience

- Multi-step selection / recruitment process
- September 2020 – inaugural meeting
- Working basis
  
- Expectations
- Feedback
  
- Transdisziplinarität – What is this exactly?



## Citizen Working Group (AGBe): Research experience

- Our input in various formats
- Learning curve – change of perspective – example
- Communication
- Status quo
- Expectation of hope
- Your feedback



## After two years of research:

- Learning process under pandemic conditions
- In parallel: Progress of site selection procedure:  
Observation / scientific evaluation ...
- ... but TRANSENS is a research project and does not act in the process  
(notwithstanding activities of TRANSENS scientists in different roles)
- Results: Cf. ensuing presentations  
(and also presentations in other safeND sessions and workshops)

## Conclusions

- Strong need for learning, flexibility and adaptivity
  - TD understanding
  - Positioning in theme corridors – new understanding of co-design
  - Choice of methods and partners (evolution / adaption)
  - Application-orientated transdisciplinary research in parallel with ongoing site selection procedure
  
- Variety of methods and (evolving) partnerships
- Important (interim) results
- Innovative types of partnerships and of TD research (?)



# Thank you for your attention! Questions? Comments?

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