Supplement of

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

Klaus-Jürgen Röhlig et al.

Correspondence to: Klaus-Jürgen Röhlig (klaus.roehlig@tu-clausthal.de)

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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

<table>
<thead>
<tr>
<th>Pure Scientist</th>
<th>Issue Advocate</th>
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<tr>
<td>Science Arbiter</td>
<td>Honest Broker of Policy Alternatives</td>
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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
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

<table>
<thead>
<tr>
<th>Overstepping and integrating disciplinary paradigms</th>
<th>Participative research</th>
<th>Orientating at lifeworld problems</th>
<th>Universal unity of knowledge</th>
<th>Represented by</th>
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<td>Defila &amp; Di Giulio 1999, Lawrence 2004</td>
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<td>Kokelmans 1979, Nicolescu 1996</td>
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modified after Pohl & Hirsch Hadorn 2006, cf. also Klein 2013
Reflexive, integrative und method-driven scientific principle 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 and 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

- Transdisziplinarity – 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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