# Wasted opportunities? Nuclear STS lost in translation

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Spiral Research Center, RU Cité, Liège University

May 17 2021, BSTS.be webinar series, Guest Lecture, BSTS and University of Antwerp, Belgium – Online

# Welcome to our family dinner, please have a seat!

- **"It is a very sensitive and complex issue with opposed stances!"**

- **"Do they [the experts] still want to bury them?"**

- **"Are the nuclear power plants really safe?" "what about the nuclear waste storage?"**

- **"It is not only about us, but it is also about our grandchildren and the next generations"**

- **Last but not least: "By the way, as you seem to be an expert, are you in favor or against nuclear energy?"**

- **"I'm not sure I am competent. Who really is?"**

- **"Such much uncertainties, how to deal with it?"**

# Outline

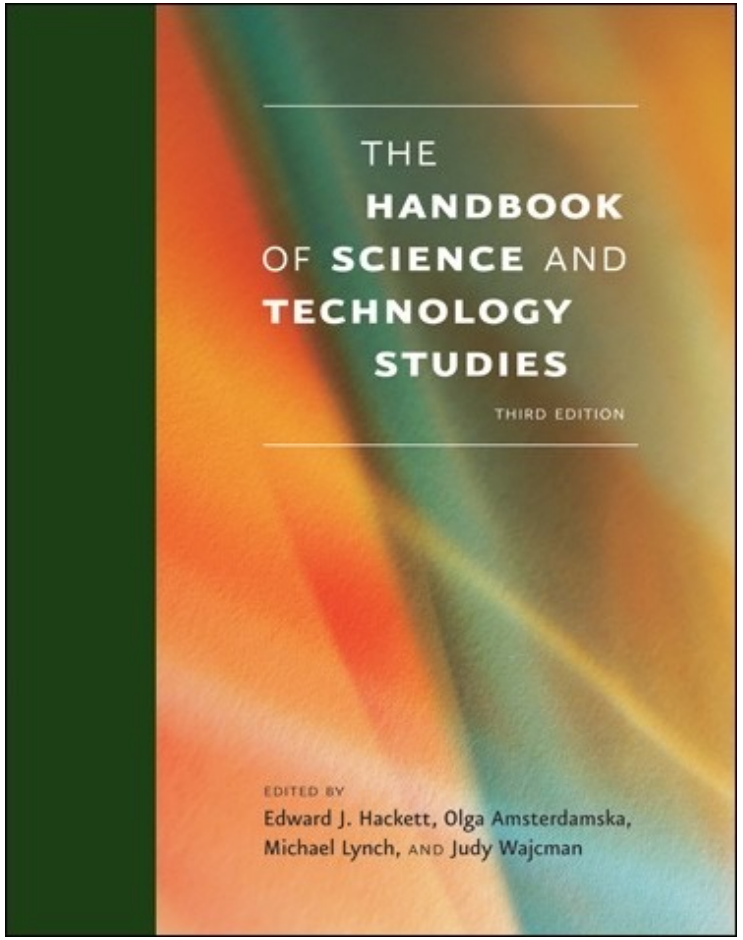
1. **Introduction – *sitting at the family dinner***
2. **Where I belong**
   - 2.1 The STS « churches »
   - 2.2 Being a nuclear STS scholar
3. **Five decades of Social Science Research on RW**
   - *3.1 With Solomon et al. (2010); (Hietala & Geysmans 2020)*
   - 3.2 Trying again: three Belgian illustrations of the same old new STS agenda
4. ***Conclusion:* we, nuclear STS, are lost in translation**

# 2. Mapping the field: the STS « churches »

*There is the part of Science and Technology Studies (STS) that addresses and often challenges traditional perspectives in philosophy, sociology, and history of science and technology;* ***it has developed increasingly sophisticated understandings of scientific and technical knowledge, and of the processes and resources that contribute to that knowledge****.*

***There is also the part of STS that focuses on reform or activism,*** *critically addressing policy, governance, and funding issues, as well as individual pieces of publicly relevant science and technology; it tries to reform science and technology in the name of equality, welfare, and environment.*

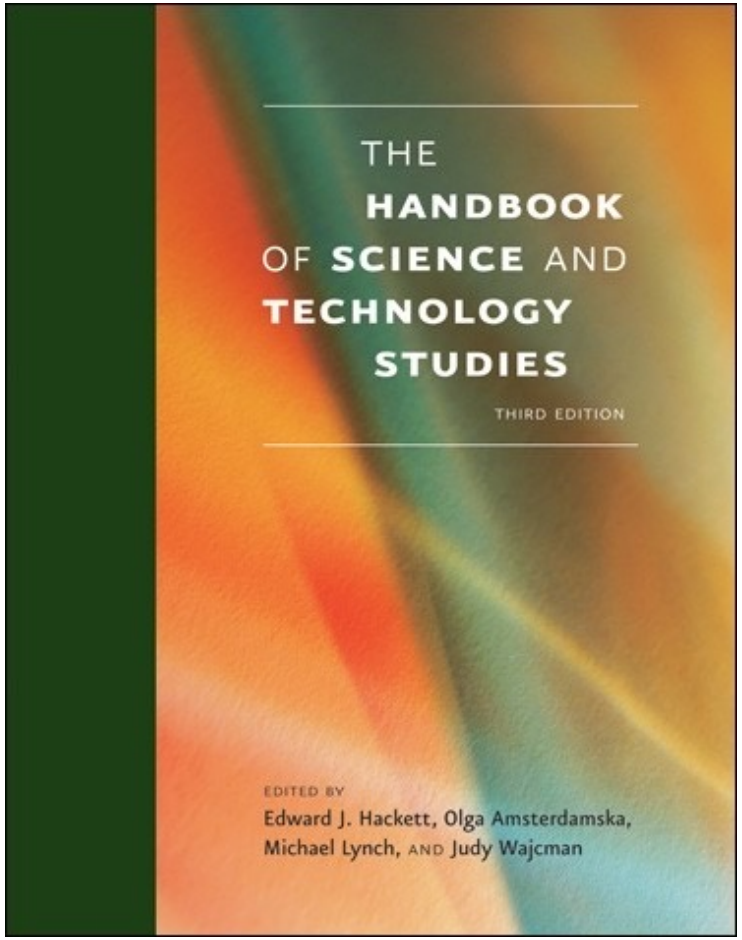
*(Sismondo, 2008).*



# 2. Mapping the field: the STS « churches »

*However, this image of division ignores* ***the numerous bridges between the Churches,*** *so numerous that they form another terrain in which* ***the politics of science and technology are explored****. There we find theorists increasingly concerned with practical politics of science, articulating positions with respect to questions about the place of expertise in a democracy, or engaging in studies that directly bear on questions of reform and activism*

*(Sismondo, 2008).*



# 2. Being a nuclear STS scholar

- **Breaking the myth of neutrality** (Delvenne, Parotte 2019, Thoreau 2019)

« **Situated** and embodied **knowledges** [are] an argument against various forms of unlocatable, and so irresponsible, knowlegde claims » (Haraway, 1988, p.583)

# 2. Being a nuclear STS scholar

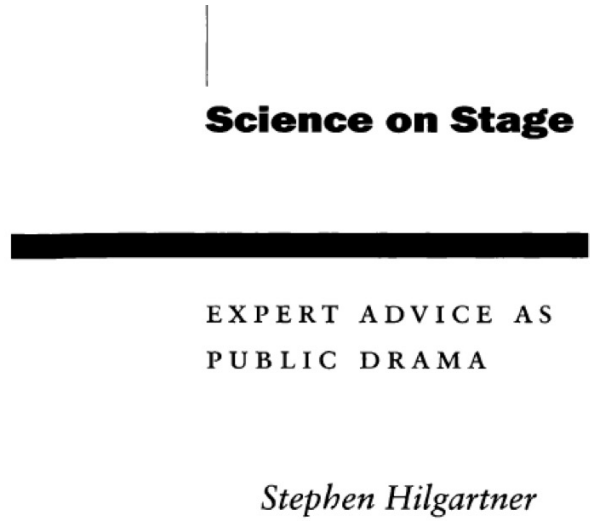
- **Embarked with the waste**

« the questions of researcher's engagement must be **solved in a practical way,** articulated to the objects of the situation of engagement, rather than *in abstracto.*» (Thoreau 2019, 18)

# 2. Being a nuclear STS scholar

- **STS scholar messages occur on different « stages »**

« Advisors [as STS scholar could be], like all performers, **envision the audience** their work will eventually encounter and, at least to some extent, tailor their presentations accordingly. Because advisors **« respond » in advance to imagined audiences**, the production and reception of science advice cannot be completely disentangled » (Hilgartner, 2000: 7)

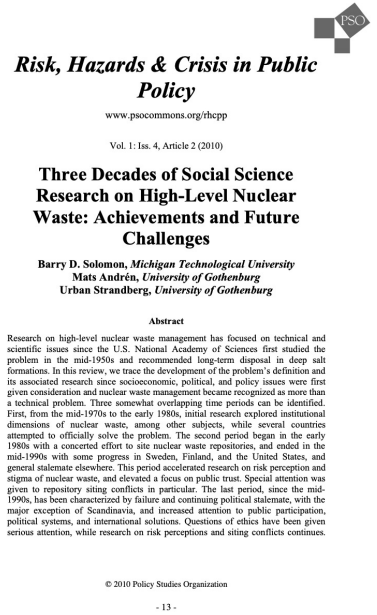


# 3. Five decades of social sciences researches on RWM

*With*

*Solomon et al. (2010) and*

*Hietala and Geysmans (2020)*



*Risk, Hazards & Crisis in Public Policy*

www.psocommons.org/rhcpp

Vol. 1: Iss. 4, Article 2 (2010)

**Three Decades of Social Science Research on High-Level Nuclear Waste: Achievements and Future Challenges**

**Barry D. Solomon,** *Michigan Technological University*
**Mats Andrén,** *University of Gothenburg*
**Urban Strandberg,** *University of Gothenburg*

**Abstract**

Research on high-level nuclear waste management has focused on technical and scientific issues since the U.S. National Academy of Sciences first studied the problem in the mid-1950s and recommended long-term disposal in deep salt formations. In this review, we trace the development of the problem's definition and its associated research since socioeconomic, political, and policy issues were first given consideration and nuclear waste management became recognized as more than a technical problem. Three somewhat overlapping time periods can be identified. First, from the mid-1970s to the early 1980s, initial research explored institutional dimensions of nuclear waste, among other subjects, while several countries attempted to officially solve the problem. The second period began in the early 1980s with a concerted effort to site nuclear waste repositories, and ended in the mid-1990s with some progress in Sweden, Finland, and the United States, and general stalemate elsewhere. This period accelerated research on risk perception and stigma of nuclear waste, and elevated a focus on public trust. Special attention was given to repository siting conflicts in particular. The last period, since the mid-1990s, has been characterized by failure and continuing political stalemate, with the major exception of Scandinavia, and increased attention to public participation, political systems, and international solutions. Questions of ethics have been given serious attention, while research on risk perceptions and siting conflicts continues.





JOURNAL OF RISK RESEARCH
https://doi.org/10.1080/13669877.2020.1864010

Routledge
Taylor & Francis Group

Check for updates

**Social sciences and radioactive waste management: acceptance, acceptability, and a persisting socio-technical divide**

Marika Hietala and Robbe Geysmans

Nuclear Science and Technology Studies, Belgian Nuclear Research Center SCK-CEN, Mol, Belgium

**ABSTRACT**

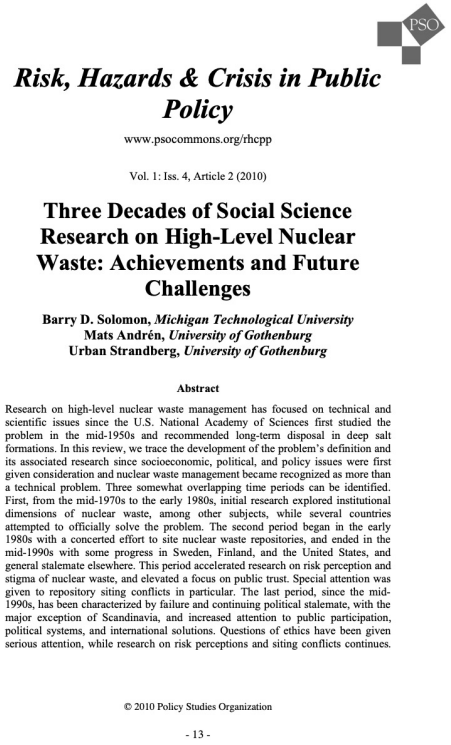
Radioactive waste management (RWM) is a complex challenge, spanning various timeframes and societal domains, ranging from the technical, to the social, political and economic. As such, it has also attracted substantial attention from the social sciences. This article reviews social scientific engagement with RWM over the past two decades (2000-2019), with a particular focus on how this literature has engaged with and can be positioned vis-a-vis the 'socio-technical' challenge posed by radioactive waste. Analyzing a total of 275 published articles, we identify and discuss three dominant strands of research that all relate to the issue of acceptance/acceptability of RWM in society, focusing respectively on 1) individual(ized) perceptions about risks, benefits and facility siting; 2) governance approaches; and 3) ethical and epistemological issues connected to RWM. While calls have been made for a socio-technical approach towards radioactive waste, we argue that the majority of social scientific engagement with RWM has focused on 'social' processes, thus reinforcing a divide between the 'social' and the 'technical' aspects of RWM. Overall, social scientists should engage in and would benefit from greater reflection on their engagement with RWM, and direct efforts towards moving beyond multi-disciplinarity towards interdisciplinary approaches.

**ARTICLE HISTORY**
Received 5 June 2020
Accepted 4 November 2020

**KEYWORDS**
Radioactive waste; literature review; risk; participation; socio-technical divide

# 3. From 70's to mid 2000

- 70's – 80's : The Nuclear « **Achilles heel is diagnosed** ».
- 80's – 90's : Repository **sitings**, risks and siting conflicts
- Mid 90's to mid 2000: flow of **case studies on resistances a**nd stalemates against HLW disposal



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Social scientists consider themselves **problem solvers, as much as engineers and geologists** (Solomon et al 2010, 30).

# 3. From 2000 onwards

2000 – 2020: still a sociotechnical challenge

- **Focus on individuals:** Individual(ized) perceptions about risks, benefits and acceptance of RWM facilities;
- **Focus on systemic and historical approches**: Governance approaches in RWM;
- **Focus on the waste or RW technologies** : Ethical and epistemological issues connected to RWM

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# 3. From 2009 onwards: three illustrative cases

- ***Failing attempts to open up the framing and the NWM process*** in 2012, 2016 and 2020
  - Open up the debate to publics and experts, be proactive, organize a new debate, multiply hybrid arenas for experts, publics and policy makers to produce knowledge.
- ***Being perceived as too institutionally engaged*** *in 2019*
  - Failing attempts to include uninvited critics to participate at a broad universities consortium research .
- ***Taking distance for other (public) stages*** *in 2020-21*
  - *Public statements on RWM organisation choices.*
  - *Engaging with other actors (at the European level, federal, regional levels)*

# 3. STS and social science engagements: for what results?

**« Has social science research made a difference?** At this point in time, it is useful to consider whether social science research findings have been considered in HLW management and disposal decisions, and **the general answer is no** » (Solomon et al. 2010, 29).

When they are obviously powerless, they can **witness how some actors reproduce the exact same mistakes** they did many years ago (Parotte et Fallon 2020).

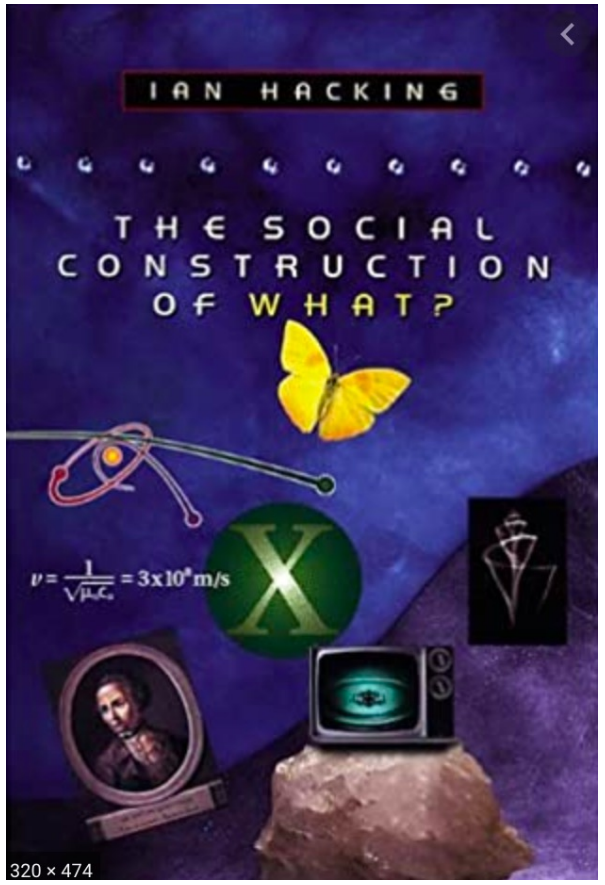
When they possibly have some: they **seem to « maintain a socio-technical divide** in RWM » (Hietala and Geysmans 2020)

# 4. We, nuclear STS, are lost in translation

# 4. Lost in translation, how to (re)act?

Six grades of commitment (Hacking, 1999, 28-29)

Historical
Ironic
Reformist Unmasking
Rebellious
Revolutionary



# 4. Lost in translation and (next) Nuclear STS engagements

First possibility: **Keep going with tenacity**

***"being prepared to persevere even if there is no hope of realizing one's goals"*** (Rip 2006)

# 4. Lost in translation and (next) Nuclear STS engagements

Second possibility: **Practicing irony** from the inside

> ***'Reflexive governance is good, because it maintains the illusion of governance'?*** (Rip 2006)


Source: gosocial.co; acessed 2021

# 4. Lost in translation and (next) Nuclear STS engagements

Third possibility: Being a reformist, **but carefully from within or the outside.**

Christiane Gerblinger April 27th, 2021

Are experts complicit in making their advice easy for politicians to ignore?

A UK crop circle, created by activists to signify uncertainty over where genetic contamination can occur.

## Keep it complex

When knowledge is uncertain, experts should avoid pressures to simplify their advice. Render decision-makers accountable for decisions, says **Andy Stirling**.

# 4. Lost in translation and (next) Nuclear STS engagements

Four possibility: Being a rebel or a revolutionary activist

***« An activist who moves beyond the world of ideas and tries to change the world » (Hacking 1999,20)***

« to engage in the rejection of these worlds in the making, in all the gravity of their presence and their becoming. We know what we know and what we don't want » (Thoreau 2019)


Bure House. Source: Réseau Sortir du Nucléaire, accessed 2021

# 4. Nuclear STS engaged in translations

## You, be multiple and be mobile

« **Neither embarked nor disembarked** »
(Callon 1999)

**« in conversation with the situation** »(Schön 1985, quoted in Rip 2006).

Source: nouvelobs.com, accessed 2021

# 4. Nuclear STS engaged in translations

Accept to take part in the production of NW **”serviceable truths”**

**“ [Nuclear STS communities] should be able to enforce “serviceable truths, [which are] robust statements about the condition of the world, with enough buy-in from both science and society to serve as a basis for collective decisions”** (Jasanoff, 2017: 3).


Source: 123fr.com accessed 2021

# Thank you for your attention

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In memory of Catherine Zwetkoff; an inspiring and committed mentor, Professor and activist.

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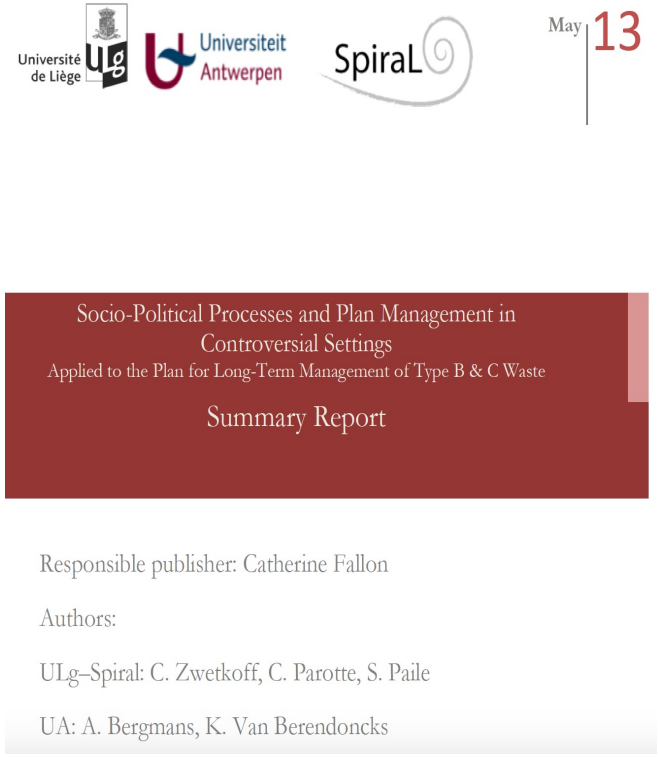
# Additionnal slides for FAQ

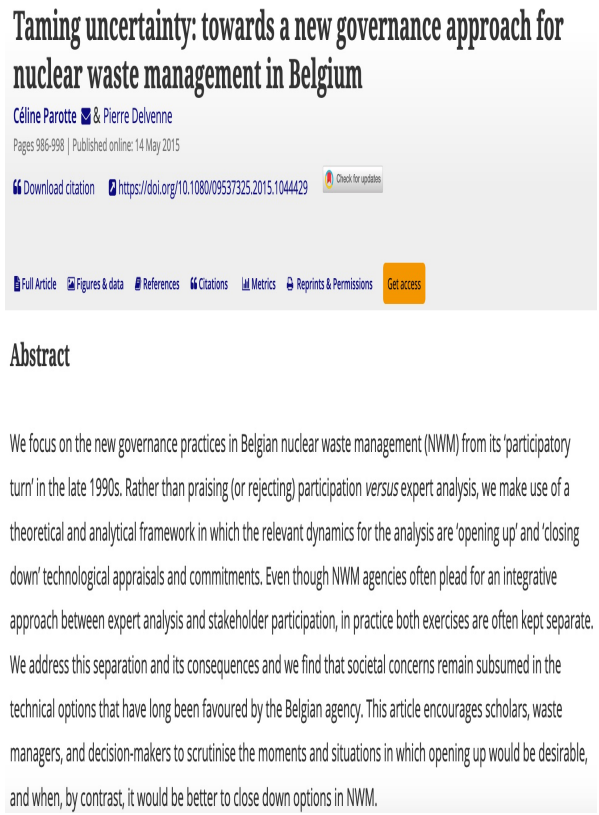
- For the discussion

# FAQ/ Situated knowledge


2009-2010

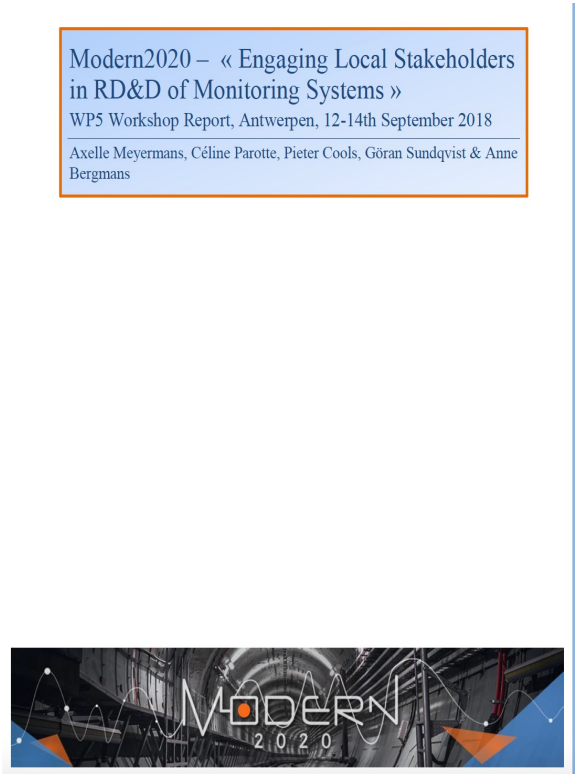



2011-2013




2015

# *Situated knowledge*

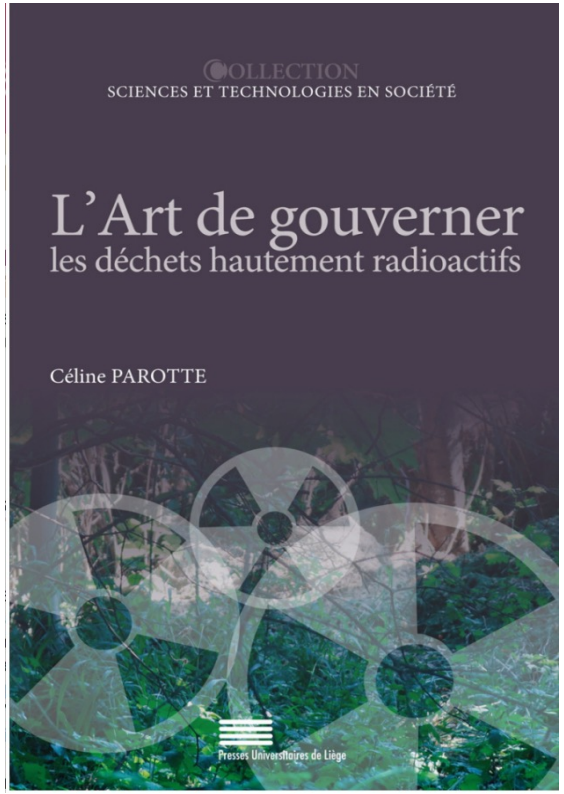

Modern2020 – « Engaging Local Stakeholders in RD&D of Monitoring Systems »

WP5 Workshop Report, Antwerpen, 12-14th September 2018

Axelle Meyermans, Céline Parotte, Pieter Cools, Göran Sundqvist & Anne Bergmans

MODERN 2020

2018




2018


November 2019

The future for long-term management of high-level radioactive wastes and spent fuels in Belgium

Results of the first round of the Delphi inquiry

Céline PAROTTE and Catherine FALLON, Spiral Research Center, RU Cité — Liege University

2019-2020 (février)

# *Situated knowledge*

**Distanciation sociétale: mauvais timing pour la consultation publique belge sur le sort des déchets hautement radioactifs**

Opinions (/debats/opinions)

Contribution externe

Publié le 07-04-2020 à 10h07 - Mis à jour le 07-04-2020 à 20h00

**Une opinion de Céline Parotte, politologue à l'ULiège (Centre de recherches Spiral) et experte de la gestion des déchets radioactifs.**

de wereld morgen .be

Zoeken

**Opinie – Céline Parotte (https://www.dewereldmorgen.be/custom-schrijver?q=Céline-Parotte) . (https://www.dewereldmorgen.be /schrijver/opinie/)**

**Social distancing: slechte timing voor openbare raadpleging over toekomst van radioactief afval**

Avril 2020

EUROPEAN JOINT PROGRAMME ON RADIOACTIVE WASTE MANAGEMENT - EURAD

*A step change in European collaboration towards safe radioactive waste management.*

Fig 1. Representation of countries involved in the joint programming

## Vision

*A step change in European collaboration towards safe RWM, including disposal, through the development of a robust and sustained science, technology and knowledge management programme that supports timely implementation of RWM activities and serves to foster mutual understanding and trust between Joint Programme participants.*

Mai 2020 – …

Energy Research & Social Science 69 (2020) 101761

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journal homepage: www.elsevier.com/locate/erss

# A nuclear real-world experiment: Exploring the experimental mindsets of radioactive waste management organisations in France, Belgium and Canada

Céline Parotte

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ARTICLE INFO

*Keywords:*
Real-world experiment
Experimental mindset
High-level radioactive wastes
RWM organizations
National radwaste policies
Deep geological disposal

ABSTRACT

Following the theoretical approach of Herbold (1995), Gross and Krohn (2005), and Van de Poel et al. (2017), this article argues that nuclear waste management is a real-world experiment. Based on this first assumption, we examine how radioactive waste management (RWM) organizations conceive or organize their experiments. Through three illustrative case studies in France, Belgium and Canada, we highlight how the RWM organizations obliged to participate in complex networks and unable to completely control the experimental process, adopt two different attitudes: an "open" or "closed" experimental mindset. We argue that these mindsets provide different answers to the questions: which main variables to focus on, how and who should design them, how to deal with conflicts and unexpected events, what are the justifications for participation and expert analysis, and what are the expected outputs and outcomes. The findings underline that although some RWM organizations have -at least since the participatory turn- had some 'open' mindset moments in some cases, they quickly revert to a closed mindset. We conclude by emphasizing the need for practitioners and scholars to further examine and evaluate the virtues of the open mindset when the experimenter assumes the program has a real-world experimental status. This status recognizes the limits of control over experimental conditions, allows for more substantial moral considerations when making technical choices before wider audiences and allows for collective sharing of responsibility, knowledge production and trade-offs over such a long-term and controversial program.

Août- Septembre 2020

# FAQ/ Expert-public relations: how to talk about hybrid forum when Deficit Model remains the minimum to reach in several nuclearized countries?

- “This discussion [at the Modern 2020 workshop] underlines how the deficit model, which promotes top-down information, remains the main discussion topic for local stakeholders. They did not suggest changing the way nuclear experts should communicate or inform local stakeholders. Rather, local stakeholders **insist on how the quality of information,** provided by nuclear and technological experts, **should be improved.** In order to increase this quality, local stakeholders stress that technical experts should take the local stakeholders’ perspectives into account and be open-minded to other perspectives. Then, both parties would be able to mutually learn adequate ways of communication.” (Meyermans et al. 2018, p. 7)

# FAQ/ Resistances: do you have open or closed experimental mindset? (why?)

| | **Open experimental mindset** | **Closed experimental mindset** |
|---|---|---|
| Main endpoint of the mindset (entry point of the approach) | Process as the main variable to control | Final output as the main variable to control |
| Premises regarding the design of the final outcome | The design final outcome remains unknown and is evolutive | The design of final outcome is pre-fixed in advance |
| Mode of Planning | Flexible planning | Rigid planning |
| Statement about the control of variables | Recognizing that controlling all variables is impossible. (anticipation mode is limited) | Controlling all variables (anticipation mode) |
| Statement about unexpected events or surprises | Embracing surprises and adapt the protocol accordingly | Reluctant to surprises and demonstrate how the initial protocol can respond accordingly |
| Statement about the conflicts and unexpected events | Conflicts and unexpected events are the business-as-usual | Conflicts and unexpected events have to be healed |
| Rationales of participation and expert analysis | Normative, instrumental and substantive: Participation and expert analysis as "normative" tool: consensus is not expected. | Instrumental and substantive: Participation and expert analysis as "pacification" tool: consensus is expected. |
| Produced output | Tend to opening up appraisals and commitments (in a sense of Stirling 2008) | Tend to closing down appraisals and commitments (in a sense of Stirling 2008) |