Decommissioning Projects
From control to inquiry

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Decommissionning Fessenheim: Between Erasure and Transmission
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An ongoing study, within the RESOH Chair

- A central question: “What is transmitted” in decommissioning projects?
- A qualitative inquiry, initiated in 2024
- A collaborative research approach with a nuclear operator
- Exploratory findings to enhance discussion



Source : Philippe Dureuil, photos réalisées pour l’ASNR

Where am I speaking from?
15 years of qualitative research on nuclear work

A pragmatist research approach

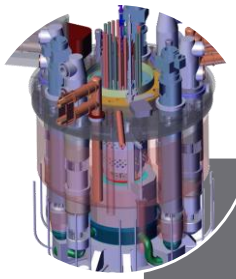
- → Field inquiries (interviews – n =32, meetings' observations, site visits)
- → … Following field actors' concerns
- → … grounded in the study of activity
- → … sustained dialogue and confrontation of different perspectives



Decommissioning



Operation (production / maintenance)



Design

CHAIRE RESOH

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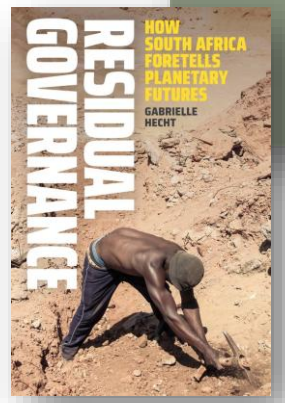
A shared and growing interest for decommissioning, in Academia & Industry

- A socio-environmental interest
  - The closure of a growing number of hazardous industrial facilities
    → how should these closures and (toxic) legacies be managed?

- A socio-technical interest
  - "Unprecedented" projects, requiring project organizations and practices to be reinvented
  - A shift in the nature, scale and scope of the projects
    - From decommissioning as a discrete, invisible, "craft-based" activity …
    - … To decommissioning as a strategic, industrial activity closely scrutinized by the Authorities

- Emerging concerns arising from the challenges and difficulties encountered in managing these projects





"The ASN considers that the safety of operating facilities remains under control, but that projects [...] involving the decommissioning of shut-down facilities continue to show mixed results and remain exposed to potentially major uncertainties. Despite the gradual strengthening of project-management practices, implementation performance remains constrained by the resources available and by the operational capabilities of contractors in the sector. Moreover, the operational reality of decommissioning sites is almost systematically more complex than anticipated, sometimes to the point of calling the entire project into question or significantly postponing its deadlines. In this respect, the ASN considers that maintaining control over these projects remains an area requiring vigilance." *(ASN Report, 2025)*

Experience feedback, a pillar of decommissioning governance and performance?



- Decadal cycles
  - 2005: From a "sprinkling" strategy (Blanck, 2021)
  - 2016: to a strategy of concentrating resources → "safer, faster" (Gorgues, 2019): Primacy is given to reducing the mobilizable source term (TSM) → moving as quickly as possible the maximum amount of radioactivity to a location with safer conditions
  - 2026?

"There are three pillars to the decommissioning scenario: the input data—the facility; the output data—what the final state will be; and all the technical aspects involved in moving from the initial state to the final state: technologies, regulations, and so on. And the fourth pillar, the one that underpins all of this and makes the whole thing robust, is lessons learned, because lessons learned allow us to demonstrate that the right approaches have worked."

(Decommissioning expert, 2024)

Experience feedback, a pillar of decommissioning governance and performance?



"The central issue is taking lessons learned into account. Basically, it is about how you draw on the lessons learned from previous decommissioning requests that were not completed, or that had to be modified for some reason. They are aware that, on projects spanning 60 or 70 years, there will inevitably be uncertainties. Now… we have already encountered these uncertainties. We have already faced these kinds of issues. So, how do we integrate these lessons learned?"

(Nuclear Safety Project Owner representative, 2025)

"Overall, we have a rather deficient approach to lessons learned. We look at it from a technical perspective, and we only document what works. And then there's the worst-case scenario: something worked somewhere, so we decide to do the same thing again—only, unfortunately, it worked, but we don't know why. In other words, we don't even cover a quarter of what we should be covering to have an effective lessons-learned process. And I have never heard anyone talk about organizational lessons learned. Never."

(Decommissioning expert, 2024)

And yet… recurring difficulties in the transmission and appropriation of knowledge

- What needs to be passed on? And how?
- What types of work does decommissioning involve?

"Aerospace and thermal power plants are production industries. They produce an object, always the same. So capitalizing experience is easy, it's progressive, it works very, very well. Decommissioning, it's only "moutons à cinq pattes". There are no two identical projects, so we don't have serial effect. But really not! Each project is a unique object. So we have difficulties to use the same technologies, even the same project management methods. All project management tools that you learn at school were created for projects at a human temporal scale. So, for a 80 years-long project, we are at the limit of existing tools." (Project manager, 2025)

What is transmitted… and what is not?
Observations from the field

Codified & technical knowledge

- Incredibly rich databases…

"I don't know if you've been into this database. It's a gold mine of information. I mean, you have billions of things in there. You have all the end-of-intervention reports. You have lessons-learned reports covering technical issues, safety issues, security issues, and also organizational issues relating to project management. There's an enormous amount of information." (Safety representative, project owner, 2025)

- … yet insufficient to support decommissioning work

Embodied & contextualised knowledge

- Unanimous recognition of the value of 'living REX'
- *"So, basically, I have her review my documents, and she explains things to us and guides us. She explains things again. We do site visits, and she shows us: we can do it this way, we can do it that way. I mean, her practical understanding of things—and that's incredibly valuable! Living REX. That's the most—most precious kind of lessons learned you could have. When you have that… hallelujah! That's it. That's pure gold." (Project Manager, 2024)*

- Going beyond the technical: documenting the life of projects → bringing in their socio-organizational dimensions.

Understanding the very nature of decommissioning work

- Confronting radical uncertainties & ignorance
    - Actual state of the facility
    - History
    - Contamination / materials
    - Objects
    - Waste routes / disposal outlets
    - Future states
- Sustaining commitments over unprecedented timescales, far beyond the scale of a human lifetime
- Advancing knowledge through a series of “trials”
- Engaging in an “inquiry work”

The "inquiry work" in the face of a "control logic"

Inquiry work	Control logic
• Exploring • Making hypotheses • Testing / revising • Investigating / Interpretating • Learning Value given to situated knowledge building and sharing	• Plan • Reporting • Indicators • Standards • Value given to compliance

"When we opened it, we found something totally different from what we expected. So we had to go through box after box of archives—just paper—to find out what it was. And we finally did! But it took a very, very long time, because we didn't know what we were looking for. We conducted investigations and concluded: there is a strong chance that this is it."(Project actor, 2024)

"Decommissioning is an investigation, like an inquiry". (Decom. expert, 2024)

"We're paying a vision of nuclear: "trust doesn't exclude control". So we trust everybody, and yet, for each person who does the work, two are checking. Maybe I'm exaggerating, maybe it's one for one. But, still, the logic is this one. We have as many safety engineers as people doing the job. So, trust doesn't exclude control, but we are reaching the point where there are so many controls that what people of work are feeling is "surveillance". We are watched all the time, and more, we are judged at all time." (Project actor, 2024)

Conclusion – Key takeaways

- What is transmitted when decommissioning?
  - Material (concrete, waste, valuable material, paper – archives, technologies & tools)
  - and immaterial traces (embodied knowledge, experience of uncertain situations & trials…)
- The core activity: producing the knowledge that makes decommissioning possible
- Recognize inquiry work as a productive activity in its own right. To master decommissioning projects,
  - the challenge is not to strictly control projects
  - It is to recognize, support and manage the inquiry work that makes them possible
  - An organization work to rethink performance & control, involving the operators and the regulator
- Lessons learned / experience feedback (REX) as support for anticipation work, oriented towards the future → the importance of "living REX"
- A dominant control logic can undermine the inquiry process and the capitalization of lessons learned.



Thank you for your attention!

Organizing to Deliver DecommissioningDeveloping a decommissioning strategy

From putting decommissioning on the policy agenda…

- … to the elaboration of “decommissioning strategies”

- Decadal cycles
  - 2005, a “saupoudrage” strategy (Blanck, 2021)
  - 2016, “*safer, faster*” (Gorgues, 2019): a framing of the strategy through the reduction of TSM and the concentration of resources
  - 2026?



