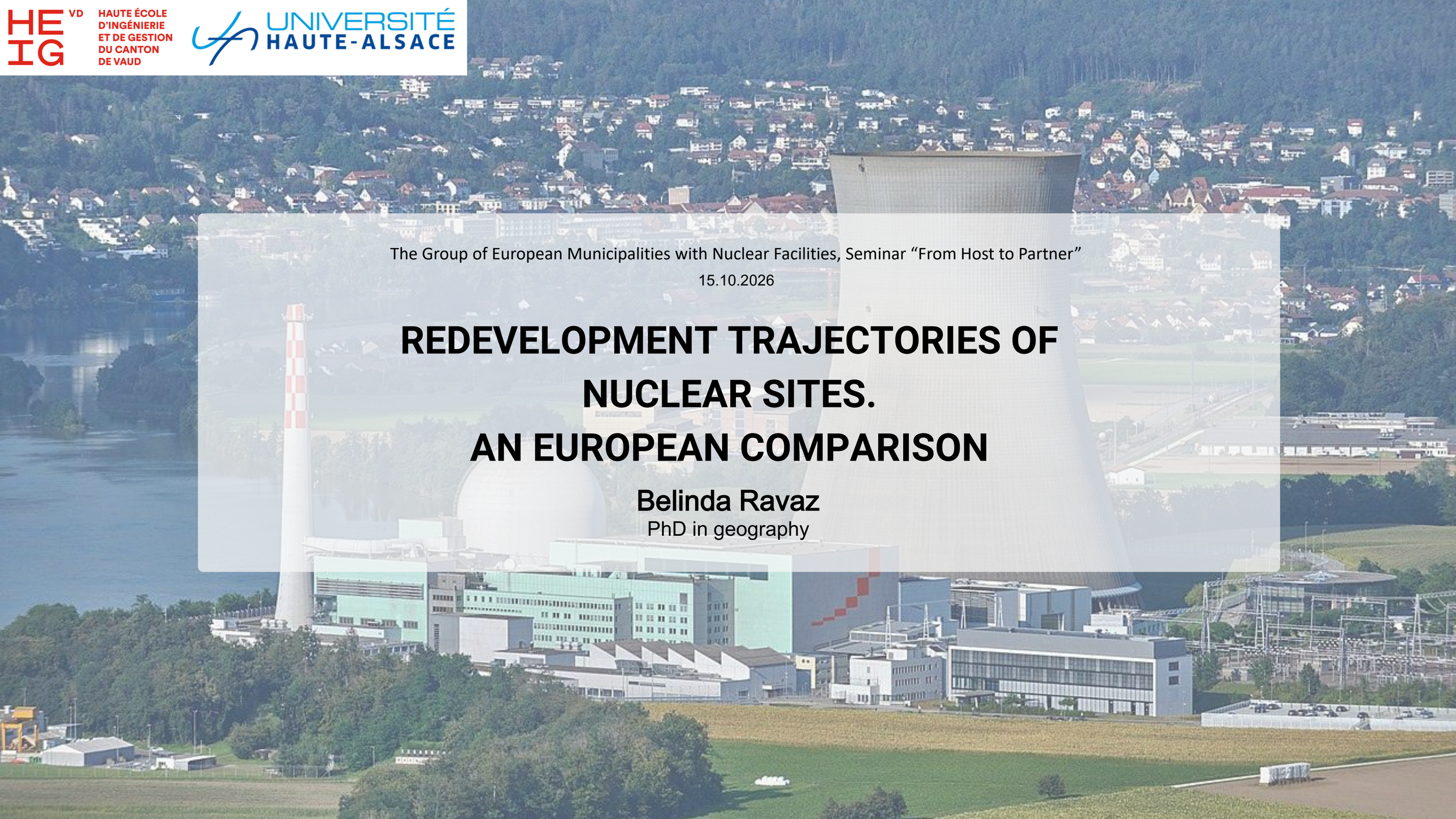


The Group of European Municipalities with Nuclear Facilities, Seminar “From Host to Partner”

15.10.2026

REDEVELOPMENT TRAJECTORIES OF NUCLEAR SITES. AN EUROPEAN COMPARISON

Belinda Ravaz

PhD in geography

INTRODUCTION


charbon
#vandalismeenvironnemental

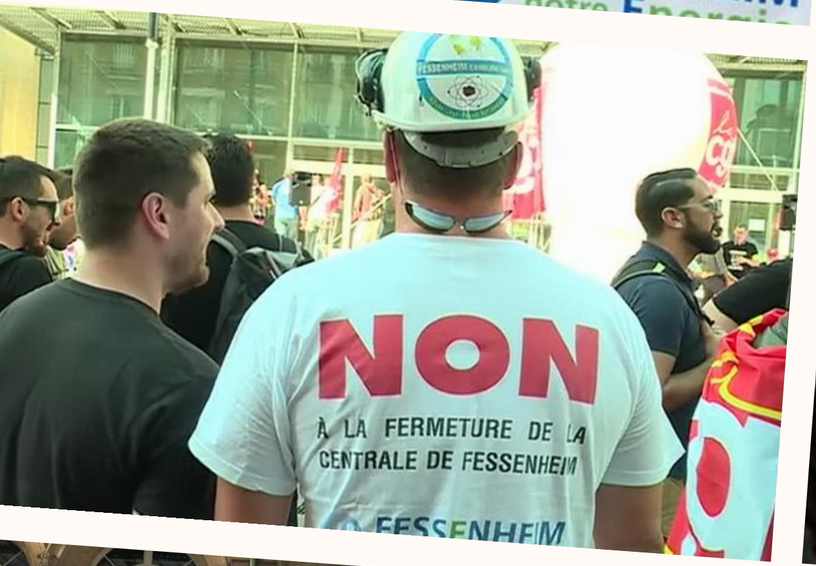



FESSENHEIM
notre Energie


NON A LA FERMETURE
DE LA CENTRALE
NUCLEAIRE
FESSENHEIM
notre Energie


ASSOCIATION DES
ÉCOLOGISTES
POUR LE NUCLÉAIRE
FESSENHEIM
2200 emplois
sacrifiés


NON A LA FERMETURE
DE LA CENTRALE
NUCLEAIRE
FESSENHEIM
notre Energie
NON A LA FERMETURE DE LA CENTRALE
NUCLEAIRE DE FESSENHEIM !


NON
À LA FERMETURE DE LA
CENTRALE DE FESSENHEIM


ASSASSINER
2200
EMPLOIS
=
CRIME
D'ETAT


NON !
à la fermeture de Fessenheim


Voix du Nucléaire





JUST A TECHNICAL SHUTDOWN ?

jobs and contracts disappear → workers and their families leave → tax revenue and property values fall → services decline, precarity rises

a cumulative spiral, not a one-off economic shock -> from Detroit to Europe's coal and steel regions

…and nuclear too

The plant often made the territory

sited in rural areas: jobs, taxes and services grew around it for 40 years

The end is rarely prepared

even though impact studies had been carried out in some cases

even though the closure date is known

It stays nuclear in people's minds

perceived risk outlives operation (Pasqualetti and Pijawka, 1996);

may limit opportunities for development

RESEARCH QUESTION



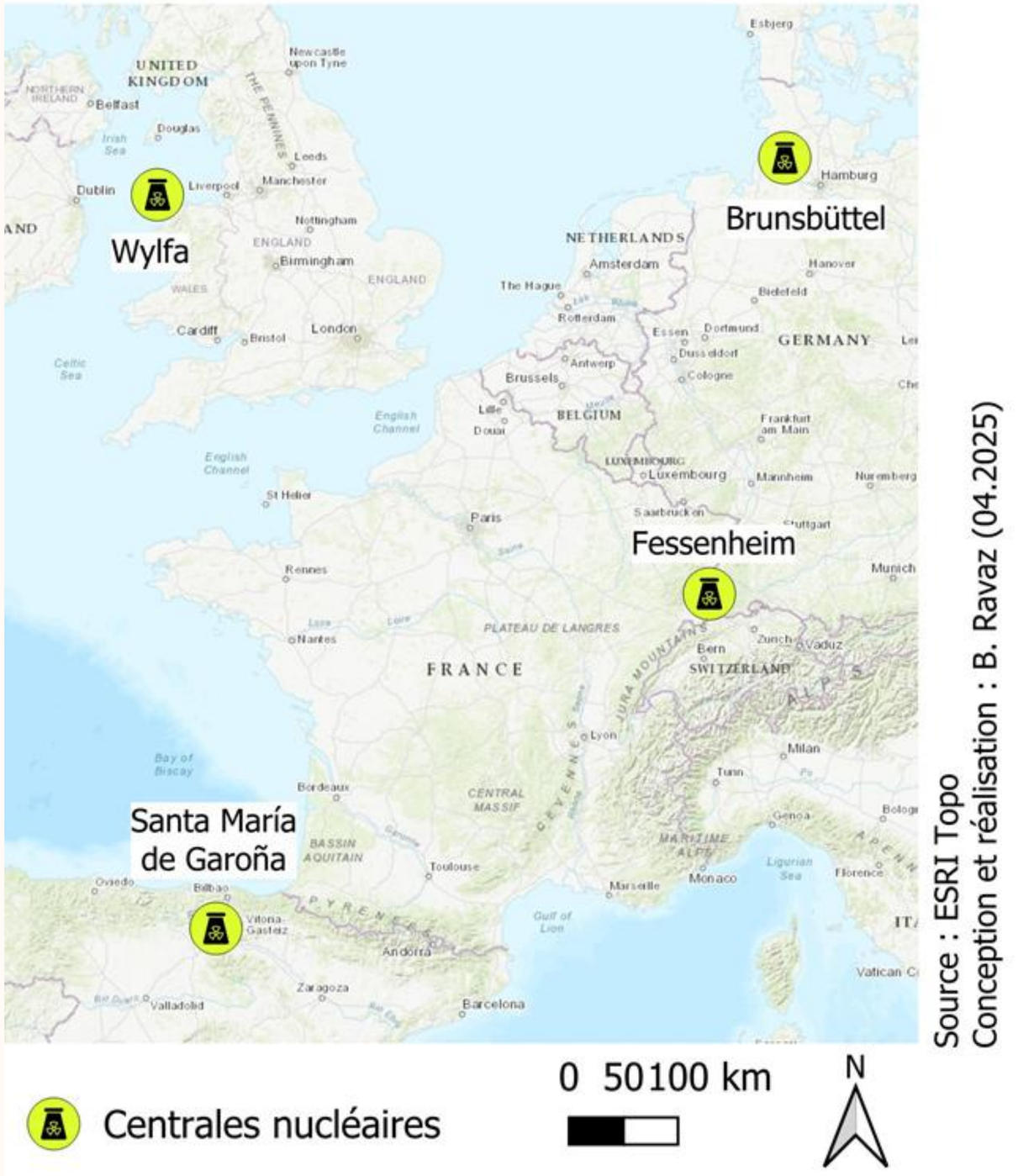
What explains the different territorial responses to nuclear plant closures?

*** Presentation based on my last paper (from my doctoral thesis), published here :**
Belinda Ravaz, Pierre-Henri Bombenger, Teva Meyer, Massimiliano Capezzali, *Beyond decommissioning: Unveiling the dynamics of post-nuclear Energy trajectories*, Energy Research & Social Science, Volume 136, 2026, 104734, ISSN 2214-6296, https://doi.org/10.1016/j.erss.2026.104734

FOUR EUROPEAN CASES

A COMPARATIVE APPROACH

1. Fessenheim, **France**
2. Brunsbüttel, **Germany**
3. Santa María de Garoña, **Spain**
4. Wylfa, **United Kingdom**



DATA COLLECTED

	Press	Grey literature	Interviews
Fessenheim	661 (2012 - 2023)	19	8 (2021)
Brunsbüttel	597 (2007 - 2023)	7	6 (2024)
Santa María de Garoña	656 (2009 - 2024)	10	5 (2024)
Wylfa	3191 (2006 - 2025)	20	9 (2025)

THE FOUR SITES



Fessenheim

- moderately peripheral location
- political stance favorable to nuclear
- closure 2020
- **multi-scale redevelopment**



Brunsbüttel

- central location
- political stance unfavorable to nuclear
- closure 2011
- **symbolic greenfield/ brownfield**



Santa María de Garoña

- highly peripheral location
- political stance unfavorable to nuclear
- closure 2017
- **multi-scale redevelopment**



Wylfa

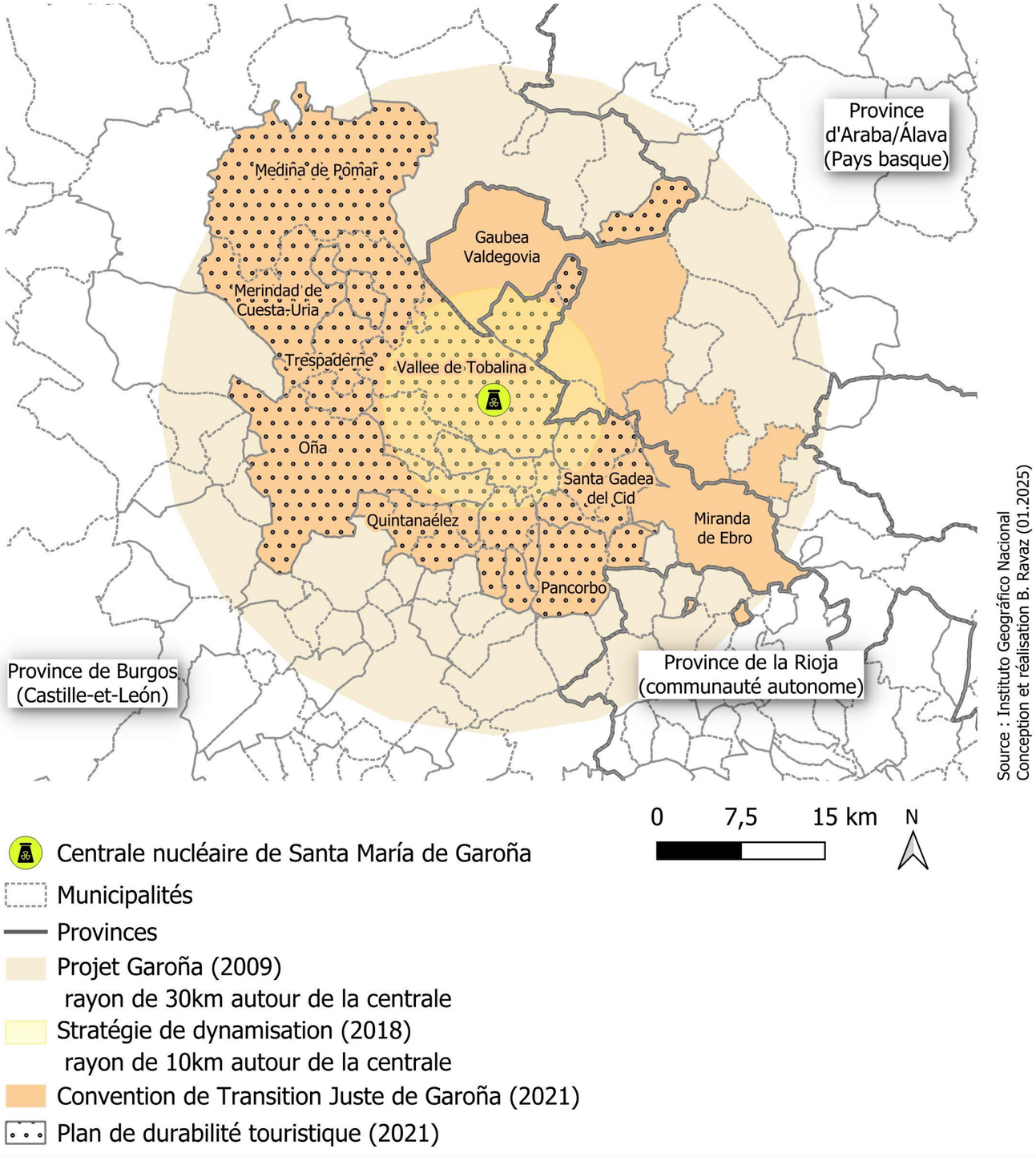
- highly peripheral location
- political stance favorable to nuclear
- closure 2015
- **multi-scale redevelopment**

EXAMPLE OF MULTISCALE REDEVELOPMENT

CASE OF GAROÑA
Four projects, four perimeters

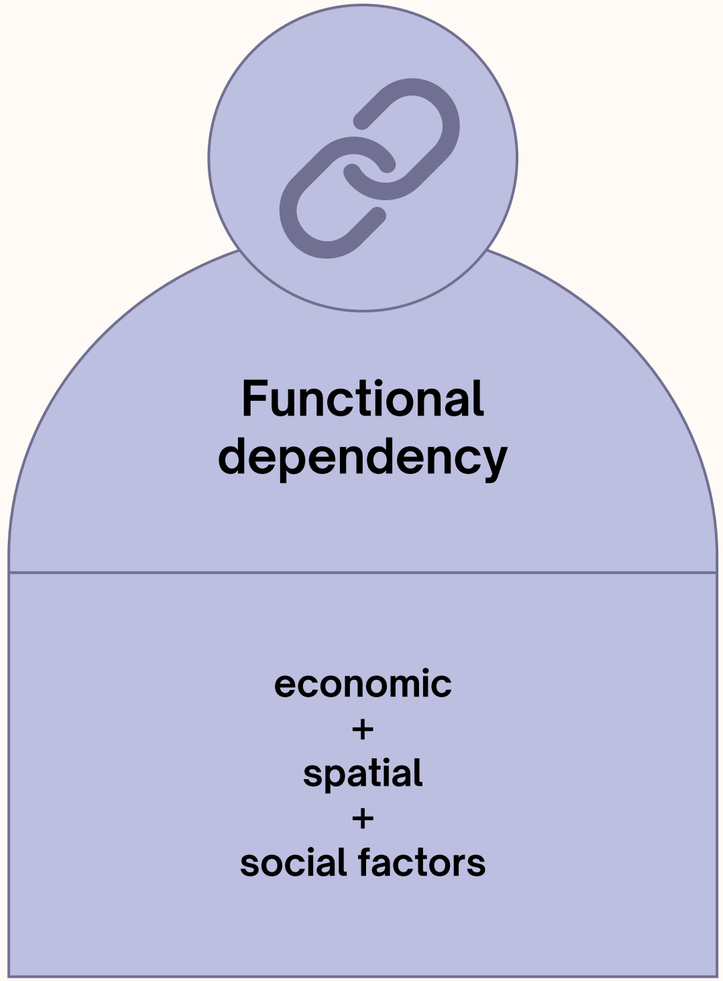
- 2009 : Garoña project (beige)
- 2018 : Revitalisation strategy (yellow)
- 2021 : Just Transition Agreement (orange)
- 2021 : Tourism Sustainability Plan (dotted area)

Why do these perimeters vary? Because the projects leaders themselves choose the indicators that define the affected territory: distance to the plant, where the employees live, fiscal losses for the municipalities...



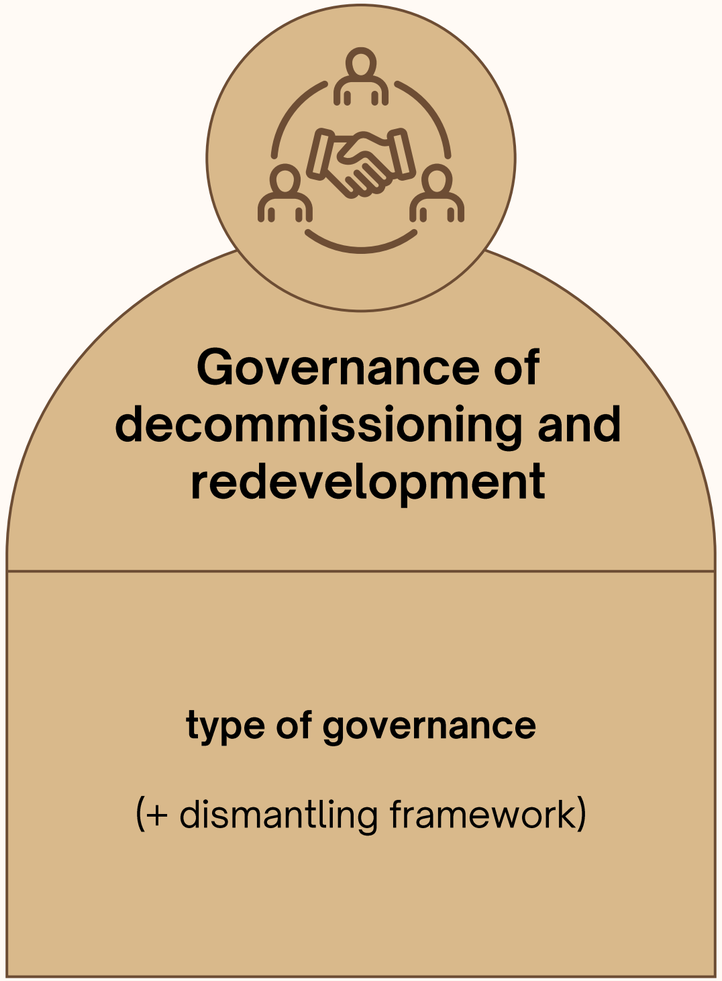
RESULTS

THREE DIMENSIONS



Functional dependency

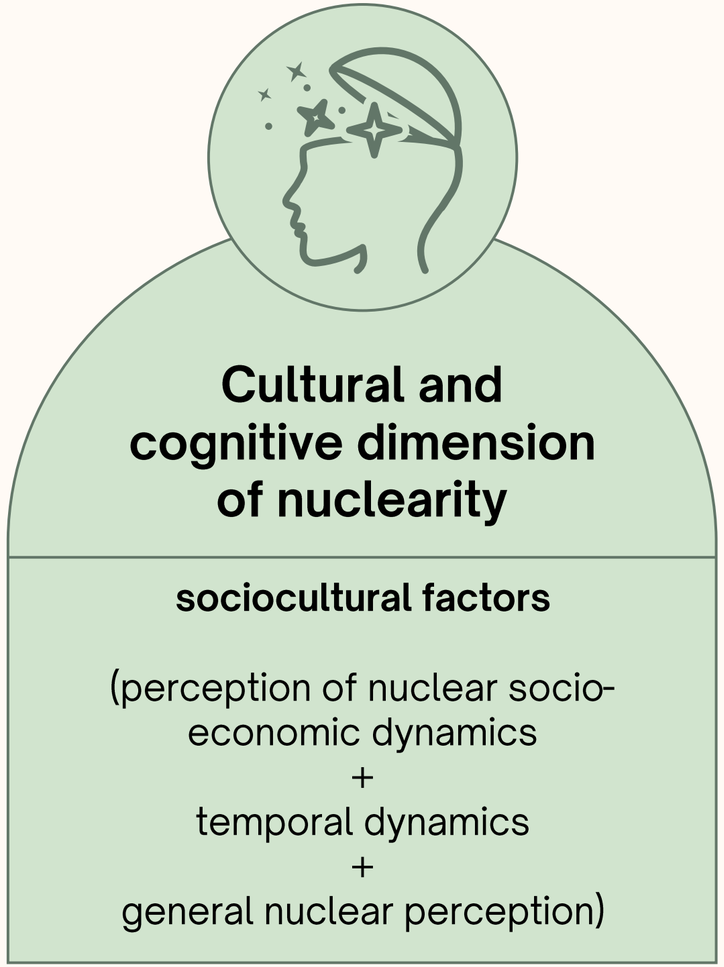
economic
+
spatial
+
social factors



Governance of decommissioning and redevelopment

type of governance

(+ dismantling framework)



Cultural and cognitive dimension of nuclearity

sociocultural factors

(perception of nuclear socio-economic dynamics
+
temporal dynamics
+
general nuclear perception)

FUNCTIONAL DEPENDENCY

	Wylfa	Brunsbüttel
economic	high impact	low impact
spatial	highly peripheral location	industrial park close to major urban centres
social	high impact	low impact



ChemcoastPark (Brunsbüttel)



Cancelled project, Wylfa Newydd

Key lesson: stronger dependency, stronger pull back to nuclear.

GOVERNANCE OF DECOMMISSIONING AND REDEVELOPMENT PROCESSES

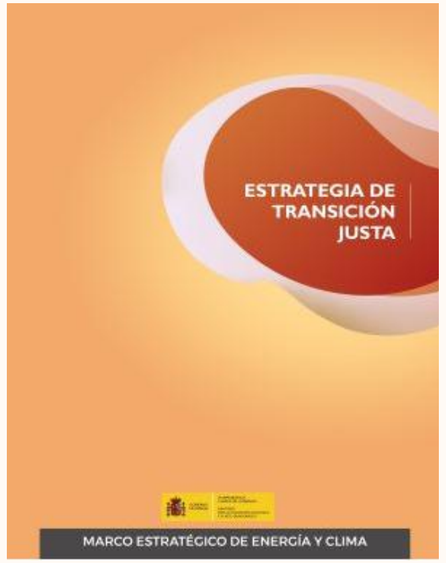
FESSENHEIM

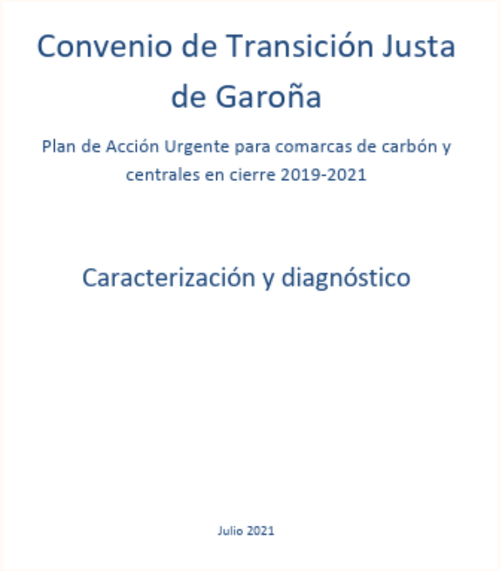
- centralised governance
- the state takes the lead and selects the parties involved



SANTA MARÍA DE GAROÑA

- decentralised governance
- The state as a resource for the region





Key lesson: cooperative, cross-scale governance facilitates the transition.

THE CULTURAL AND COGNITIVE DIMENSIONS OF NUCLEARITY

FESSENHEIM & WYLFA

- everyday normality
- strong symbolic attachment
- continuing the nuclear legacy

BRUNSBÜTTEL

- German cultural rejection
- “Bis zur Grünen Wiese”
- symbolic greenfield





Key lesson: perceptions of nuclear shape which post-closure futures a community can envisage.

CONCLUSION

3 TYPES OF TRAJECTORY

INHERITANCE TRAJECTORY WITH ACTIVE COMPENSATION

- Fessenheim & Wylfa
- high functional dependency
- a generally positive view of nuclear power
- difficulty in imagining a future without this industry

ADAPTATION TRAJECTORY WITH PARTIAL COMPENSATION

- Santa María de Garoña
- moderate functional dependency
- nuclear power perceived as distant
- redevelopment focused on local characteristics

GRADUAL EXIT TRAJECTORY

- Brunsbüttel
- low functional dependency
- negative overall view of nuclear power
- desire for complete phase-out



E.g. the development of renewable energy in Brunsbüttel

FROM HOST TO PARTNER: FOUR LESSONS



Think territory, not just site

- impacts can reach far beyond the fence
- the site stays locked for decades



Take nuclearity seriously

- attachment or rejection shapes futures
- identity work, not only information



Build local capacity

- imposed plans without locals fail
- local actors often lack resources
- the state as resource, not substitute



Plan redevelopment early

- link dismantling & territorial planning
- engage before the closure, not after

Key lesson: no one-size-fits-all method, but start before closure

Thank you

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