Sensibilities and vulnerabilities of small and medium enterprises in the Upper Rhine Region

Clim'Ability Design/Unchain : Case Study on Low Waters

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What is the main narrative of the case?

In 2018, the Rhine transport sector experienced an unprecedented low-water crisis, during which large cargo vessels were no longer able to navigate on certain sections of the river.

This led to **a major disruption** in the inland waterway transport.

Transboundary risk

The severity of this crisis, which was the result of several months of drought, reinforced by heat waves and low rainfall over the same period, caused an upheaval in the inland navigation sector.

Transport operators (carriers and shippers) and infrastructure managers have been forced to question their practices and organisational models

Employed methodology

Port de Bâle

RHIN
RHEIN

Low waters

Port de Strasbourg

Methodology
- Semi-directive interviews with SME and port authorities
- Collaborative knowledge building sessions (TRIZ)

Defining the similarities and differences in the way stakeholders define the risk, tackle it, try to resolve it together or separetly

Methodology
- Semi-directive interviews with firms and port authorities
- Sending of the Impact chain proposition for validation or correction

Rhine

A transport infrastructure

An anthropized river whose regime is changing

The importing/exporting firms

- Customers of transport services who are asking for more and more spezialised and individualised services (door to door)
- Differenciated needs according to the transported goods and the transport mode (bulk/containers/liquids, refrigieration, …): logistics organisation diffent according the value chain and crisis

Consequences of low waters: additional tax, increasing transport prices that have to be taken into account, order cancellations…

Adaptation: can use and arouse competition between transport modes, between inland waterways transport firms (except when contracts exist)

Inland waterways transport stakeholders

- Freight transport agents
- Broker in inland waterways transport
- Bargees firms

Impacts of low waters : very slowed or interrupted traffic.
Search for road/rail alternatives

Constraints: lack of data
Actors under pressure (competition, low remuneration of the transport part in the global price of commodities**)**

Adaptation: vertical coordination, demand for infrastructural work on the Rhine to increase navigability...

Stakholders of the other transport modes

Infrastructure service providers

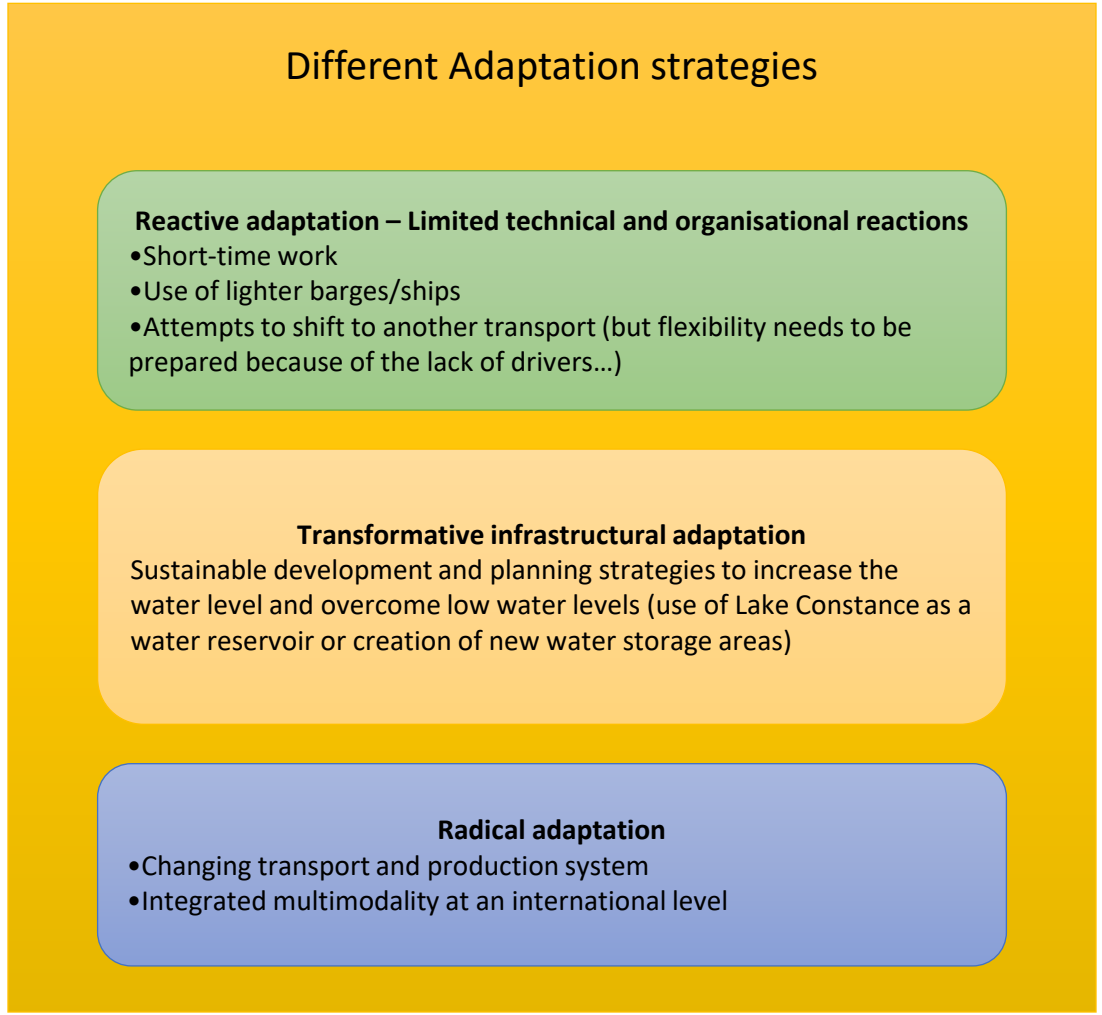
Service providers providing load breaking, storage, etc.
Ports (port authorities, infrastructure managers, handling managers, etc.)
Storers

Impact of BE: Decrease of their activities of transshipment, increase of the storage activities

National and international institutions (regulators)

State and local authorities
VNF (French national institution managing inland waterways transport)
CCNR (International body regulating inland river transportation)
Dilemma : strong promotion of inland waterway transport but this objective have to reached through a significant improvement of intermodality

What ecological/ political/ managerial/ economic development(s) are on display in the case?
What's the policy relevance to be extracted from your case, with regard to CC risk?



- SME's can not act individually and even their collective decisions are very limited to tackle this risk
- Different scales of local/national/transnational authorities are involved: municipalities, public/private structures managing ports and infrastructure, regulators, an original governance body coordinating policies and infrastructure investments on the Rhine, States (different strategies)

HOW DO WE CONTRIBUTE TO THE RESEARCH INNOVATIONS?

Scientifically important findings?

Reflect on relevance for the ambition to improve the Impact Chain methodology

Adaptation vs. transformation

- Some solutions explored by the stakeholders are designed for answering the risk of low waters and diminishing their individual and collective vulnerability, meanwhile they are supposed to decrease the CO2 emissions. For example, the promotion of inter- and multi-modality between transport modes may be an opportunity to encourage the resort to inland waterway transport.

Co-production

- We organised participatory workshops with stakeholders suffering from low water levels (shippers, export and import companies…). They take part in a common reflection process to precisely determine the issues raised by this hazard and collaborated to define relevant solutions, the possible contradictions between these solutions and between stakeholders' viewpoints.

Incorporating societal trends into scenario analysis

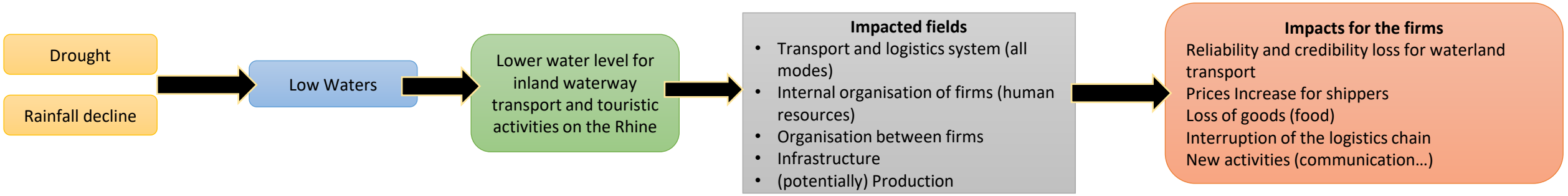
- *Not the case.*

Testing the impact chains approach

- We will submit our draft impact chain to the persons interviewed and we will integrate a proposition of indicators, so that this could have an operational content for the involved stakeholders.
- A new workshop will certainly be organised with port authorities to validate this process.

Expanding the Impact chains approach

- Our transboundary research gives fruitful insights about myths existing between how the other countries react to low water levels, the coherence and contradictions that can exist concerning a same issue. The production of dedicated indicators will enable us to better compare the situations, the ways of analysing issues and finding solutions.



Sensitivity of the firms (at the micro-level), the supply chain (at the collective level), the territorial/infrastructure levels

- Non adapted ships for low waters conditions
- A weak intermodal multimodal capacity to shift between transport modes
- Type of transported goods (pharmaceutical products, food…) and transport modes (containers/bulk)
- Difficulties with some infrastructure: ports' transhipment capacities, river sluices

Stress Factors

- Optimisation of the supply chain and a weak flexibility capacity (just-in-time system, production fragmented in different sites…)
- Competition between logistics service providers
- Lack of availability of freight flow information, of data sharing
- Existing types of agreements between stakeholders (particularly to shift between transport modes)

Cascading risks

- Dependence on sea transport (time pressure, barge congestion…)
- Other risks (industrial accidents…)

Resistance and coping Capacity

- Past and current development of hinterland strategies (more integrated system)
- Progressive adaptation of Inland ports for multimodal logistics
- Flows Bundling
- Storage capacities on ports
- New coalitions (between ports)

BE = transborder climate change risk

How do the stakeholders react in the Strasbourg/Bale region? Differently?
Do they create specific places to discuss this issues? Do they mobilise the current governance authority?

Schweizerischen Rheinhäfen - Bale port infrastructure

Port de Mulhouse Rheinports

Port de Strasbourg

Elements of divergence

- Different management
- Specific hinterlands (importing/exporting companies are not the same)
- A different link to inland waterways (for historical and strategic reasons)

Elements de convergence

- Questioning the possibility to solve the BE issue thanks to infrasstructural work