

**Towards a diversification of Flood Risk Management in Europe:
an exploration of governance challenges**

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**DELTAS IN TIMES OF CLIMATE CHANGE II
INTERNATIONAL CONFERENCE**
OPPORTUNITIES FOR PEOPLE, SCIENCE, CITIES AND BUSINESS
ROTTERDAM THE NETHERLANDS, 24-26 SEPTEMBER 2014

STAR-FLOOD research project

...Search for appropriate and resilient Flood Risk Governance Arrangements (FRGAs) for dealing with flood risks in vulnerable urban regions;

...



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Debate on diversification of FRMSS



- the need to diversify Flood Risk Management Strategies (urbanisation/climate change);
- prominent policy initiatives (e.g. Hyogo framework, EU Floods Directive)



Knowledge gap



- Scientific literature discusses the challenge of applying specific FRMS, but often in isolation.
- Less known what it takes to diversify FRM strategies
- Through which mechanisms can the strategies be linked together and aligned? How to organize governance?



Aim and approach



- Explore challenges and conditions
- Literature review on specific governance challenges
- Critical case study of the Dutch Multi-Layered Safety approach and its implementation through the Dutch Delta Programme
 - document analysis
 - interviews with key actors



Framework



- Discursive challenges
- Actor related challenges
- Rules and resources related challenges
- Flood defense (dike, dams, embankments)
- Flood retention (buffers)
- Flood risk prevention (spatial planning)
- Flood mitigation (adaptive building)
- Flood preparation (warning systems, evacuation plans)
- Flood recovery (rebuilding and insurance)



Intensification of flood defence



- Ensure socially accepted starting point is chosen
- Clarify financial responsibilities
- Deal with impacts on property rights



Intensification of flood retention



- Find suitable areas
- Produce convincing arguments for prioritization
- Find compatible land-use functions
- Develop compensation schemes
- Be transparent in decision making



Intensification of flood risk prevention



- Produce convincing arguments for prioritization
- Improve cooperation between water managers and spatial planners
- Build bridging between centralized and interactive governance
- Integrate fragmented rule systems
- Use new resources (like floodmaps)
- Establish learning and action alliances



Intensification of flood mitigation



- Clarify responsibilities of public and private actors
- Stimulate individuals to take measures themselves (no parquet)
- Adjust building codes
- Stimulate self governance (e.g. Flutschutzgemeinschaften)
- Influence willingness to pay to take measures
- Introduce mitigation measures in early stages of physical planning
- Promote innovative and attractive aspects in city marketing



Intensification of flood preparation



- Increase overall warning system effectiveness
- Increase risk awareness
- Motivate residents to prepare for floods
- Use social media to spread locally relevant knowledge
- Clarify responsibilities in a national disaster law
- Find feasible and effective evacuation options
- Incorporate these options in physical planning



Intensification of flood recovery



- Clarify responsibilities
- Make normative choices about risk to be covered by public and private finances
- Raise risk awareness
- Combine flood risks with others in a single insurance policy
- Stimulate mobilisation of resources for emergency funds





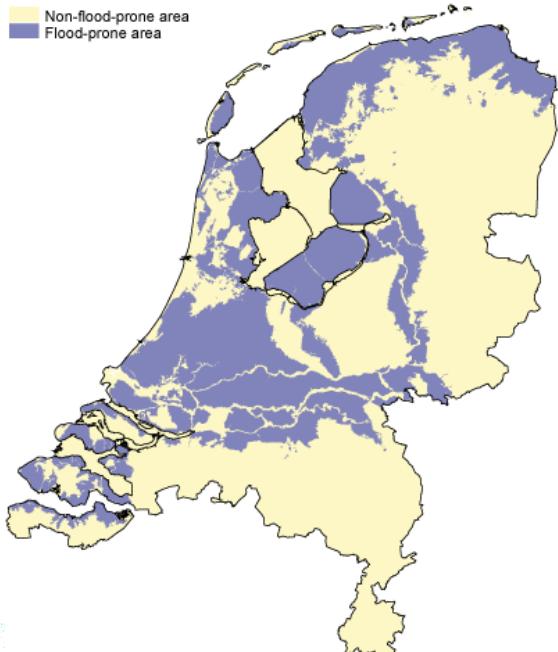
Synthesis of challenges and conditions

- Challenges overlap
- Development of area specific mixes of FRMSs
- Coordination between areas
- Bridging concepts are needed
- Policy entrepreneurs showing leadership
- Multilevel and multi-stakeholder governance
- Scientific backing
- Risk awareness



Diversification of FRMSs in The Netherlands

*“God created man,
the Dutch created
the Netherlands”*



Source: Landelijk Beheer Organisatie Risicokaart van het Interprovinciaal Overleg CBS



Flood Risk Governance in the Netherlands



1953 Storm surge has resulted in Delta Works



Flood Risk Governance in the Netherlands



- 1993 and 1995 riverine (near) floods;
- Room for the river projects.



Delta Programme

- Protection to floods;
- Fresh water supply;
- Climate proofing the Netherlands;
- Invest €1.2 billion per year until 2050.



Prominent issues in the Delta Program related to flooding

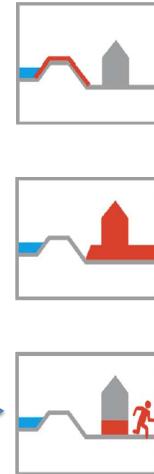


- Adaptive Delta Management & Tipping points (=decision making under uncertainty, allowing for flexibility);
- Discussion on protection levels
 - on what basis are they determined? How high should they be? (currently 1/10000 for "de Randstad"; lower for other areas e.g. 1/4000; 1/2000; 1/1250)
- Multi-layered safety (MLS) approach.



Delta programme: MLS

- First mentioned in 2009;
- Risk-based approach;
- Three layers
 1. Flood risk prevention
 2. Sustainable urban planning
 3. Civil protection and crisis management →



But: prevention should remain cornerstone



Flood risk governance in the Netherlands



- Department of Public Works: main water courses;
- Water Boards (25): regional water bodies;
- Government: habitability and safety behind defence structures and within dike-protected areas;
- Provinces: oversee state of primary flood defences and produce flood hazard and flood risk maps;
- Safety regions (25): crisis and emergency management
 - Municipalities: flood warning, developing + practicing evacuation plans



Diversification in Dutch practice



- Most efforts in “New buildings and Restructuring” sub-programmes (to limited extent sub-programme on safety)
- Delta programme seems to have given an impetus to multi-actor and multi level cooperation, but mainly by public actors



Diversification in Dutch practice



- Flood defence dominant strategy
- No standards for 2nd and 3rd layer
- Poor activation of 3rd layer within safety regions
- Pilots Marken, Dordrecht, IJssel-Vechtdelta to study potential exchanges between layers



Conclusion: conditions for diversification of FRMSs



- Relevant knowledge;
 - Nature of water systems;
 - Consequences of flooding;
- Bridging concepts
- Area specific implementation;
- Measures to facilitate cooperation.
- Political will and social support



Concluding remarks



- Diversification is a contested concept
- Further research has to make clear if and under which conditions diversification of FRMSs will be possible in specific (national) contexts.





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Points for discussion



- Don't miss article to be reviewed
- Synthesis; good reference to success conditions for strategic policy making?
- Additional conditions?
- Who initiated the discourse on Multilayered safety?



Thanks for your attention!



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