



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

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STAR-FLOOD research project



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

...



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 mixes of FRMSs
- 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



- 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)

- Discursive challenges
- Actor related challenges
- Rules and resources related challenges



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 bridges 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”



Flood Risk Governance in the Netherlands



1953 Storm surge has resulted in Delta Works

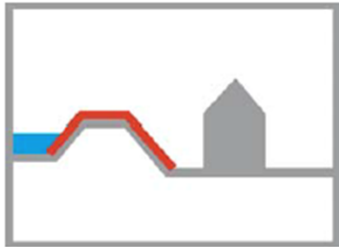


Flood Risk Governance in the Netherlands

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



Multi-layered safety (2009) in The Netherlands



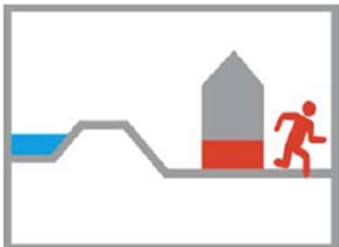
- **Layer 1) Prevention (main pillar of policies)**

Strong dikes to minimize flood risks



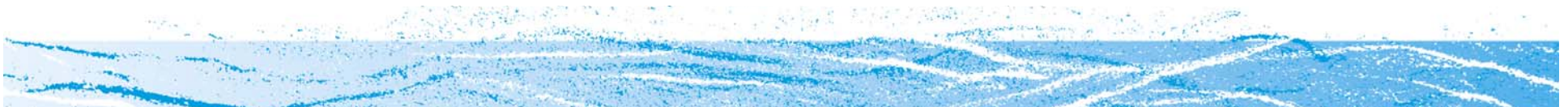
- **Layer 2) Sustainable urban planning**

Minimizing the consequences of flooding through spatial planning or water-robust building

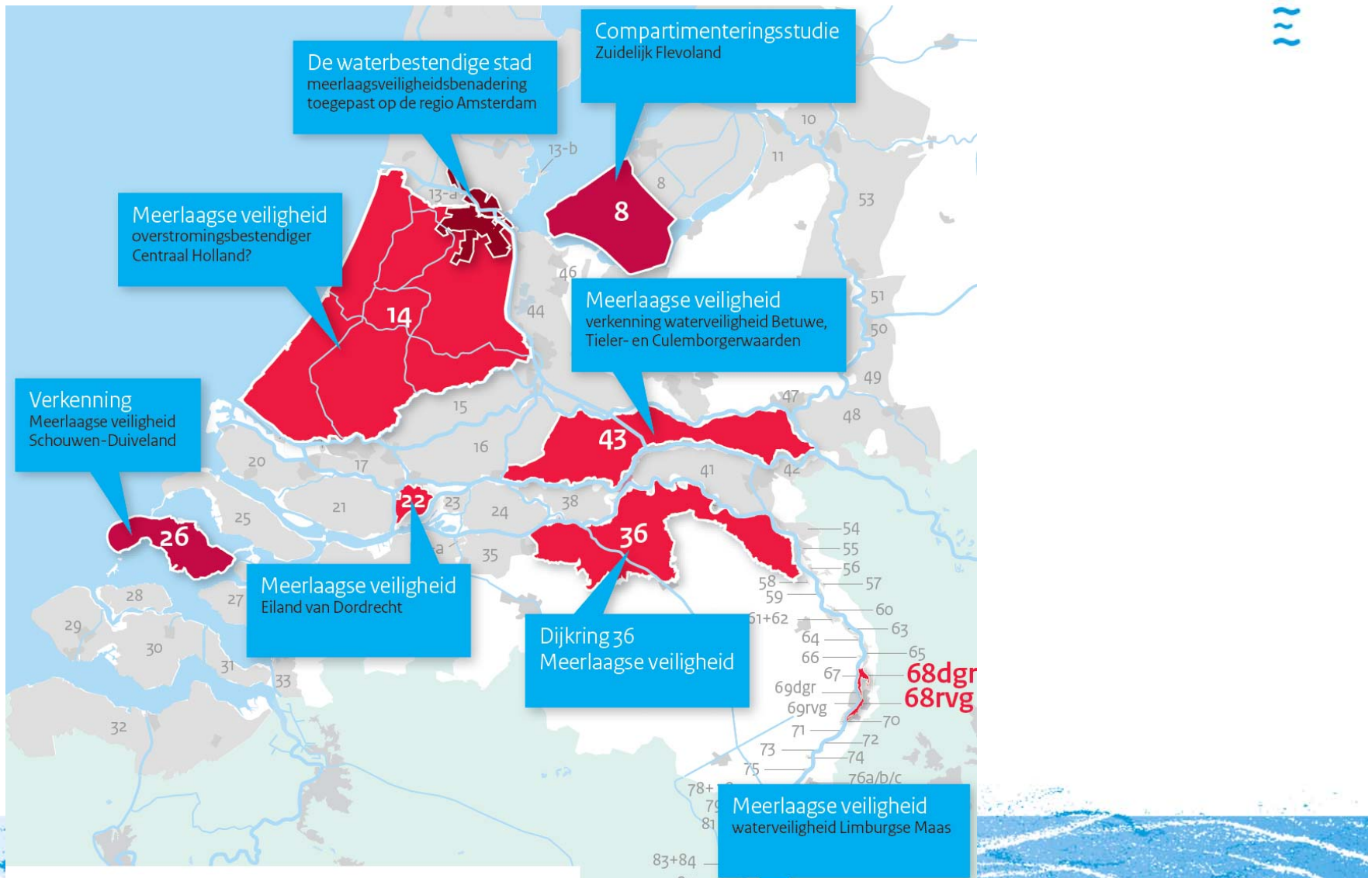


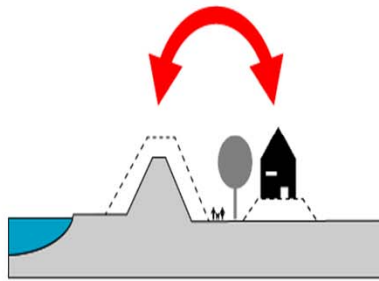
- **Layer 3) Disaster management**

Minimizing the number of victims through effective calamity and crisis management. This includes covering 'residual risks' through insurances.

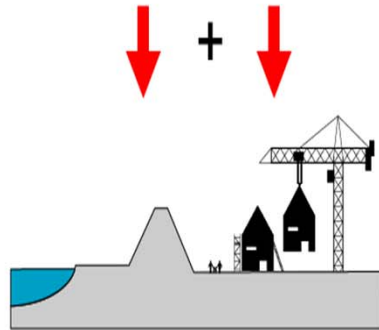


Pilot projects lead to debates

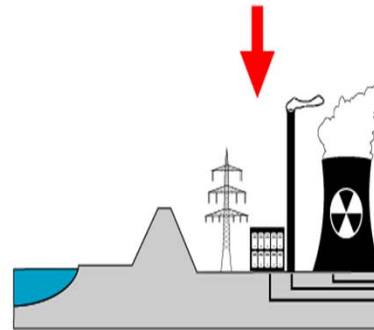




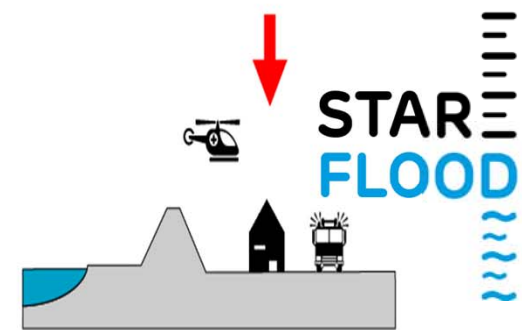
Uitwisseling van lagen



Waterrobuste inrichting



Vitale en kwetsbare functies



Rampenbeheersing

1 Exchange between layers?

Formally not yet possible

Need others than the usual governing Water Authorities -

How to build trust?

2 Water robust planning

Need insight in flood risks

Asks for administrative and legal embedding (e.g. stronger role for Water Test)

3 Crucial and vulnerable functions

Overarching water safety policy for crucial and vulnerable functions still has to be made.

4 Disaster management

No standards (but "National Crisisplan and Flood Scenarios

Plans of safety regions?

Delta Programme

- Climate proofing the Netherlands
- 3 Thematic sub-programmes (Protection to floods Fresh water supply; New buildings and Infrastructure)
- 6 Regional subprogrammes
- Preparation of Delta-decisions (a.o invest €1.2 billion per year until 2050).



Diversification in Dutch practice



- Most MLS efforts in Delta sub-programmes “New buildings and Restructuring” (and 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



- Does a diversification of FRMSs take place in other countries?
- Only in discourses, but also with effects in practice?



Thanks for your attention!



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