



A framework for comparative assessment of vulnerability and resilience applied to 10 deltas - *Governance aspects*

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Deltares

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Comparative assessment of the vulnerability and resilience of 10 deltas



Delta Alliance: Knowledge network of deltas (wings)

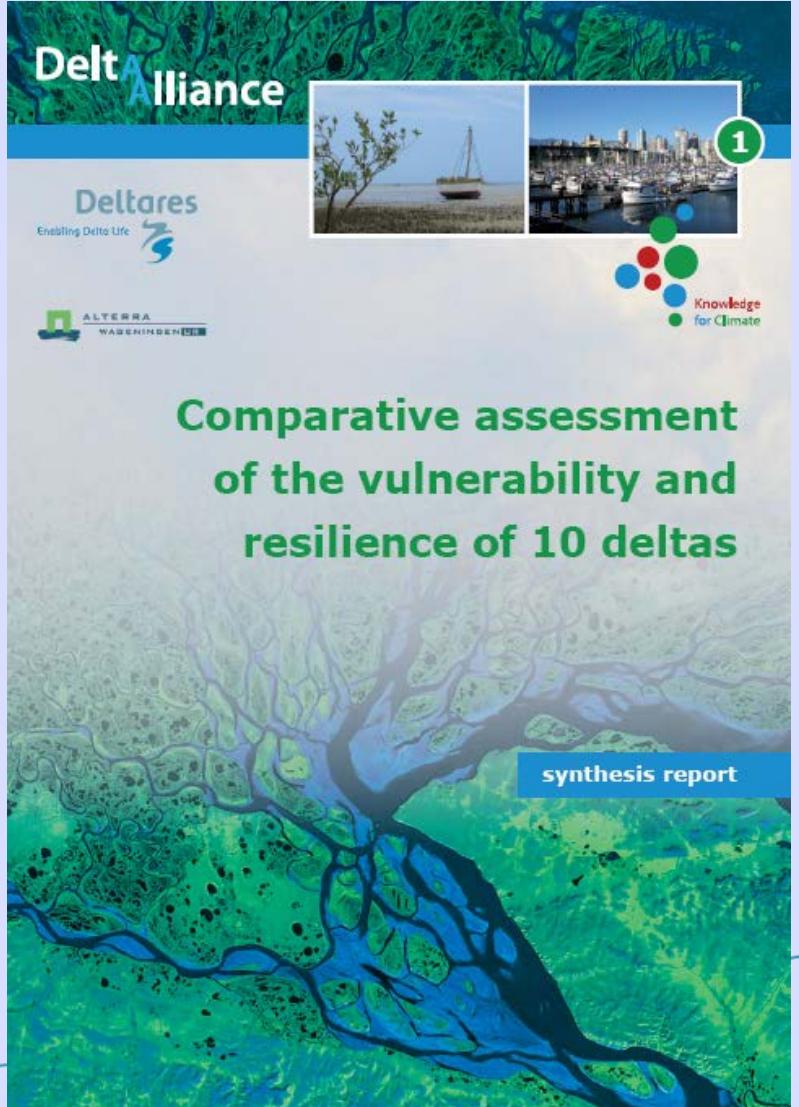
- To improve the resilience of deltas worldwide

Comparative assessment of 10 deltas:

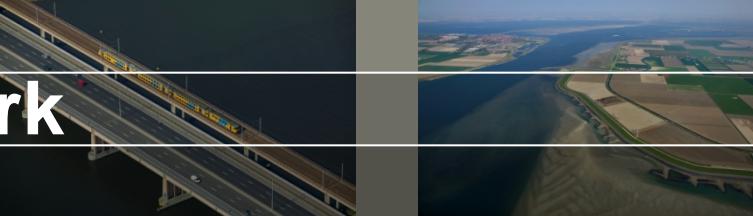
- Provide a first step towards a comprehensive overview of the current and future state of deltas
- Integrate scientific, social and management knowledge
- Provide framework for future data collection
- Identify research gaps

Nile, Incomati, Ganges-Brahmaputra-Meghna, Yangtze, Ciliwung, Mekong, Rhine-Meuse, Danube, California Bay-Delta and Mississippi River Delta

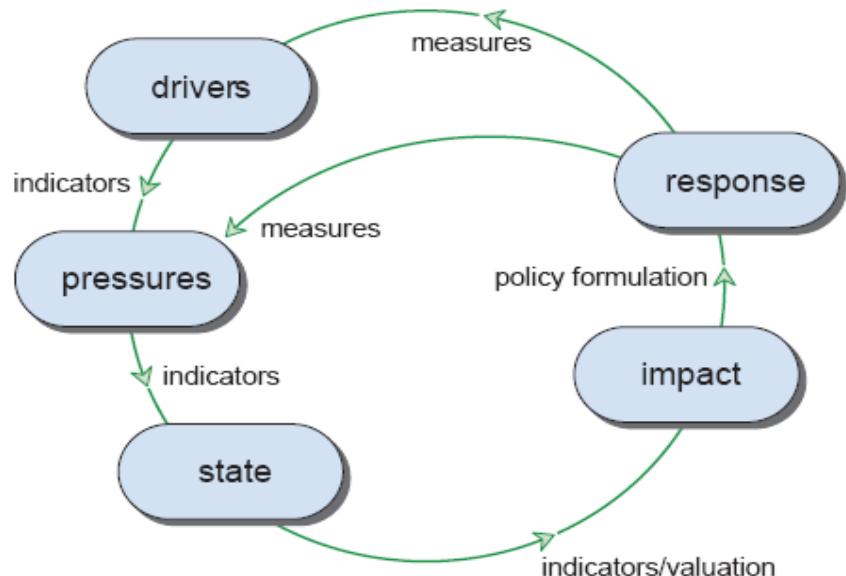
<http://www.delta-alliance.org/>



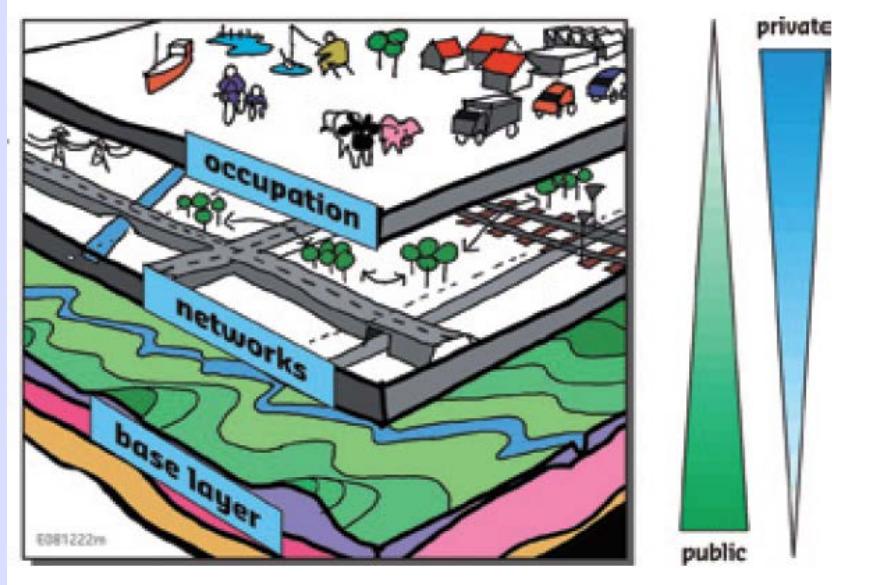
Integrated Assessment Framework



DPSIR

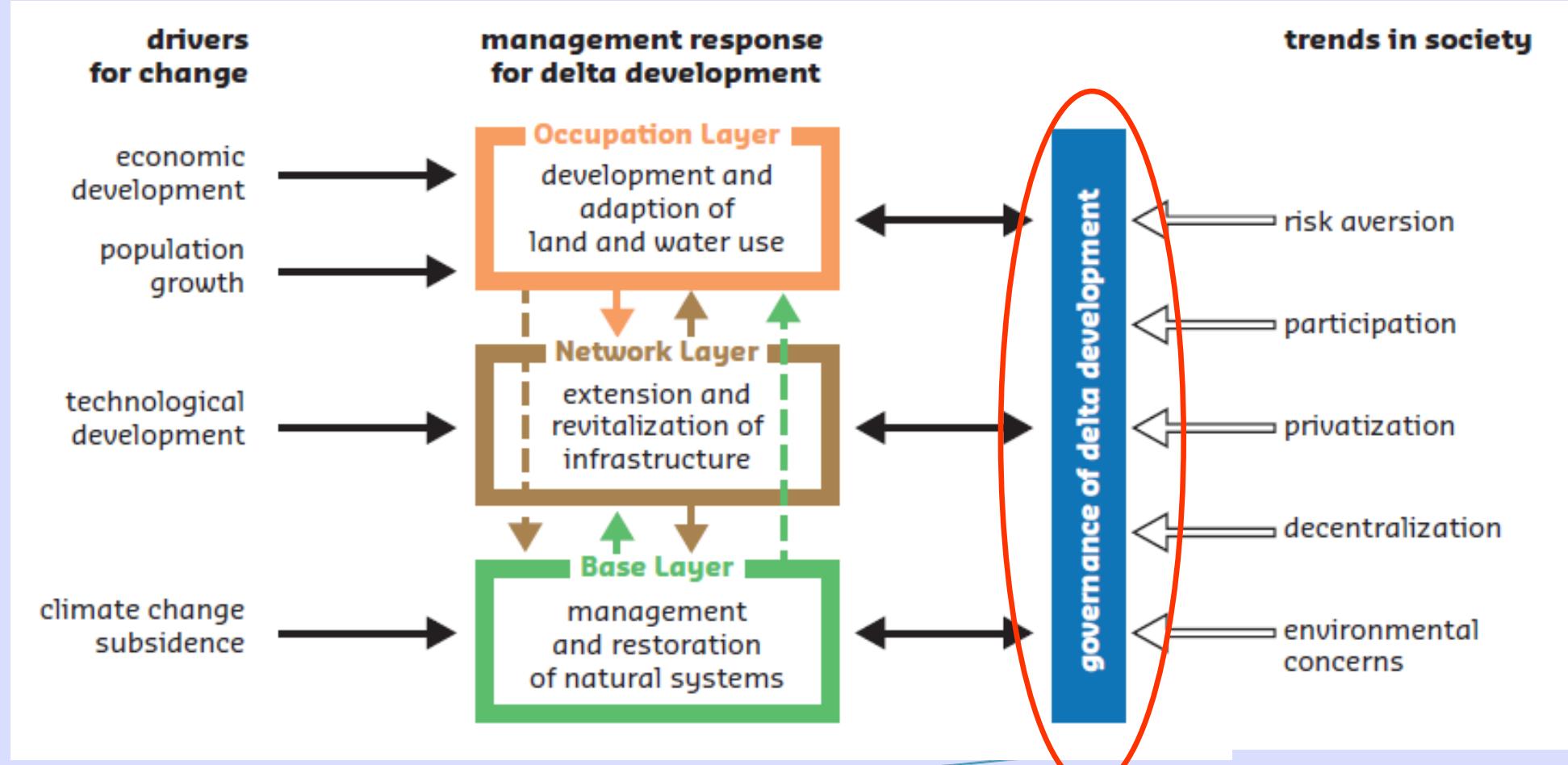


Spatial Layers

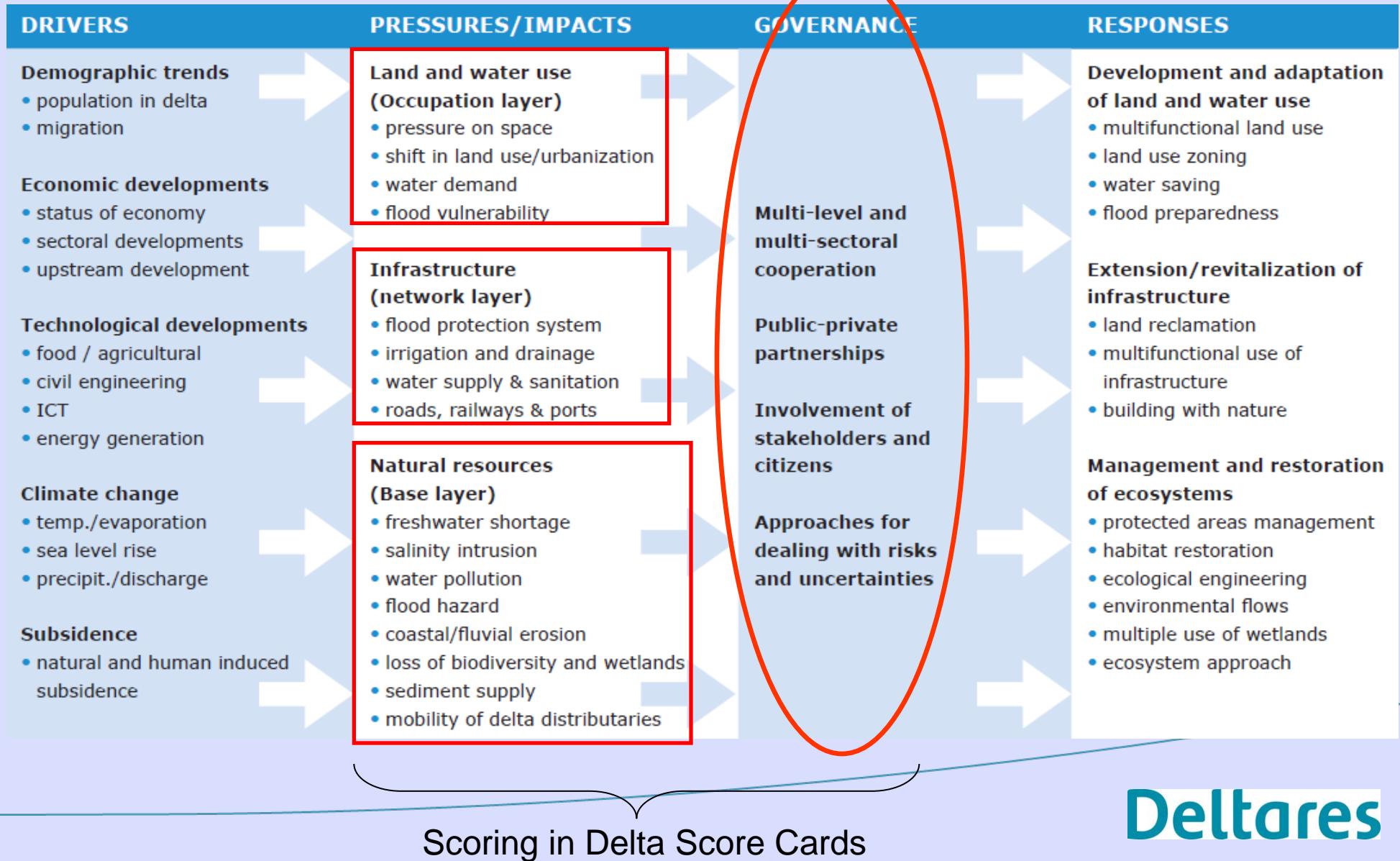


Governance

Integrated Assessment Framework



Towards indicators of change



Comparative overview of delta score cards



	Land and water use (occupation layer)	Infra-structure (network layer)	Natural Resources (base layer)	Governance	Resilience & Sustainability Indicator		
					Current	Moderate Scenario	Extreme scenario
Nile delta	--	0	-	0	-	-	--
Incomati delta	0	-	-	-	-	-	--
Ganges-Brahmaputra-Meghna delta	---	--	---	0	--	-	--
Yangtze delta	-	+	-	0	0	0	--
Ciliwung delta	---	--	---	-	--	--	-
Mekong delta	0	0	-	0	0	+	0
Rhine-Meuse delta	+	++	0	+	+	0	-
Danube delta	+	+	+	0	+	0	0
California Bay-Delta	0	-	-	0	-	0	-
Mississippi River Delta	0	0	-	0	-	0	-

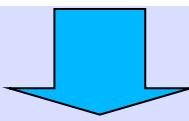
resilience/sustainability: ++ (very good), + (good), 0 (medium), - (low), -- (very low)

Governance – main indicators



Organisational structure ⇔ Legal framework ⇔ Cultural norms

GOVERNANCE		Main indicators
1	• multi-level and multi-sectoral cooperation	<ul style="list-style-type: none">• existence of integrated plans (delta plan, national adaptation plan etc.)• existence of inter-ministerial committees, multi scale level committee etc.
2	• public-private partnerships	<ul style="list-style-type: none">• number of PPP's• scale of PPP's (geographic, budget, time span)
3	• involvement of stakeholders and citizens	<ul style="list-style-type: none">• existence of legal instruments for participation (e.g. spatial planning instruments)• number of NGO's involved in planning and decision making
4	• approaches for dealing with risks and uncertainties	<ul style="list-style-type: none">• existence of adaptive management , adaptation strategies etc. (long term)• existence of risk management, emergency systems etc. (short term)



Score

Good or very good: + / ++

Medium: 0

Low or very low: - / --

Governance



	1 Cooperation between levels and sectors of government	2 Cooperation between government and private sector	3 Involvement of stakeholders and citizens	4 Approaches for dealing with risks and uncertainties	Overall Score
Nile	0
Incomati	•	-
Ganges-Brahmaputra-Meghna delta	•••	0
Yangtze	..	•••	0
Ciliwung	..	•	-
Mekong	•••	..	0
Rhine-Meuse	•••	•••	•••	•••	+
Danube	•••	•	0
California Bay-Delta	..	•••	•••	..	0
Mississippi River Delta	0

- = Practically non-existent, unknown
- .. = First initiatives
- = Developing, mixed results
- = Fully developed, satisfactory results

resilience/sustainability:
++ (very good), + (good), 0 (medium), - (low), -- (very low)

Conclusions for governance

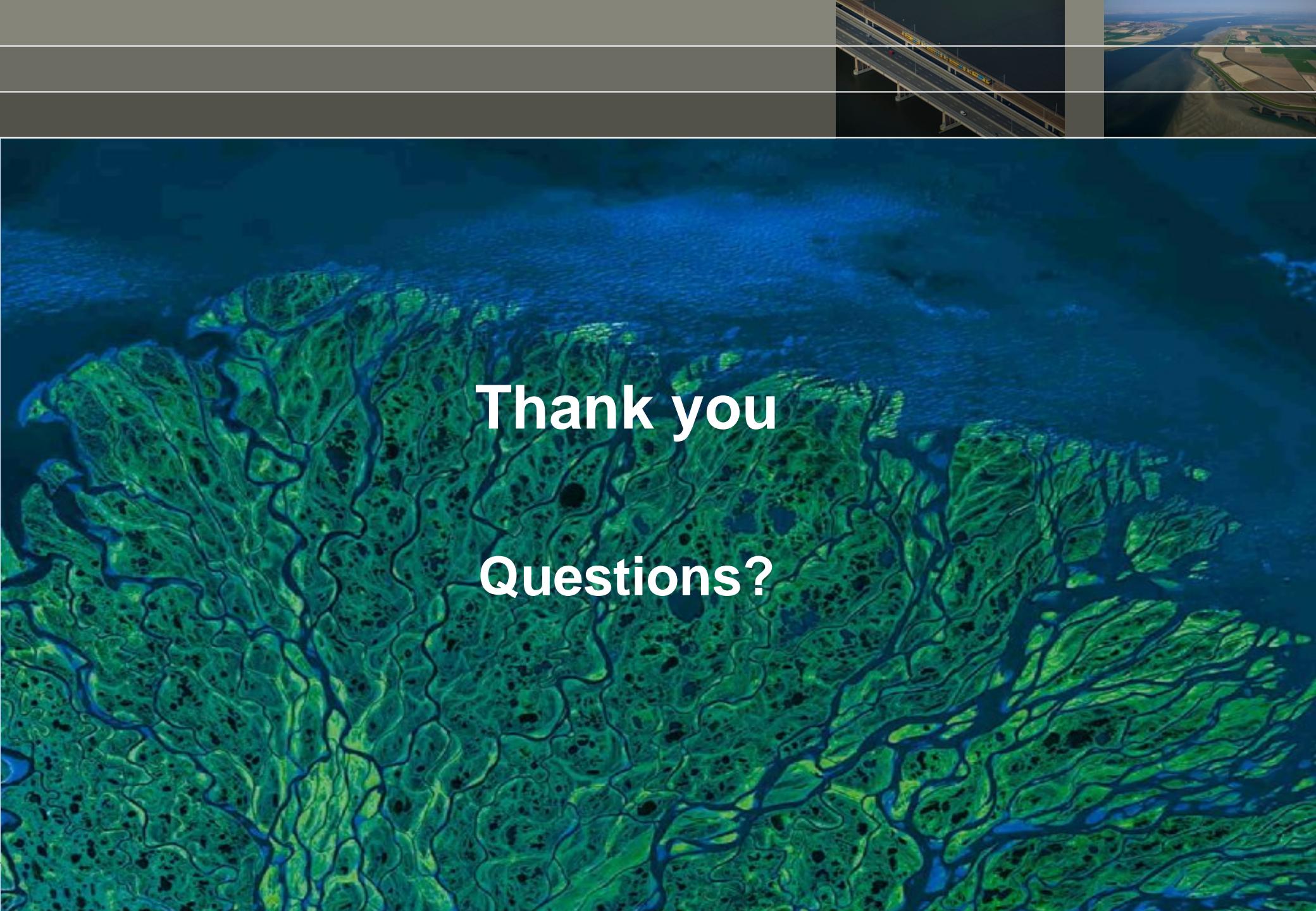


- Cooperation between government agencies is a major challenge (related with decentralization)
- Comprehensive delta plans serve as a framework for sustainable development
- Support by platforms for collaboration (national and international)
- Legal instruments contribute to effective implementation (regulations, acts)
- Public and private interests should be balanced
- Involvement of stakeholders and citizens is gaining momentum (societal support as precondition for success)
- Growing interest in approaches for dealing with risks and uncertainties (scenario analysis, adaptive management, early warning, recovery programs)

Research gaps - Governance



	Nile	Incomati	Ganges-Brahmaputra-Meghna	Yangtze	Ciliwung	Mekong	Rhine-Meuse	Danube	California Bay-delta	Mississippi River delta
Governance										
Governmental roles and arrangements (6)	•				•	•	•		•	•
Integrated delta management (6)	•	•	•	•	•			•		
Communication/capacity building (4)	•	•	•		•					
Financial arrangements (4)			•		•		•		•	
River basin cooperation (2)		•	•							
Policy impact studies (1)					•					

The background of the slide is a high-angle aerial photograph of a coastal region. The foreground is dominated by a dense network of green and blue patterns, representing a complex wetland or delta system. In the upper right corner, a multi-lane highway bridge spans a body of water, with several vehicles visible on the road. To the right of the bridge, the land transitions into agricultural fields with distinct rectangular plots. The overall scene is a mix of natural and human-made infrastructure.

Thank you
Questions?