



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)

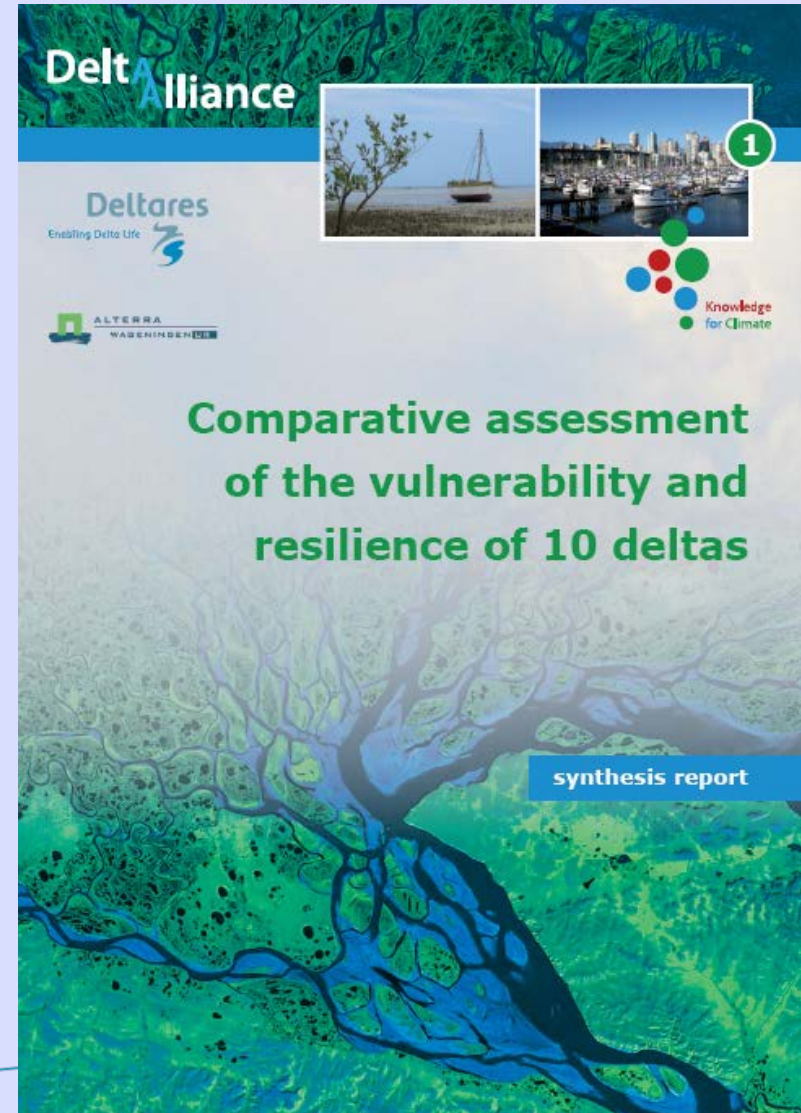
- To improve the resilience of deltas worldwide

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

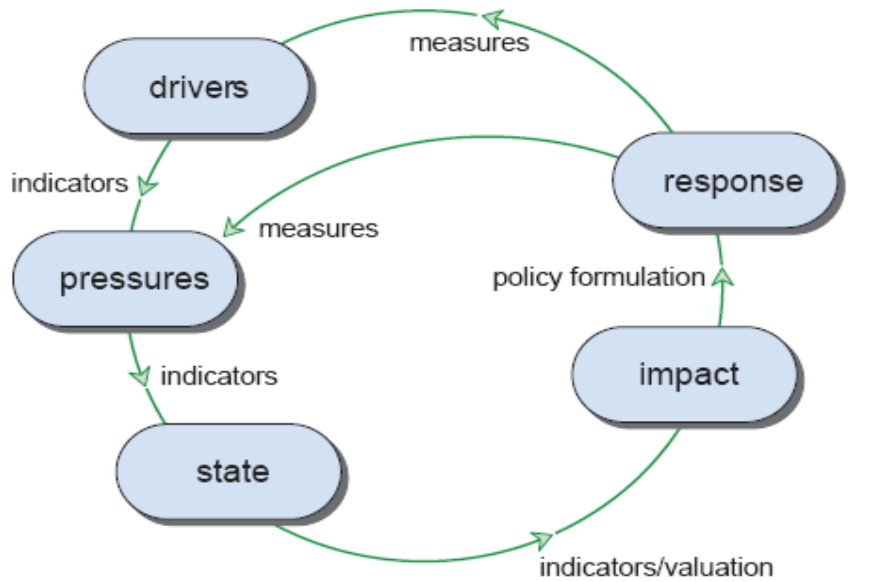
Nile, Incomati, Ganges-Brahmaputra-Meghna, Yangtze, Ciliwung, Mekong, Rhine-Meuse, Danube, California Bay-Delta and Mississippi River Delta

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

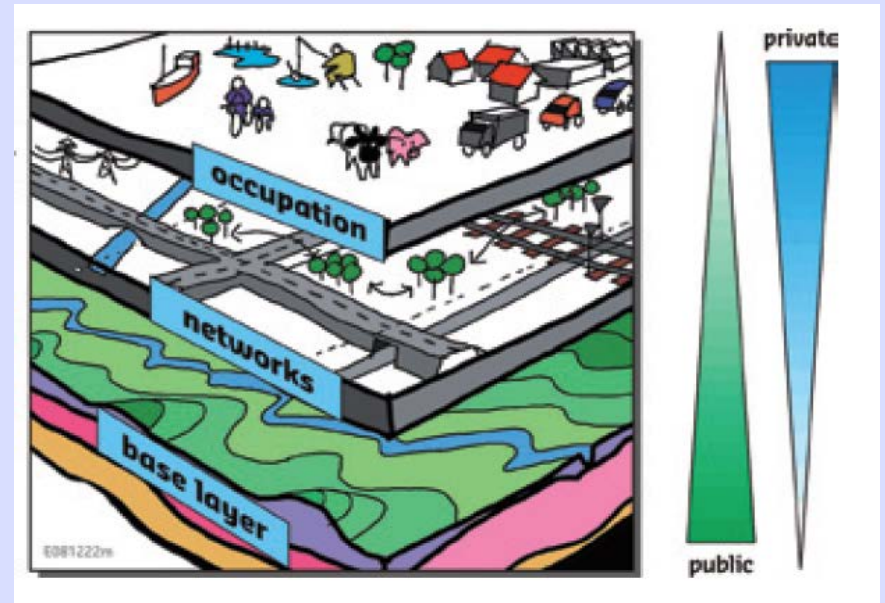


Integrated Assessment Framework

DPSIR

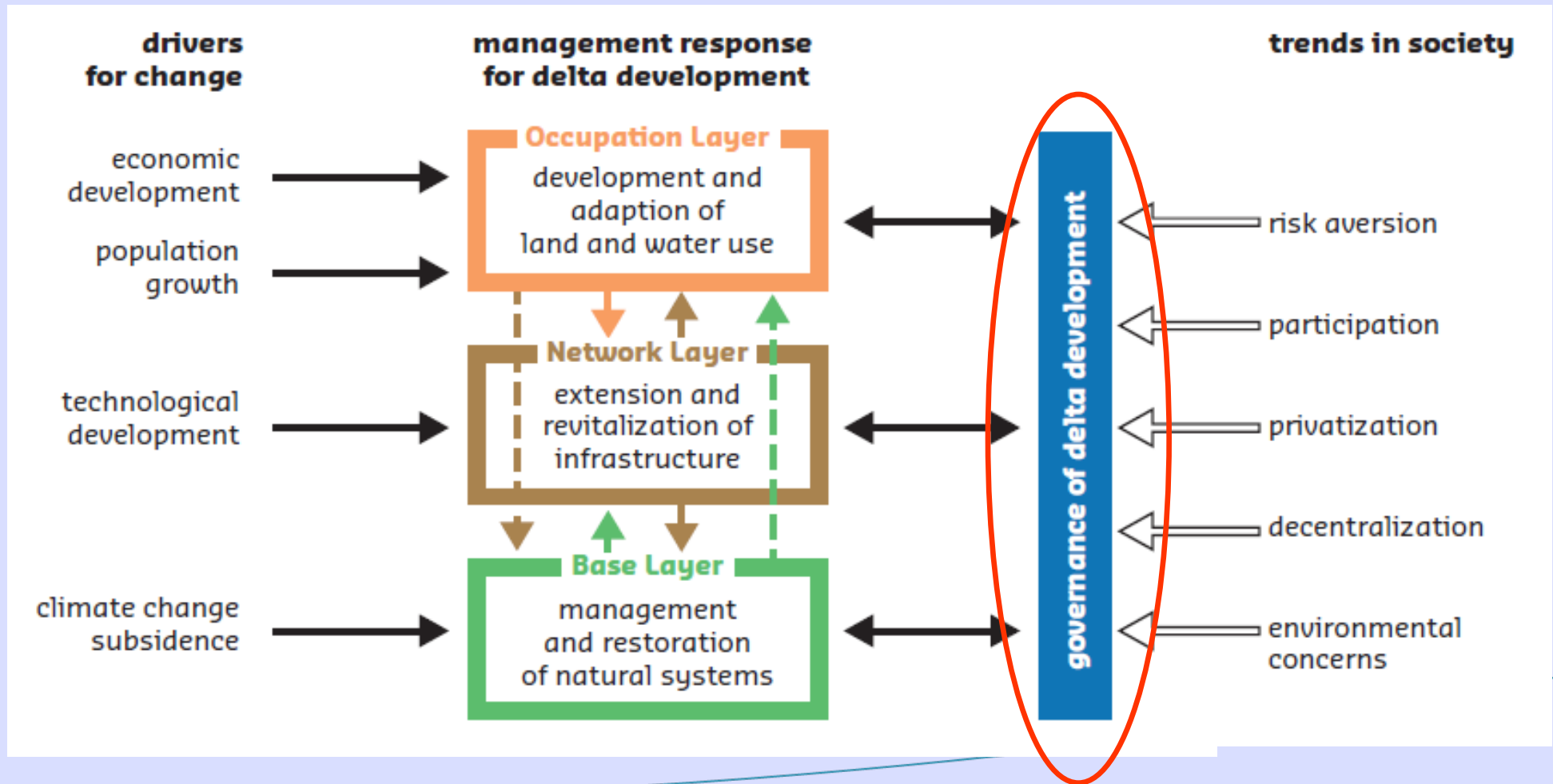


Spatial Layers

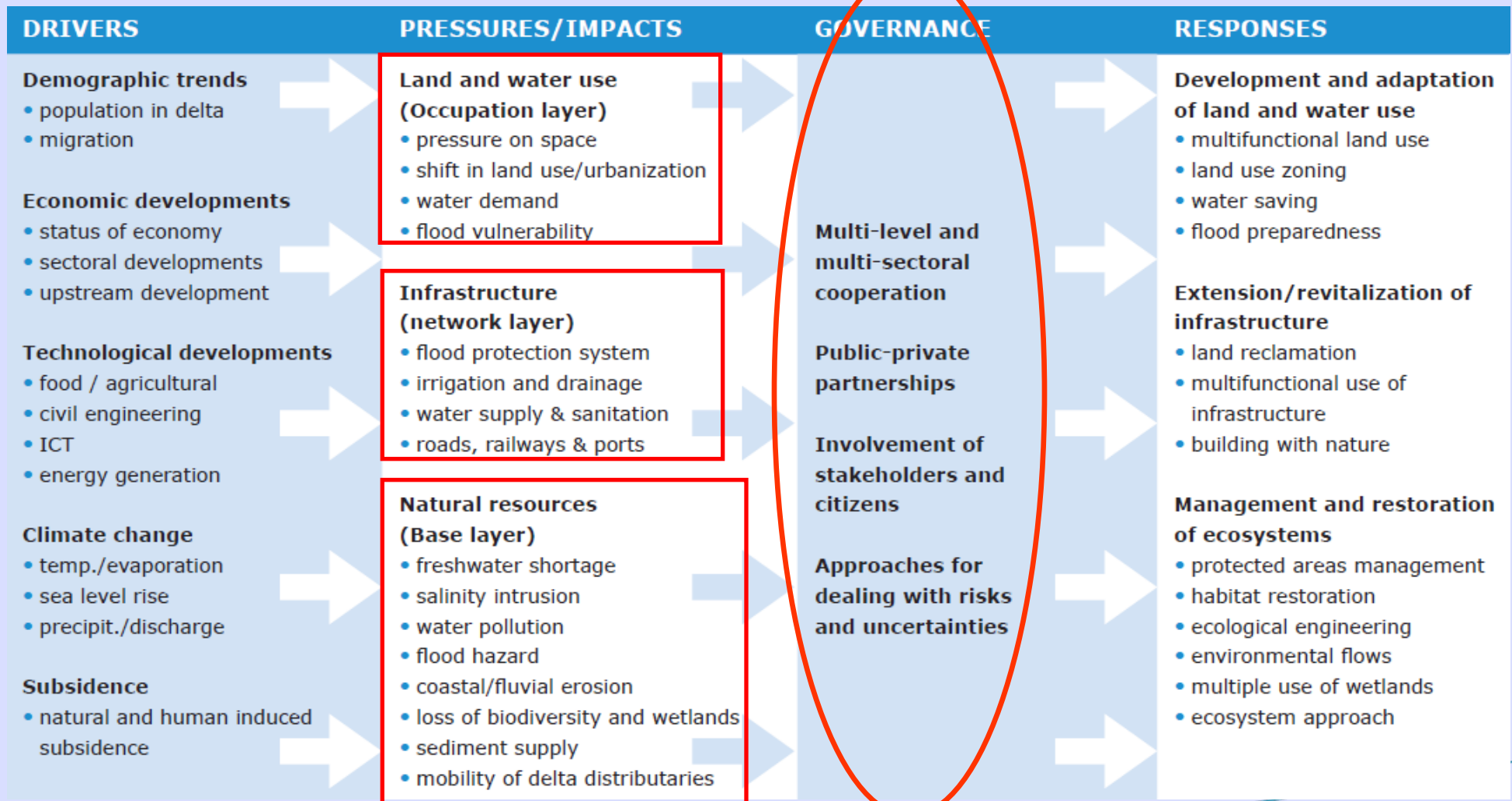


Governance

Integrated Assessment Framework



Towards indicators of change



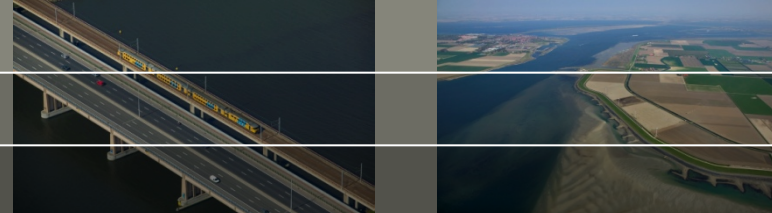
Scoring in Delta Score Cards

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	-

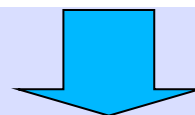
resilience/sustainability: ++ (very good), + (good), 0 (medium), - (low), -- (very low)

Governance – main indicators



Organisational structure ⇔ Legal framework ⇔ Cultural norms

GOVERNANCE		Main indicators
1	<ul style="list-style-type: none">• 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	<ul style="list-style-type: none">• public-private partnerships	<ul style="list-style-type: none">• number of PPP's• scale of PPP's (geographic, budget, time span)
3	<ul style="list-style-type: none">• 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	<ul style="list-style-type: none">• 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)



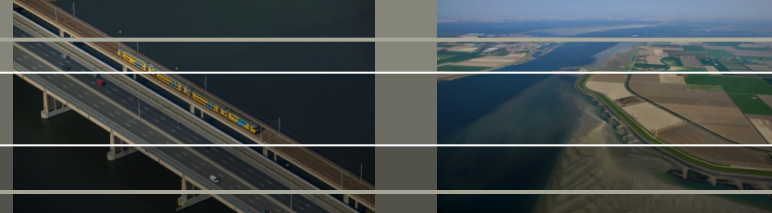
Score

Good or very good: **+ / ++**

Medium: **0**

Low or very low: **- / --**

Governance

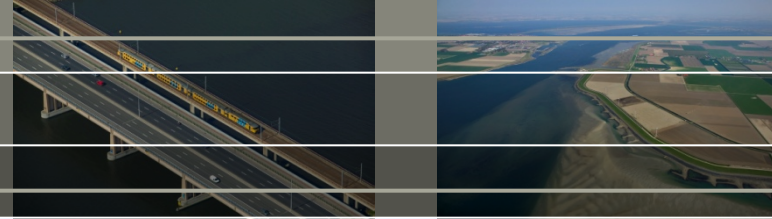


	1	2	3	4	
	Cooperation between levels and sectors of government	Cooperation between government and private sector	Involvement of stakeholders and citizens	Approaches for dealing with risks and uncertainties	Overall Score
Nile	••	••	••	••	0
Incomati	••	••	••	•	-
Ganges-Brahmaputra-Meghna delta	••	••	••	•••	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

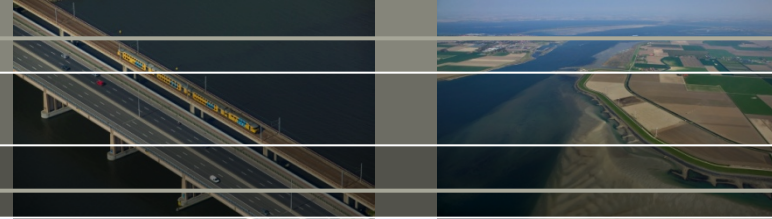
resilience/sustainability:
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Conclusions for governance

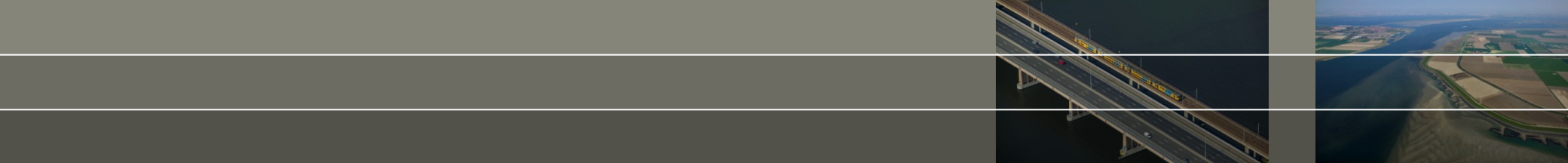


- Cooperation between government agencies is a major challenge (related with decentralization)
- Comprehensive delta plans serve as a framework for sustainable development
- Support by platforms for collaboration (national and international)
- Legal instruments contribute to effective implementation (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)					●					



Thank you

Questions?