

Mekong₂Rio

Planning for environmental sustainability in a transboundary river

Phuket, Thailand

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The challenge

- Scientific
 - Understanding the system
- Regulatory/Management
 - Finding the right tools to promote good outcomes
- Political
 - Finding common ground

Transboundary context: asymmetry of costs and benefits; challenge of cooperation on issues of critical national importance; differing objectives; trust





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But – clear benefits from a basin-wide approach

- Maximise benefits: managing flows, siting infrastructure in most effective and efficient ways
- Sharing information, costs and risks





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Approaches to environmental sustainability in basin planning

- Basic environmental protection: pollution control mechanisms
- Emerging approaches: river systems and ecosystem functioning:
 - Protection of key processes in the basin: flows, sediment, connectivity, groundwater and wetland recharge
 - Protection of socially and economically important ecosystem functions such as fisheries
 - Identification and conservations of high-value and representative ecosystems and species





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Requires:

- Strategic approach: basin scale assessment and planning
- Prioritisation: identification of essential processes and ecosystems
 - Which parts of the flow regime
 - Which tributaries to protect
 - Key wetlands





Strategic Plan:

- Prioritisation
- System objectives

Situation Assessment:

- Zonation
- Priority ecosystem areas
- Identification of key processes: connectivity, background flow research
- Valuing ecosystem services

Implementation:

- Infrastructure strategy and operations
- Allocation plan and agreements
- Protected areas and wetland plan
- Economic incentives

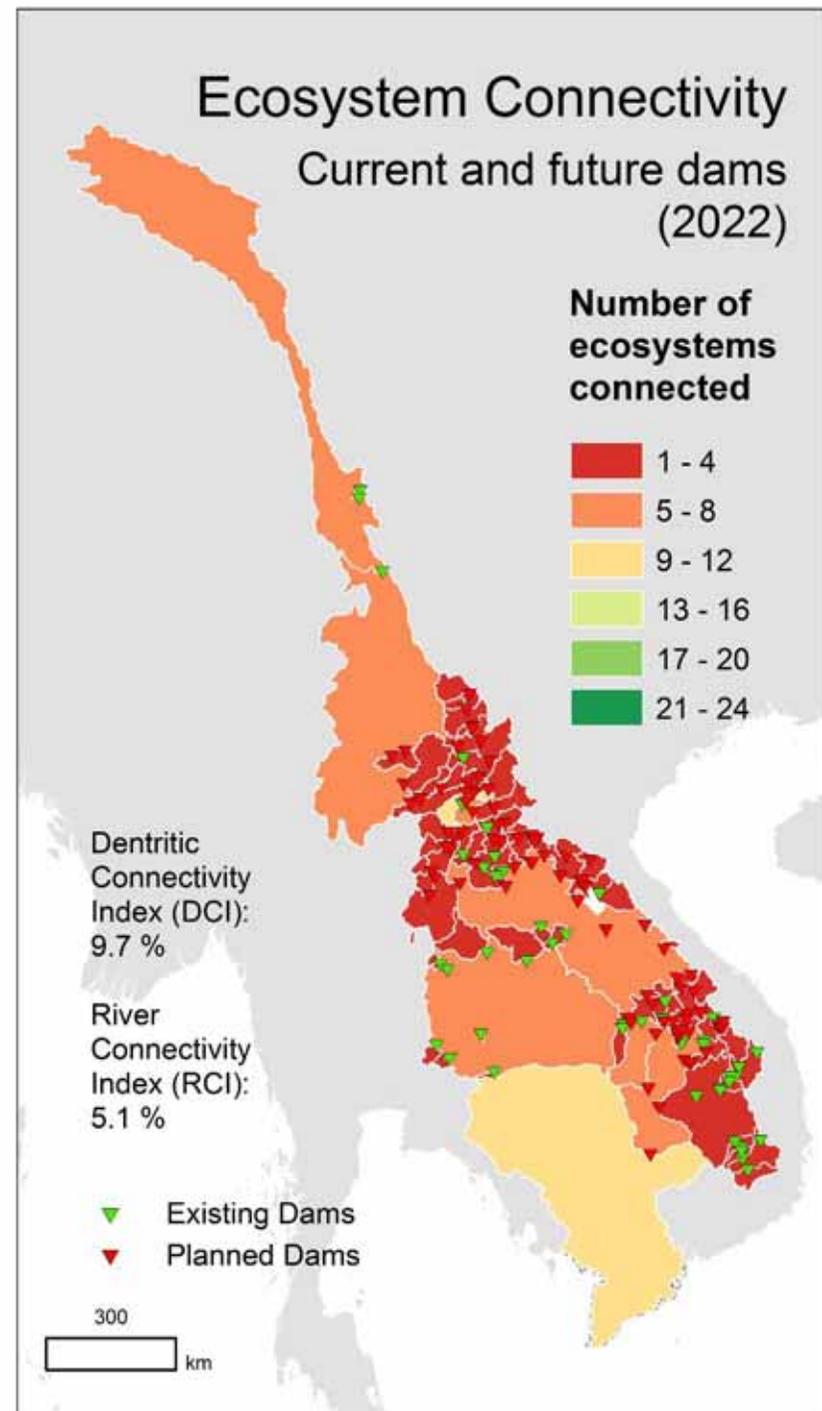
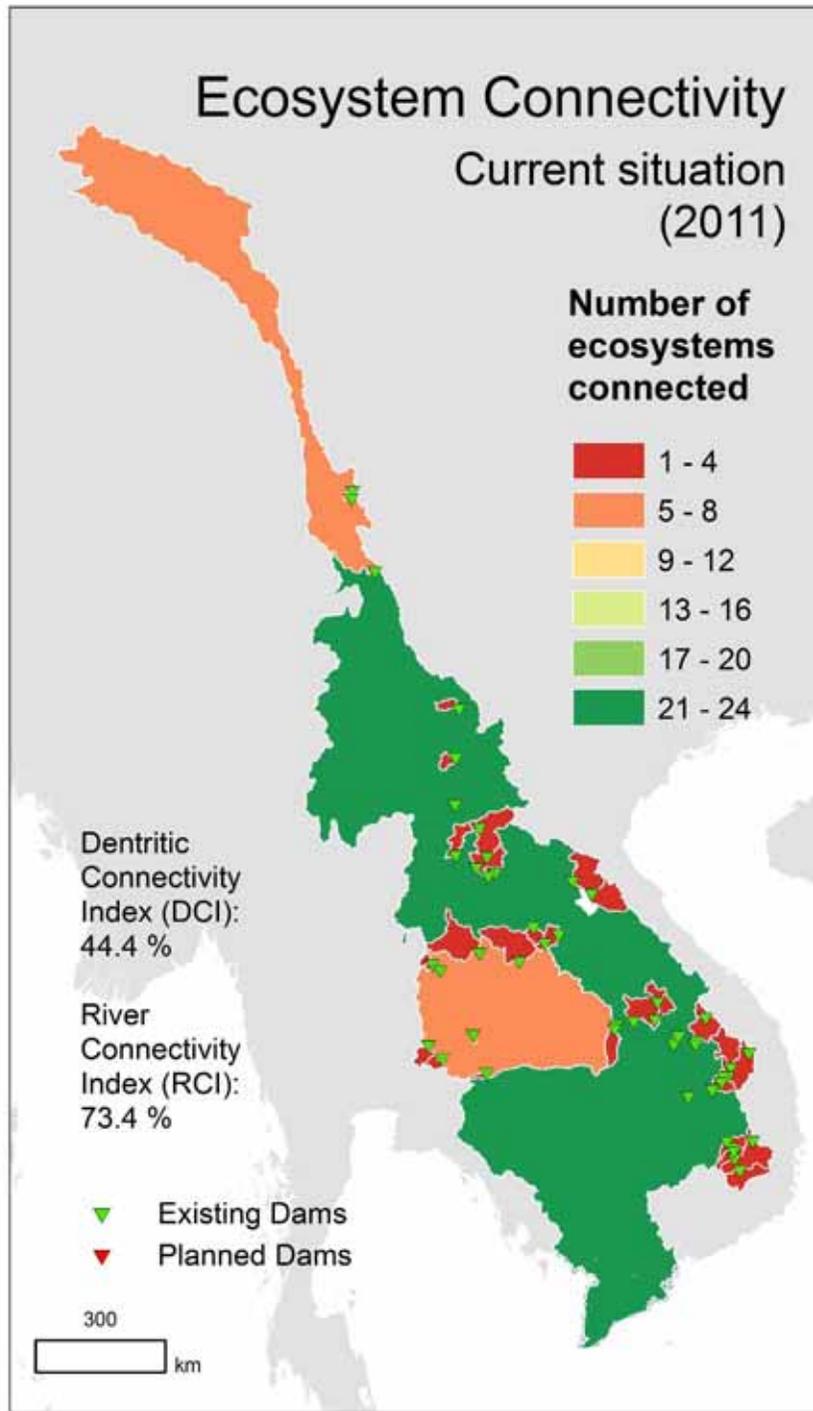
Monitoring and reporting

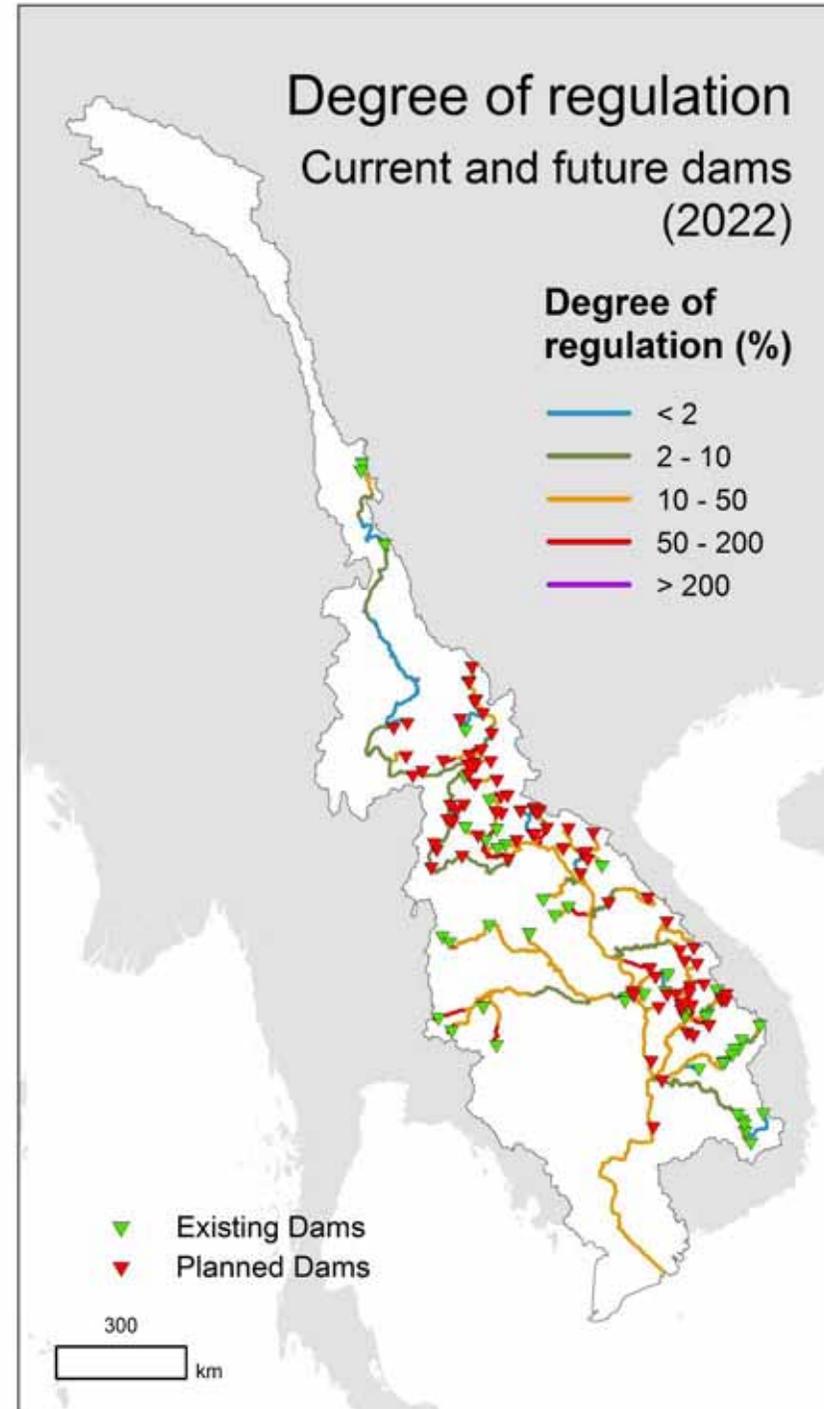
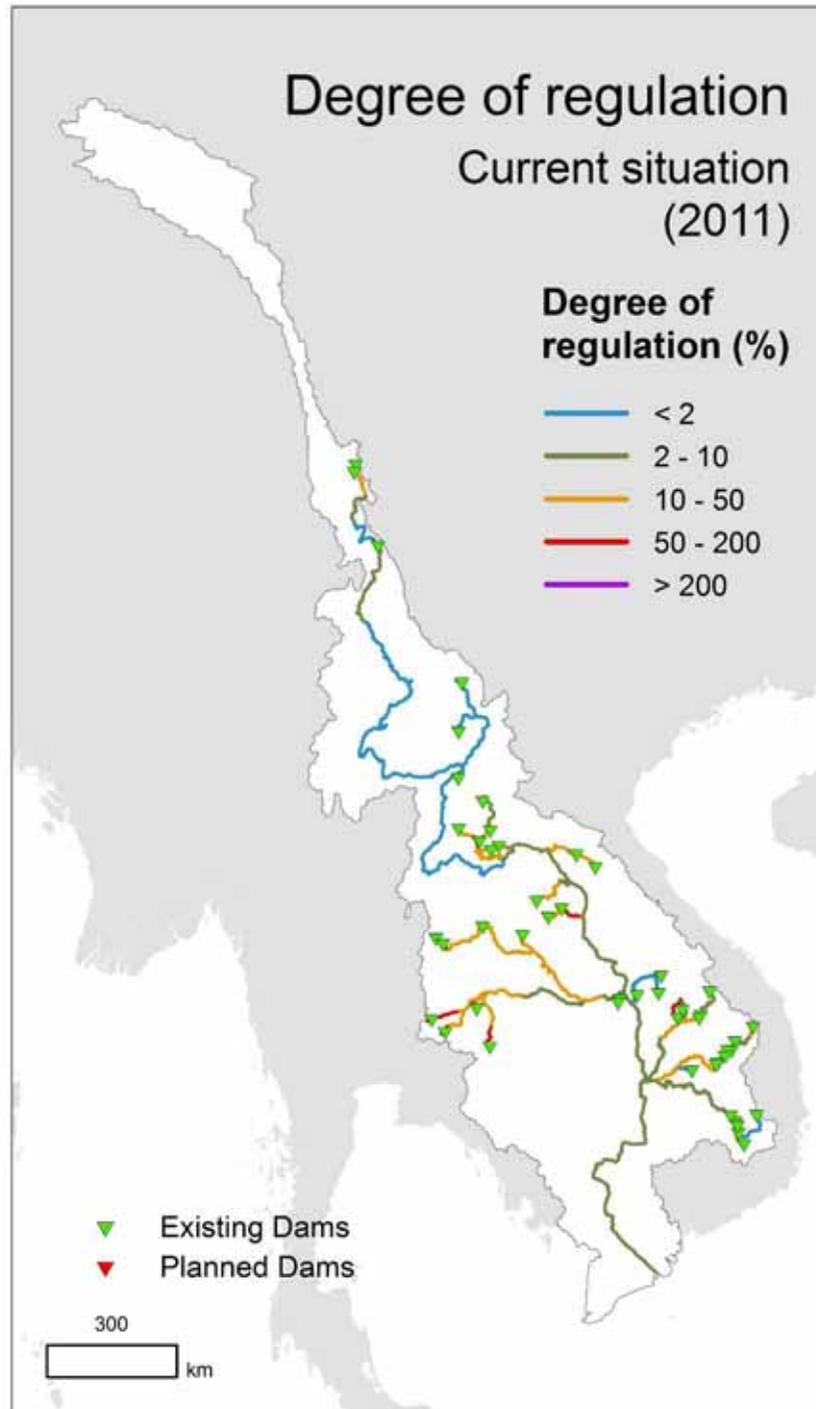


Analysing key sustainability issues in the basin

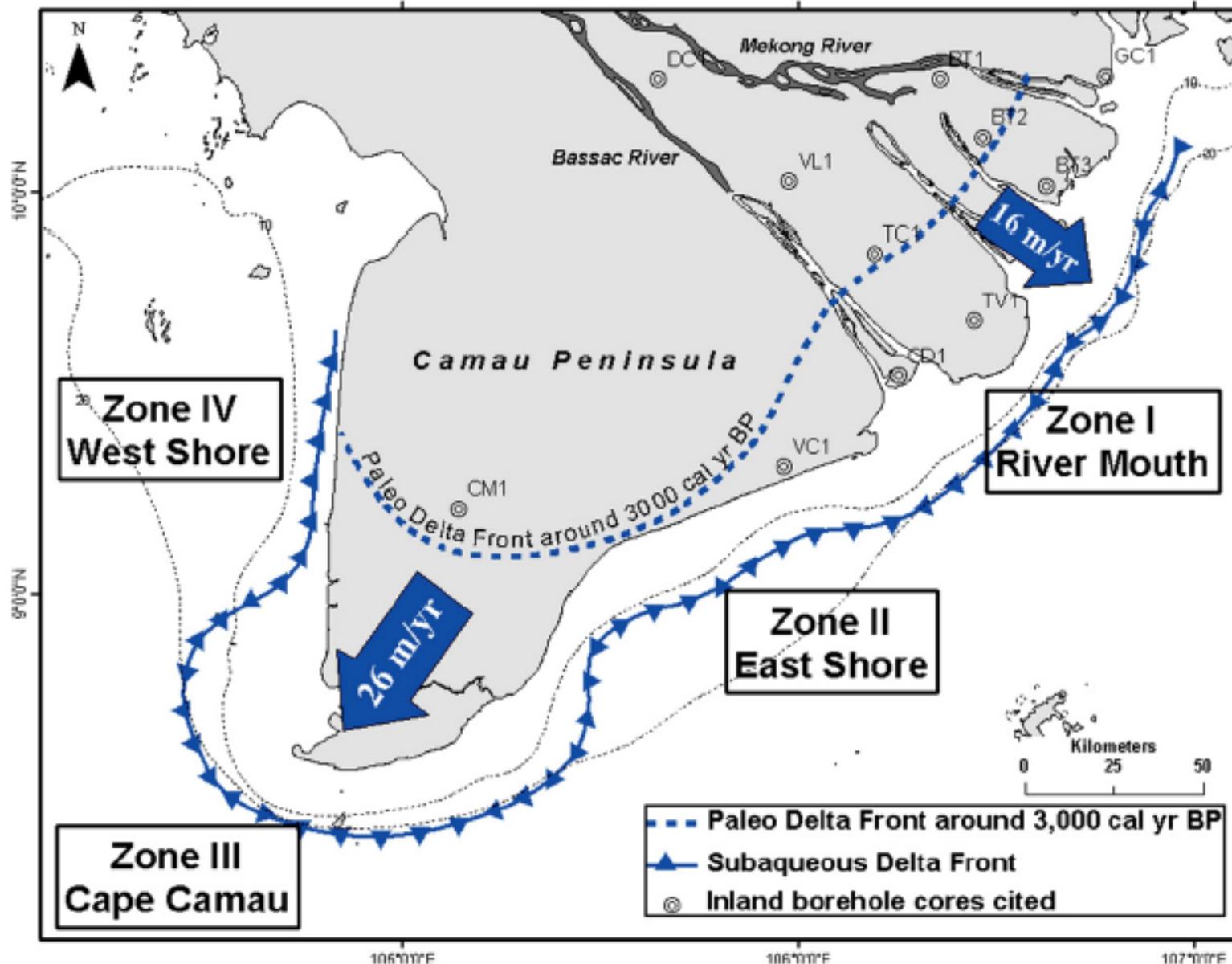
1. Analysing representative and high conservation value ecosystems and species
 - Zonation of different habitat categories within the system
 - Identification of high conservation value areas
2. Understanding connectivity
 - Species movement
 - Sediment
3. Basin environmental flow research
4. Fisheries research







High sediment supply = High rates of Holocene deltaic progradation



(after Xiu et al., 2010)



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Considerations:

- From ecological perspective, know what is important, and what might be lost
- Understand role and importance of different ecosystem services for different regions/countries





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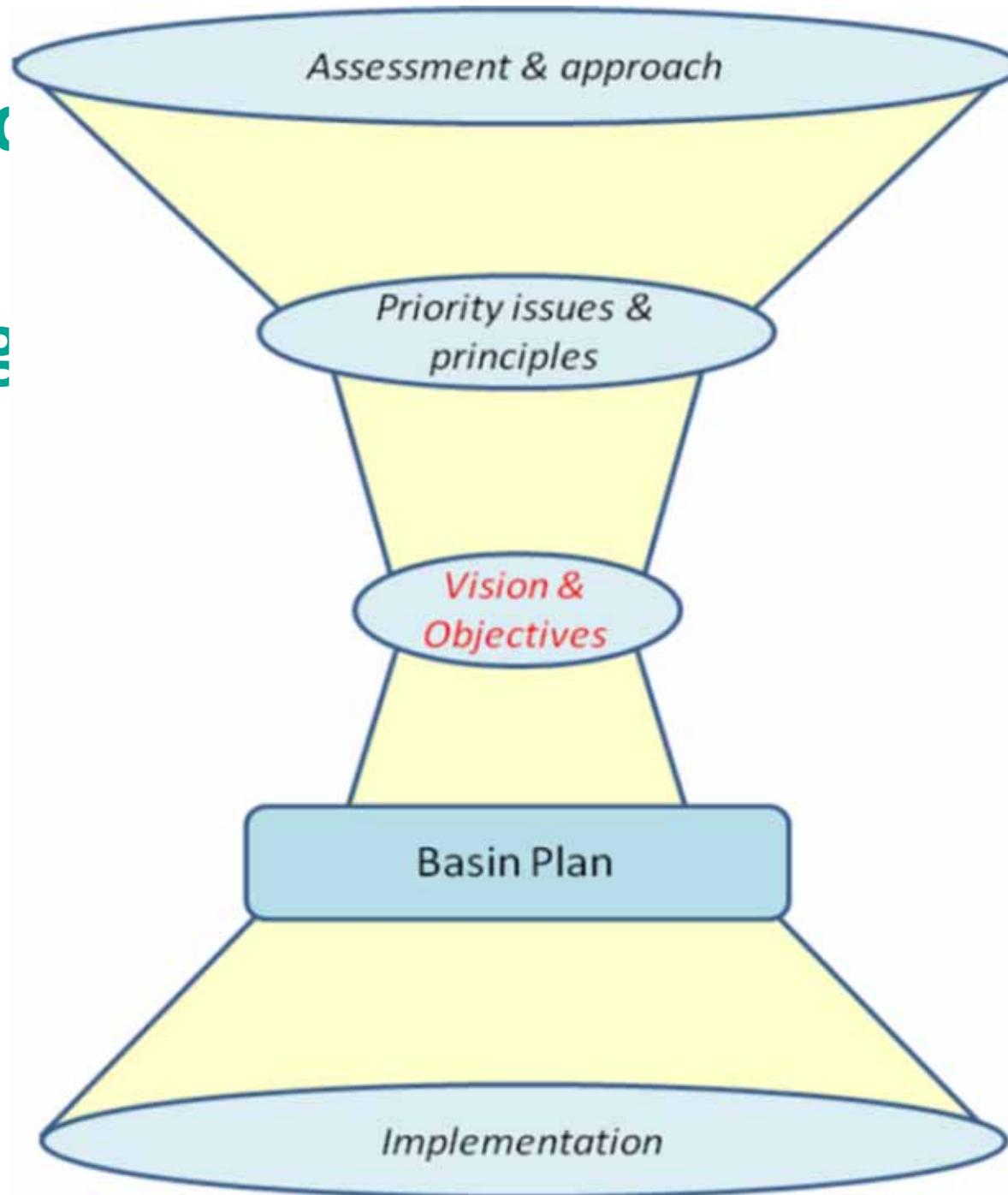
Implementation:

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- Allocation plan and agreements
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Monitoring and reporting



Strategic basin planning





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Decision support tools

- Economic
- Hydrological
- Environmental
- Scenario planning





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Considerations:

- Agreement on priorities
- Provide clear direction to future management
- Understand the consequences of trade-offs – make informed decisions





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Market mechanisms

- Water trading; salinity control

Transboundary example: Murray-Darling basin

- Payment for ecosystem services/eco-compensation

Transboundary example: Zhejiang/Anhui Provinces





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Key lessons

1. Sustainability planning is an integral part of basin planning.
 - o It should be undertaken at the same time as other parts of basin planning.
 - o The results of sustainability planning need to be incorporated into allocation, infrastructure and pollution control decisions





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Key lessons

2. Sustainability planning is central to the achievement of an ecological society
 - o Fisheries (and food security)
 - o Biodiversity and species conservation
 - o Key processes such as drinking water and sediment transport



Key lessons

3. Sustainability planning is about making the most informed trade-offs
 - o By using strong scientific analysis, it is possible to get the maximise the economic and sustainability benefits
 - o These trade-offs can most easily be made where planning is undertaken at a large scale, allowing for the identification of key processes and strategic prioritisation





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Thank you

