Nature-based solutions as sustainable infrastructure

Bregje van Wesenbeeck

Bregje.vanwesenbeeck@deltares.nl

Failing infrastructure?

Or failed design?

Failing infrastructure?

Failing infrastructure?

Or failing regulation?

Will green infrastructure be the solution?

Mangroves, nature's shield against typhoons and tsunami

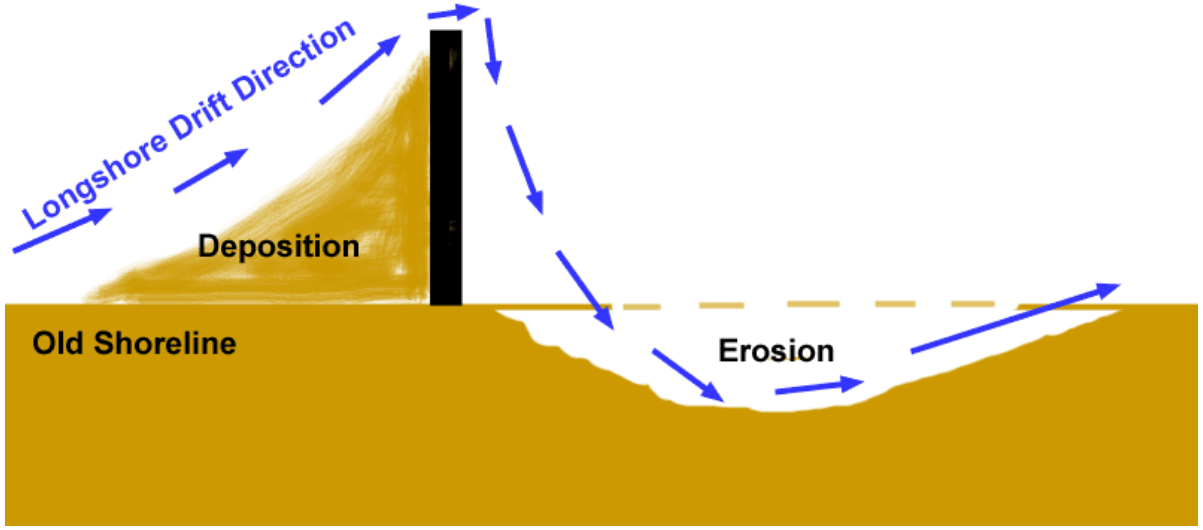
Will green infrastructure be the solution?

Implementing nature-based flood protection

Principles and implementation guidance

Principle 1: System-scale perspective

Addressing nature-based solutions for climate change adaptation and disaster risk reduction should start with a system-wide analysis of the local socio-economic, environmental, and institutional conditions.



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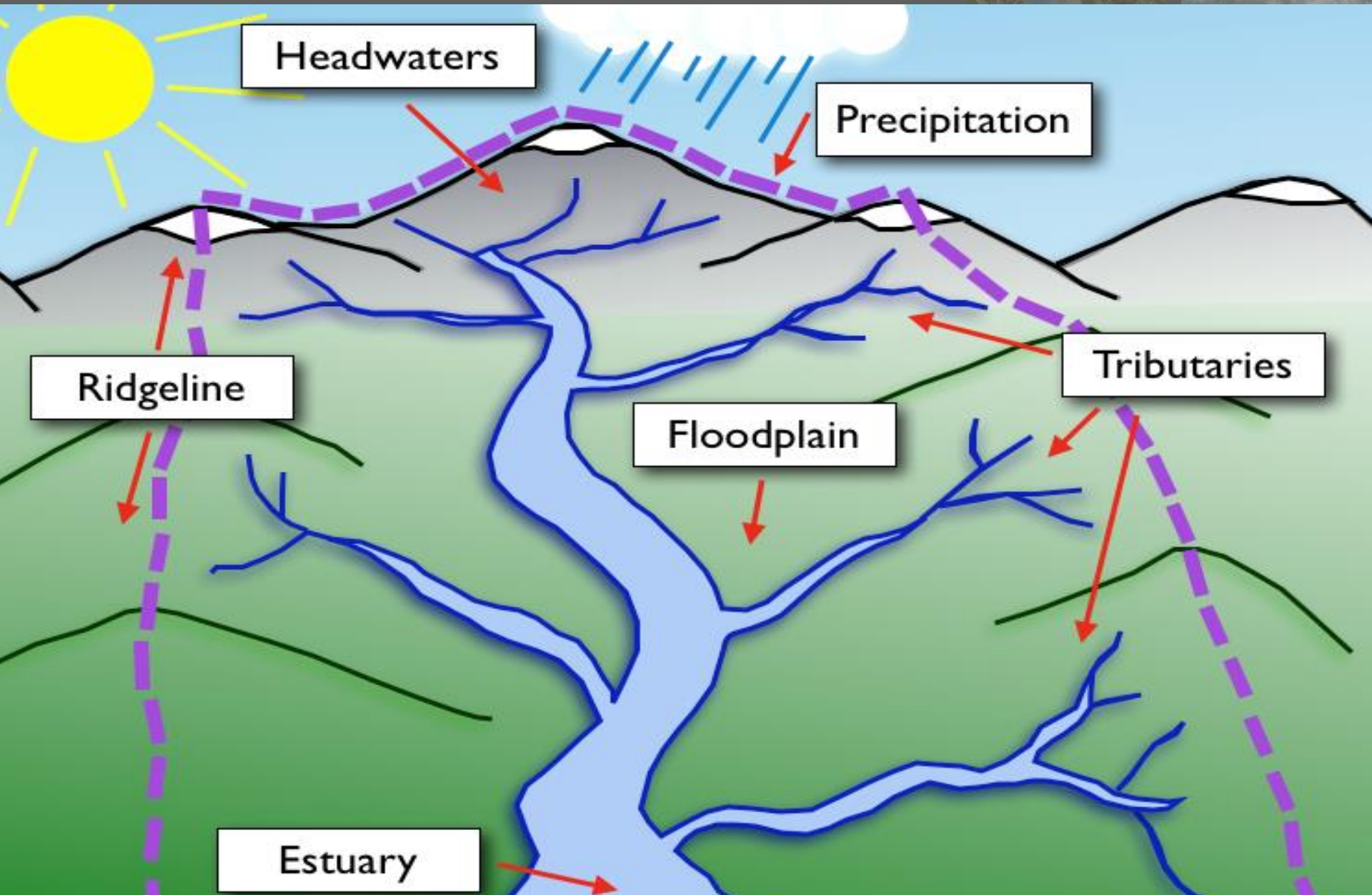
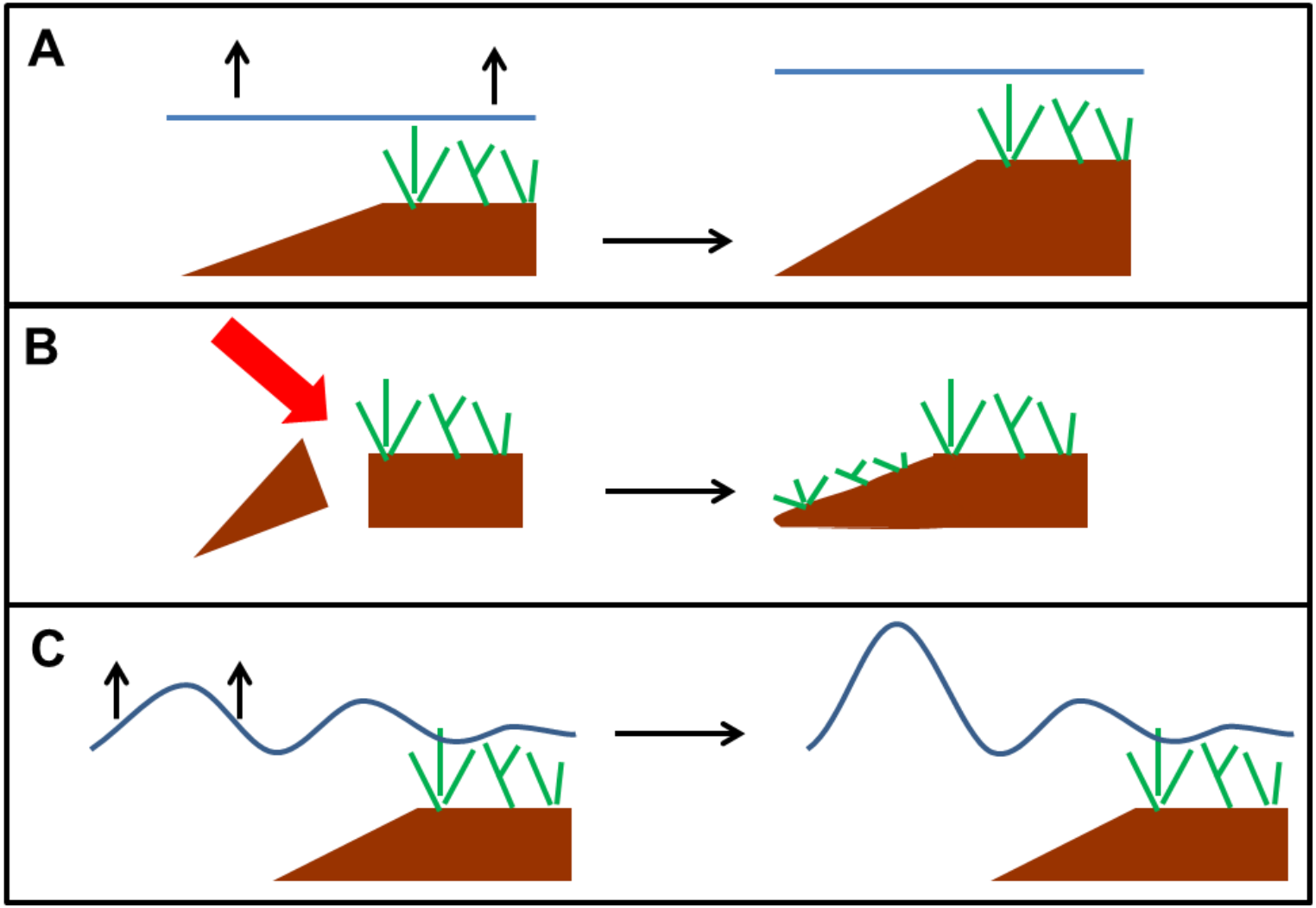
Large-scale perspective



Long-term perspective



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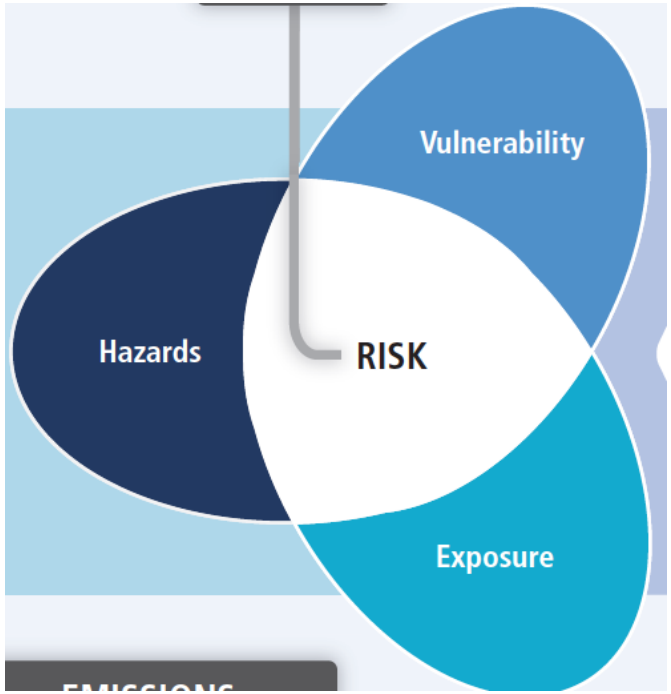
Principle 2: Risk and benefit assessment of full range of solutions

A thorough assessment of risks and benefits of the full range of possible measures should be conducted, covering risk reduction benefits as well as social and environmental effects.



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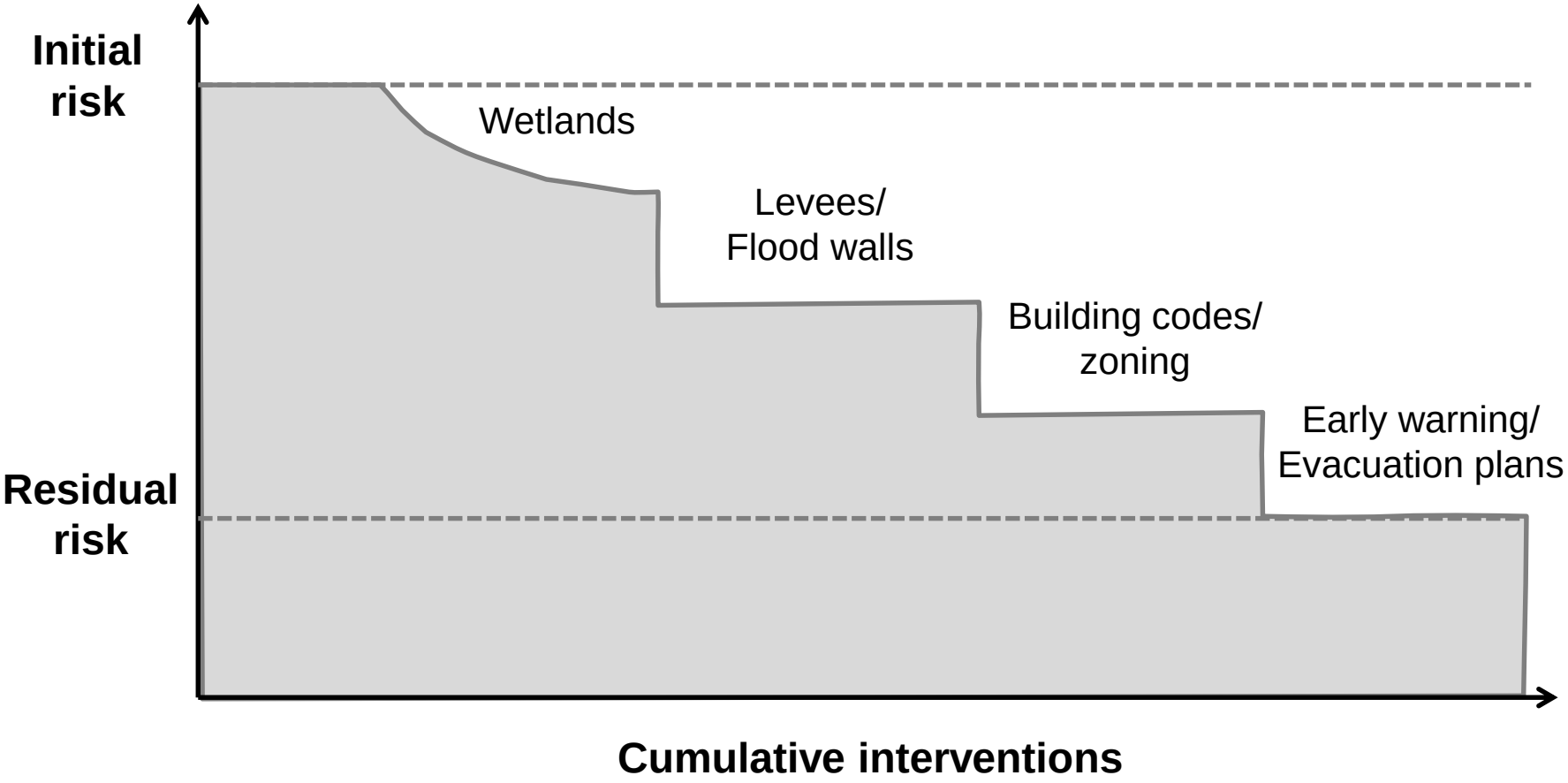
Mangroves for risk reduction

Evaluation of measures

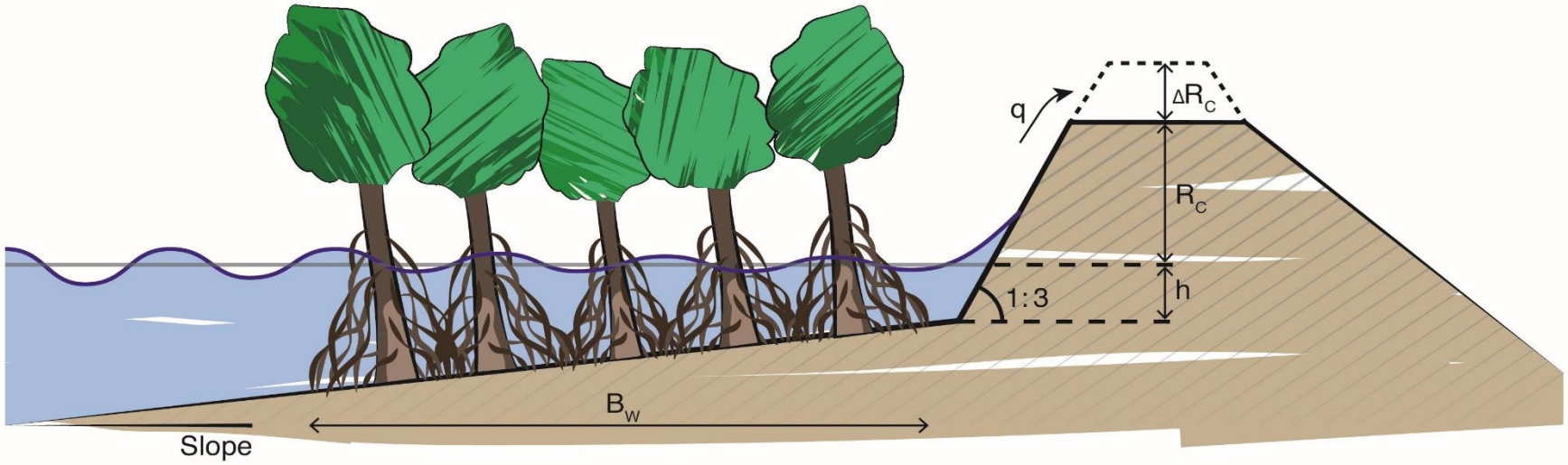
Structural and non-structural combinations



Spalding et al. 2014

Principle 3: Standardized performance evaluation

Nature-based solutions for flood risk management need to be tested, designed, and evaluated using quantitative criteria.



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Performance under extremes

Principle 4: Integration with ecosystem conservation and restoration

Nature-based solutions for flood risk management should make use of existing ecosystems, native species, and comply with basic principles of ecological restoration and conservation.

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Protect, manage and restore

Principle 5: Adaptive management

Nature-based solutions for flood risk management need adaptive management based on long-term monitoring. This ensures their sustainable performance.

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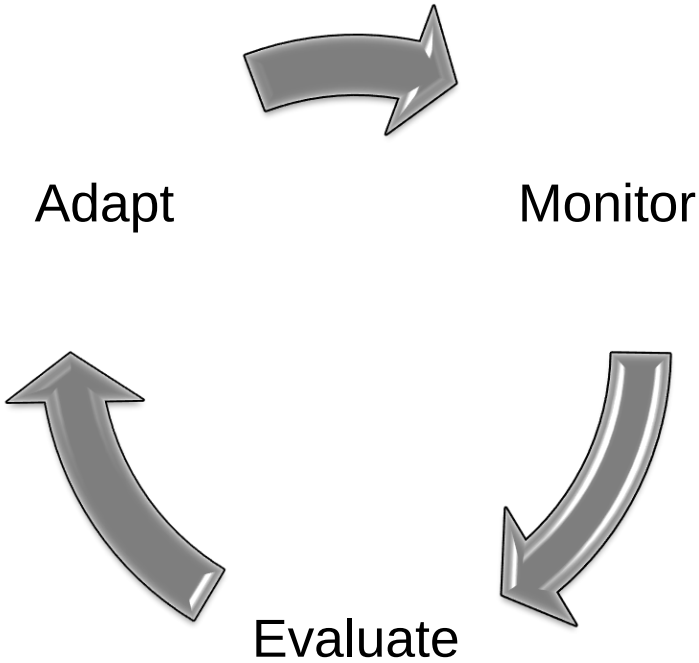
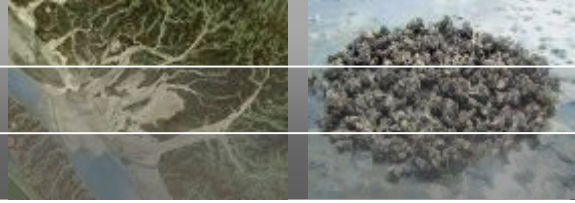
Manage: adaptive management



Policy advice for green (and grey)



1. Most powerful measures are not always construction of infrastructure
   - Spatial planning
   - Building codes
   - Zoning (re-alignment)
   - Enforcing regulation
2. Protect, manage and restore
3. Focus on restoration of abiotic conditions
4. Use ICZM and IWRM frameworks and tools
5. Transdisciplinary collaboration and filling of knowledge gaps

Thank you

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