Design of assessment frameworks for delta adaptations – experiences from the Netherlands and the USA

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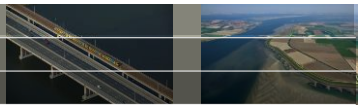
Why assessment framework?

- Building resilience requires **a long-term vision** how to adapt to future in terms of climate change and socio-economic development.
- Proposed strategies and measures need to be **assessed and evaluated**, providing essential information for decision making.

Why assessment framework?



However:

- **little knowledge exists** how to design assessment frameworks that can handle the inherent **uncertainty** which comes with the long term character of adaptation strategies;
- most existing evaluation frameworks such as CBA are designed for investment plans and projects with a time horizon which is usually **too short to encompass effects of climate change**;
- adaptation strategies are of **a very diverse nature**, including but not limited to infrastructural investments, urban redesign, fiscal incentives, eco-engineering and green infrastructural designs.

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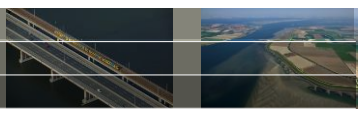

How to design assessment frameworks that can grasp:

diversity, uncertainty and long-term horizons

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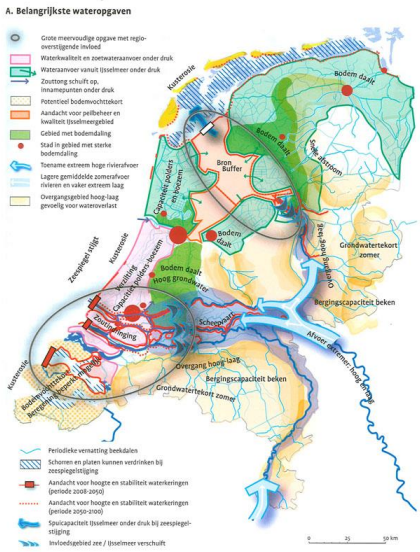
Case studies

Delta Programme, NL



Hurricane Sandy, USA

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Designing assessment framework for the Delta Program, NL

- For the Netherlands an assessment framework was prepared upon request of the **Dutch Delta Program**.
- The Framework was developed during 2011 and 2012 in close interaction with analysts and members of the Delta Program and **was tested** in a number of regional trial sessions.
- The outcomes of these sessions were used **to refine and improve** the Framework.

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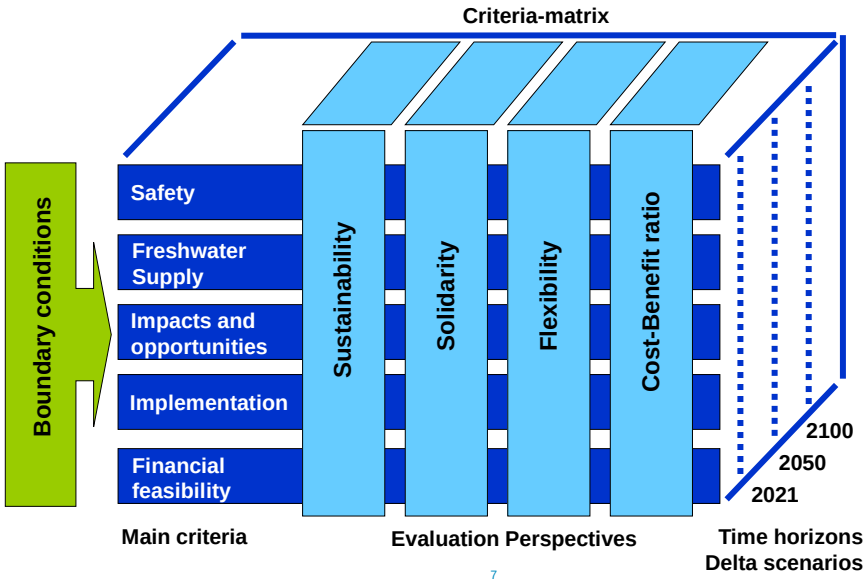
Criteria matrix



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Criteria list

Main criteria	Sub-Criteria
Safety against flooding	Casualties, damages and risks
Freshwater supply	Freshwater availability for urban areas, infrastructure, nature, drinking water, energy production, agriculture, industry, inland fishery, shipping and navigation
Impacts on and opportunities for other functions	Impacts and opportunities related to: (inter)national competitiveness, regional and local businesses, welfare, landscape amenity, agriculture, nature, fisheries, industry, shipping, harbours, recreation and tourism, energy and natural resources
Implementation	Risks related to technical, legal and societal implementation, opportunities for win-win, adaptation capacity, flexibility
Financial feasibility	Investment costs, operation & maintenance, risks related to private and public financing.

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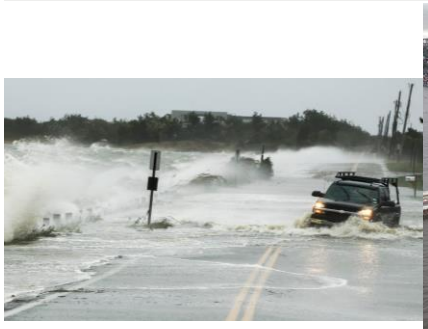
Hurricane Sandy in the USA



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Rebuild by Design: to create a resilient region

- Initiative of the President's Hurricane Sandy **Rebuilding Task Force** and the U.S. Department of Housing and Urban Development
- Addresses **structural and environmental vulnerabilities** that Hurricane Sandy exposed in New York and New Jersey
- Develops **fundable solutions** to better protect residents from future climate events
- Multi-stage **design competition** to develop innovative, implementable proposals to promote resilience
- **10 interdisciplinary teams** participate in the competition

More: http://www.rebuildbydesign.org/

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Designing assessment framework for RbD, USA

- **Dutch experiences** used to prepare an Assessment Framework for application in the **Rebuild by Design** contest aiming at providing a more resilient and adaptive coastal development
- An initial framework was tested during **a workshop** with the designers (NYC, 18th February 2014).
- The framework was applied in **reviewing the project designs** (March 2014).

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Why Assessment Framework for RbD?

- Objective: to stimulate and support the Teams to think about **the beneficial aspects of their project, project evaluation and implementation**.
- To help the Design Teams in transforming their design opportunities to implementable design solutions.
- Focus on **costs and benefits of the proposed solutions**, using an economic, social and environmental long-term perspective.
- Start thinking about **financial feasibility** of the solutions.
- To **facilitate a comparison** of all the projects that are being developed within RbD.

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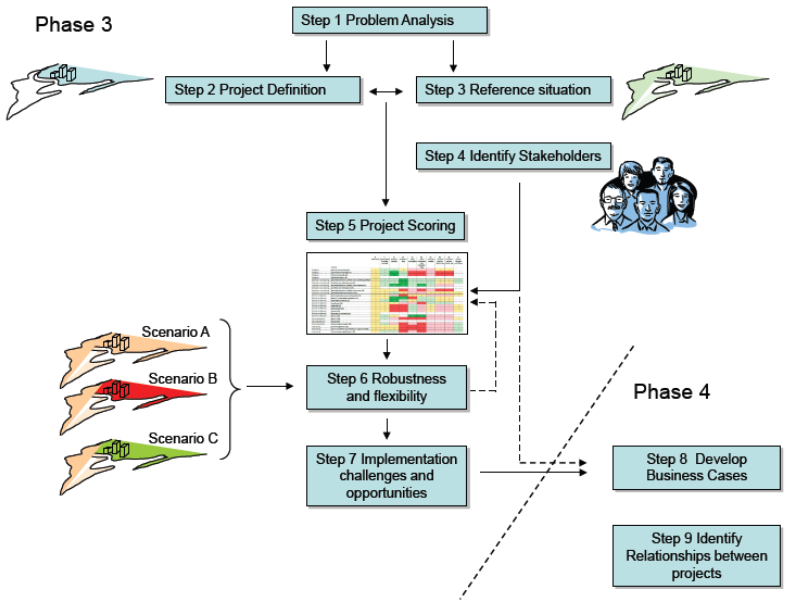
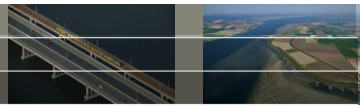
Methodology – Assessment Framework



Example of the Criteria List

Criteria	Sub criteria
Life cycle costs	Investment costs (including preparation and project management) Operation and maintenance cost Re-investment after … years
Flood protection	Reduction of expected property damages due to flooding Reduction of expected casualties due to flooding
Environmental value	Ecosystem and biodiversity effects Energy efficiency Ambient (urban) environment / spatial quality Noise levels Greenhouse gas emissions Air quality
Social value	Identity & Social cohesion Crime and vandalism Affordable housing Recreational value for inhabitants Cultural, historic, archaeological sites and landscapes
Economic value	Directly effects local or regional economy (e.g. tourism, agriculture/ fishery, logistics, energy) Synergies or spin-off effects to other sectors' revenues (e.g. transportation) Economic competitiveness Substitution effects / damages Local / regional employment Local / regional employment in construction Spin-off effects to other sectors Value of property Mobility / Transportation

Lessons learned (USA)



AF was helpful in a number of aspects:

- It forces the teams to think about (project-) **alternatives**. This can only be achieved if realistic alternatives or realistic reference situations are described in sufficient detail.
- It should be used in an **early stage** to focus on most promising and feasible solutions. This reduces time wasted on less promising alternatives.
- The framework is **flexible** in the sense that different stakeholder perspectives can be presented (e.g. CBA perspective and a regional perspective). This enhances the acceptance of the method for a variety of stakeholders.

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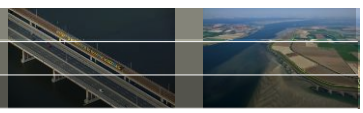
Lessons learned (NL)



- Flexible
- Use it as checklist, not scoring list
- Define spatial scale levels (local, regional, national)
- Define reference situation (current, future without project, etc.)
- Too many criteria for use in selection! Too complex.
- At the end choices have been made on a limited set of criteria;
  For water safety mainly:
  - Costs
  - Potential flood damage
  - Shipping/navigation
  - Agriculture
  - Nature

- People have difficulty in thinking in alternatives (both NL and USA)

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Thank you for your attention!