

Building with Nature



EcoShape

Thinking, acting and interacting differently

A Building with Nature approach to
sustainable harbour development

Bas Bolman

Contents

1. Challenges MTH

2. How to meet these challenges?

3. Cases

Developing MTH in a complex environment

- How to achieve sustainable economic growth?
- How to comply with regulations?
- How to get a formal and informal license to operate?
- How to involve stakeholders and create legitimacy?
- How to reduce environmental impacts?



Contents

1. Challenges MTH

2. How to meet these challenges?

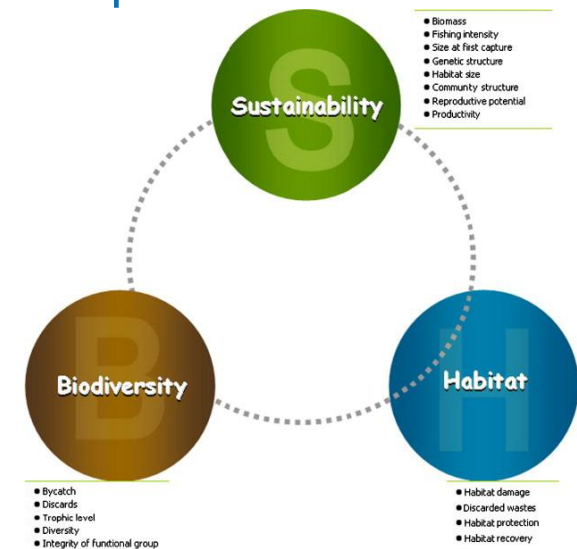
3. Cases

Thinking, acting & interacting differently

- From building *in* nature...
...to building *with* nature
- From a *defensive* approach...
...to an *offensive* approach
- From minimising impacts...
...to optimising economic & ecologic potentials

Ecosystem Based Approach

- Start from understanding ecosystem dynamics & functioning
- Determine how natural processes can be used to achieve aims
- Incorporate value of ecosystem in decision making
- Trans disciplinary approach
- Explore win-win solutions for people, planet & profit
- Monitoring, risk based approach
- Flexibility & adaptability of the project

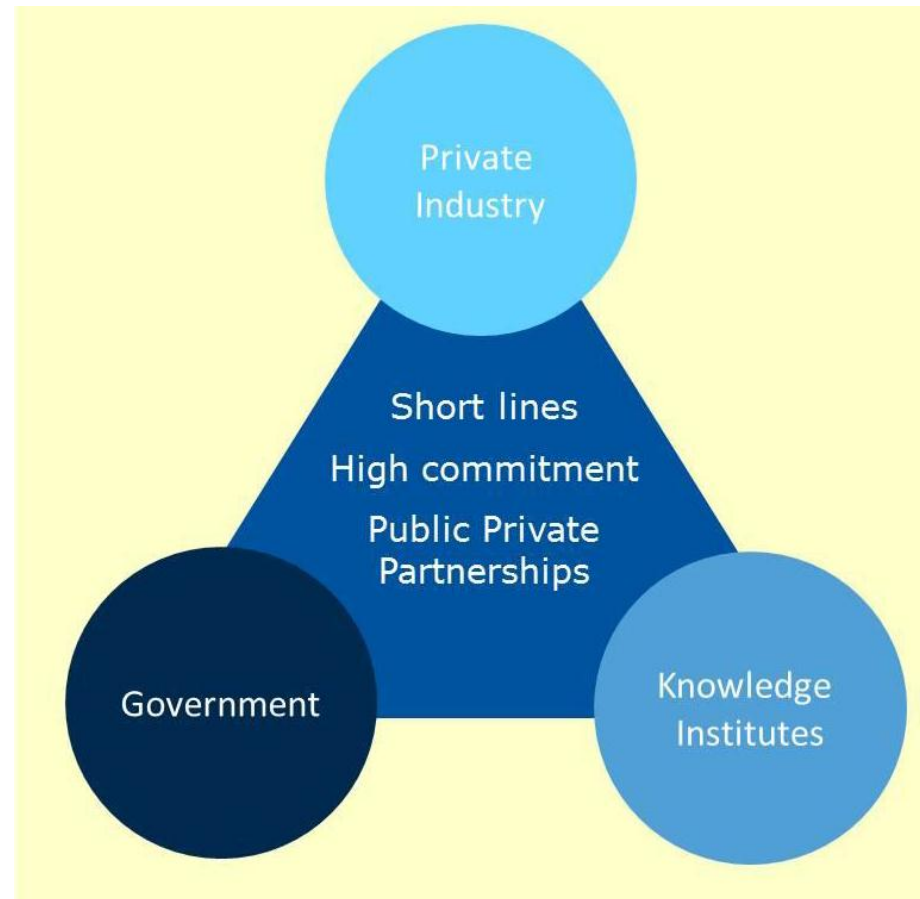


Stakeholder involvement

- Involving and understanding stakeholders throughout the project
- Include their ambitions, opinions, concerns and discourses
- Planning in coherence with other activities
- Coastal defence, MPAs, fisheries, aquaculture, dredging etc.
- Avoid lawsuits during the project by creating early acceptance



Golden triangle



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Sand engine



- Every 5 years sand replenishment due to erosion
- Cooperating with nature, instead of fighting nature?
- Artificial Sand Peninsula for natural replenishment
- 21.5 million cubic metres of sand, 128 hectares
- Cheaper alternative, new nature & tourism



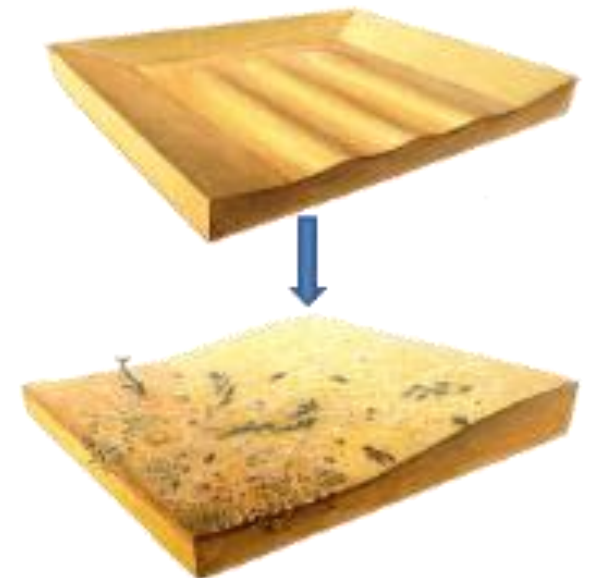


Source: www.dezandmotor.nl

Ecological landscaping of extraction sites

CASE

- No clear guidelines on ecology & sand extraction
- Improbable prediction of effects and mitigation
- Eco-design of extraction sites
- Optimising new physical situation and ecological habitats
- Enhance (re) colonisation of species
- Increase of biodiversity and biomass



Oyster reefs

- How to deal with erosion of tidal flats?
- Cooperating with nature, instead of fighting nature?
- Oyster reefs to hold back mud and sand flat erosion
- 200 meters long, 10 meters wide
- Reduce impacts of waves
- Increase biodiversity





Source: www.wageningenur.nl

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