

## *Building with Nature on scale*

Dr. Bregje van Wesenbeeck  
Deltares



Kementerian Pekerjaan Umum  
dan Perumahan Rakyat



**Wetlands**  
INTERNATIONAL



**WAGENINGEN**  
UNIVERSITY & RESEARCH



**UNESCO-IHE**  
Institute for Water Education





## Risk

- Shift from response to prevention
- Concept of extensive risk





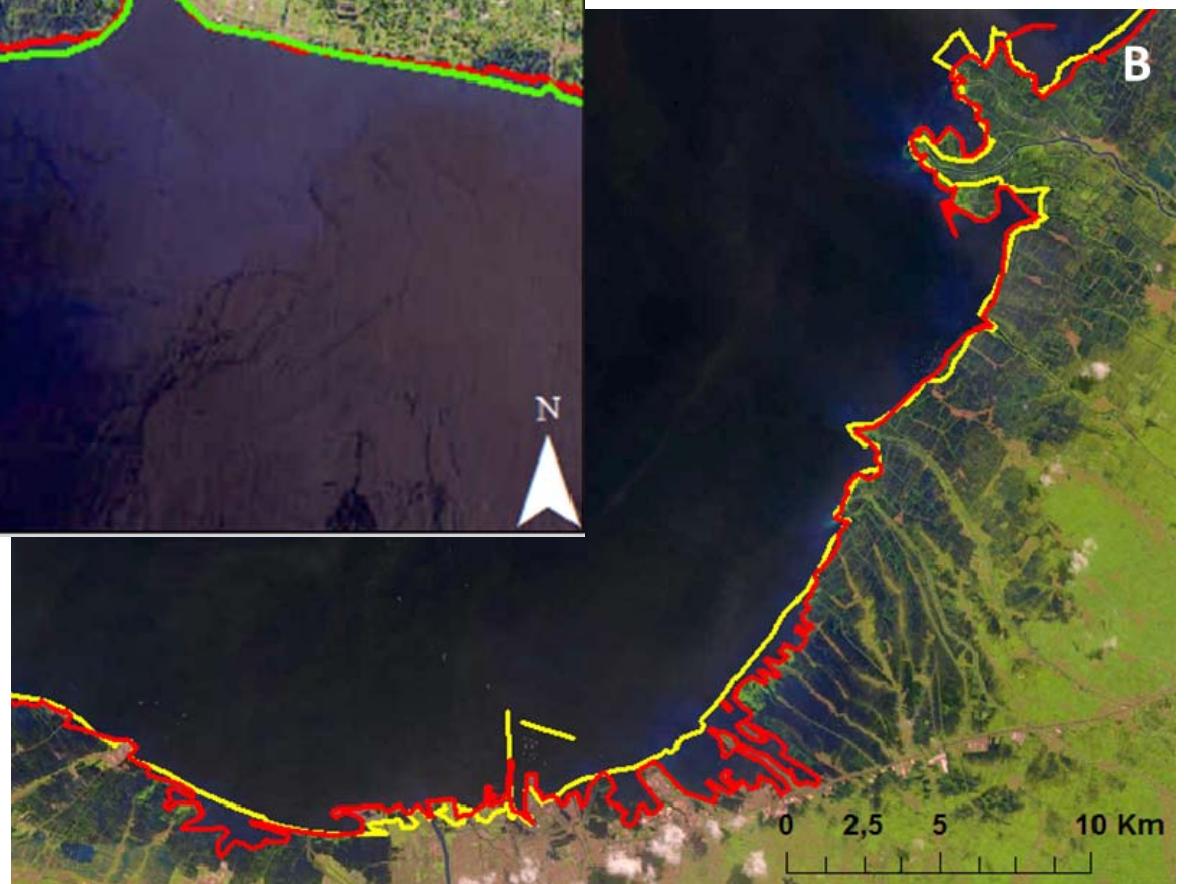
## Coastal erosion

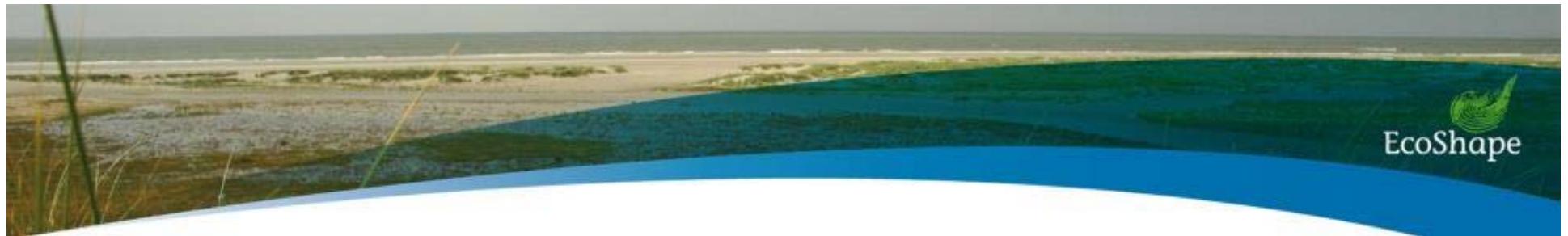


Van Wesenbeeck et al. 2015

Also see:

<http://aqua-monitor.appspot.com/>





EcoShape

## *Demak, Central Java*





## *Reponse: hard structures*





## *Response: mangrove planting*





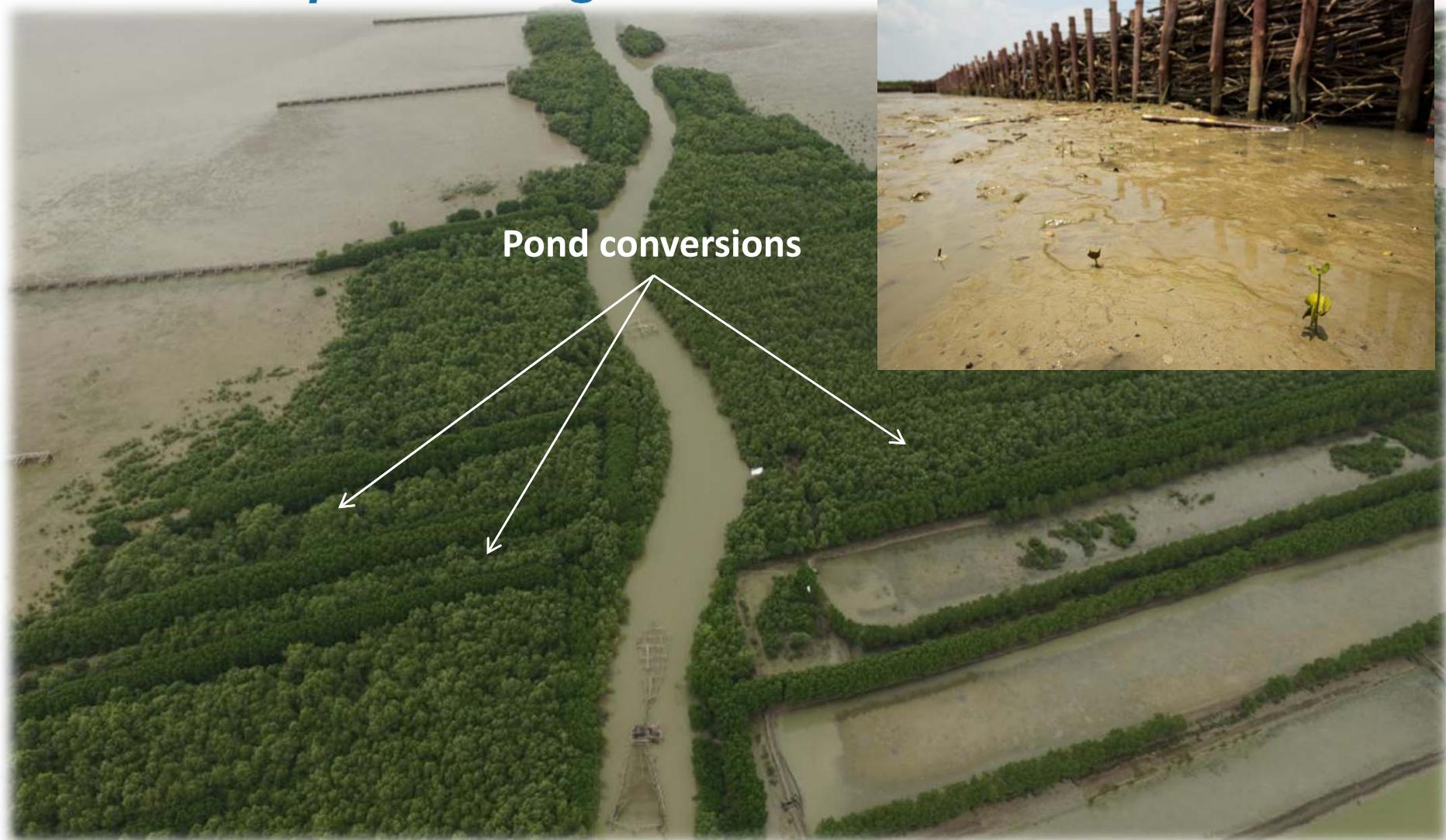
## *Increase sedimentation*



Permeable structures



## *Example of mangrove belt restoration*

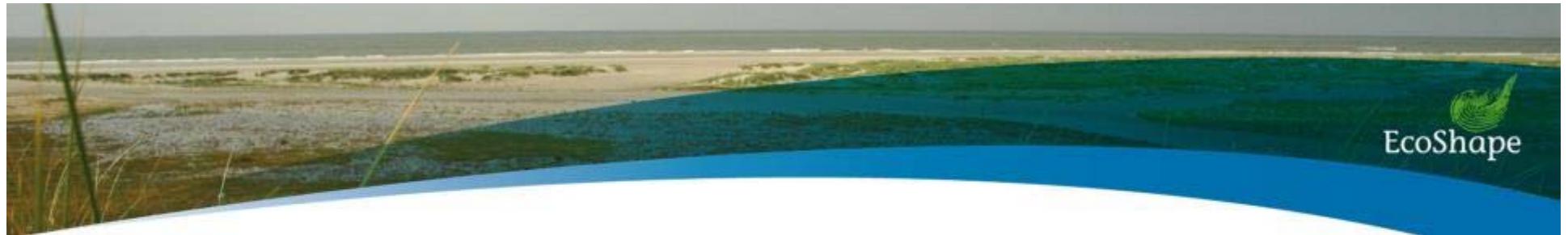


Pond conversions

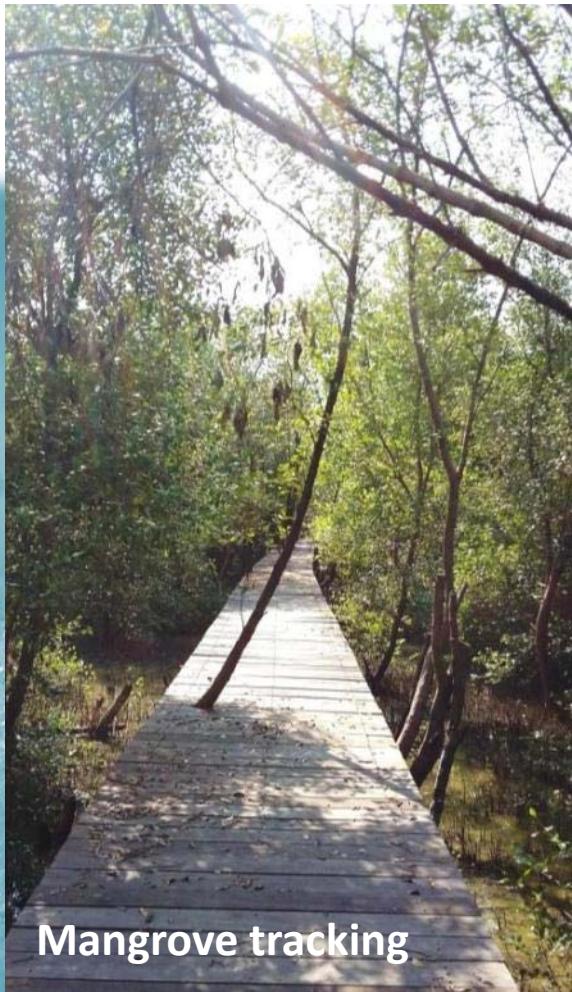


## *Improve local livelihoods*



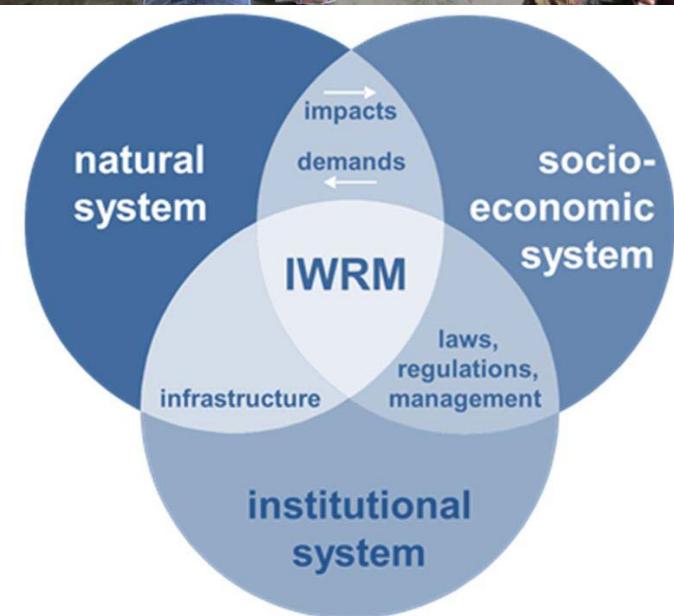
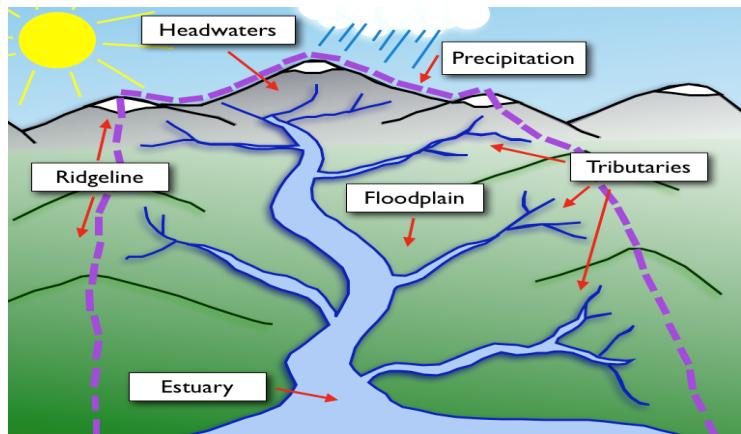


## *Example of livelihood: eco-tourism*





## Components for success





Kementerian Pekerjaan Umum  
dan Perumahan Rakyat



Wetlands  
INTERNATIONAL



WAGENINGEN  
UNIVERSITY & RESEARCH



UNESCO-IHE  
Institute for Water Education

