

## Kennis voor Klimaat Knowledge for Climate



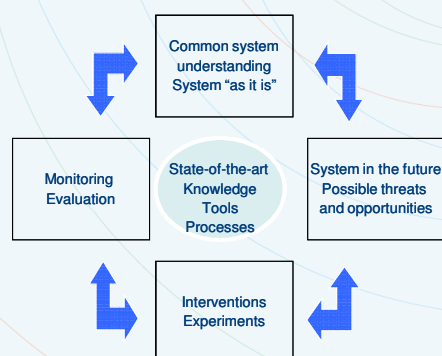
INCAH - Infrastructure  
Networks and  
Climate Adaptation  
for Hotspots

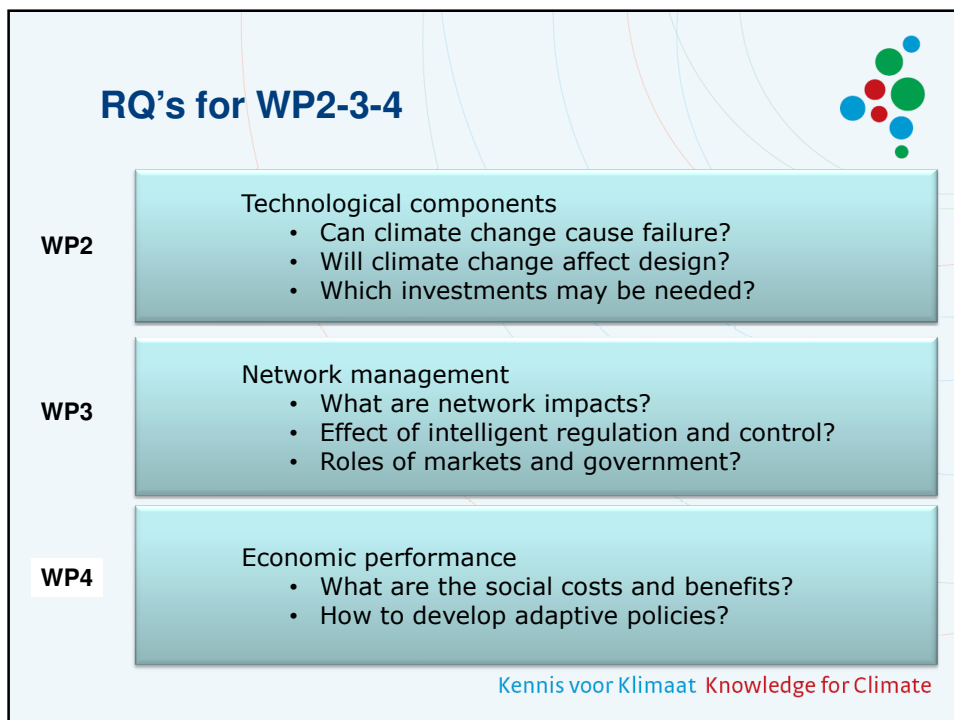
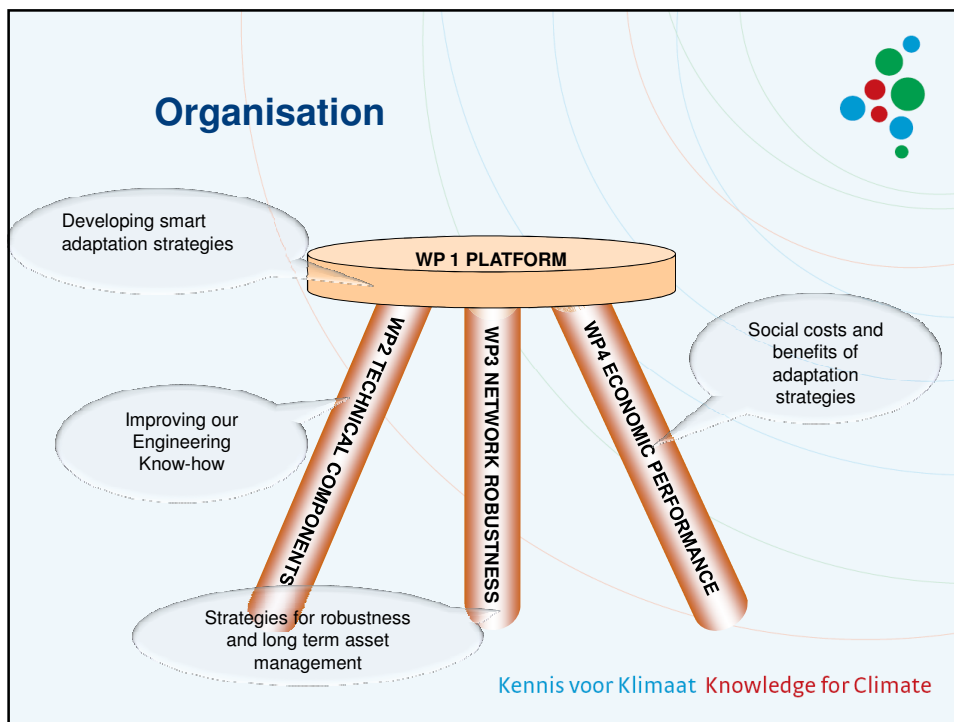


## Vision

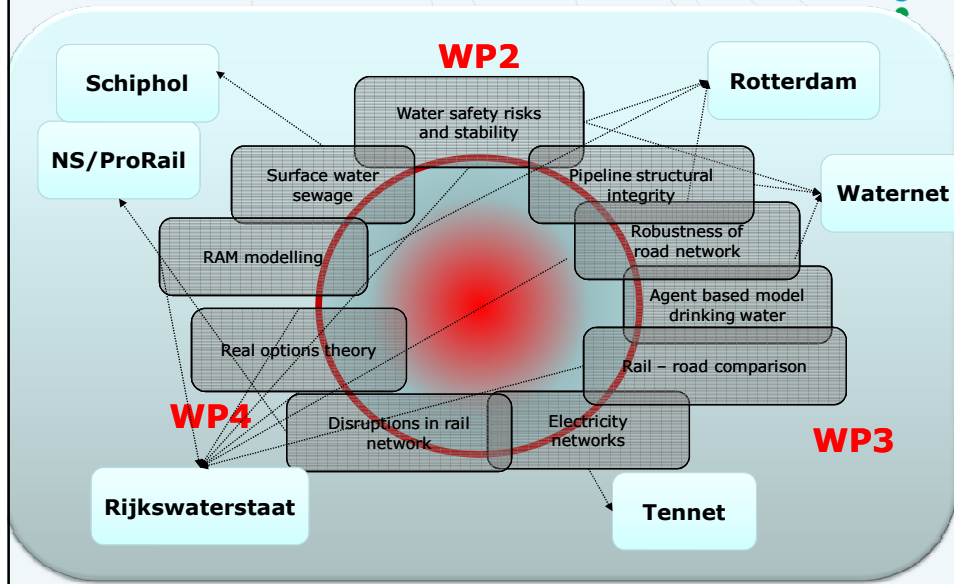
Climate change =  
threat to infrastructure's basic  
functions  
→ Expected impact?  
→ Remedy?

- Systemic approach
  - Socio-technical system
  - Impact pathways
  - Integrated modelling
  - Adaptive management
- Process approach
  - Group model building
  - Iteration between research and practice

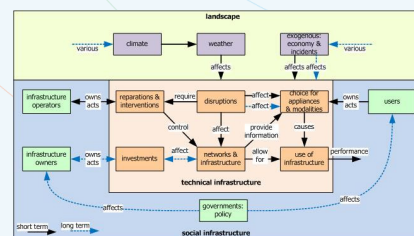
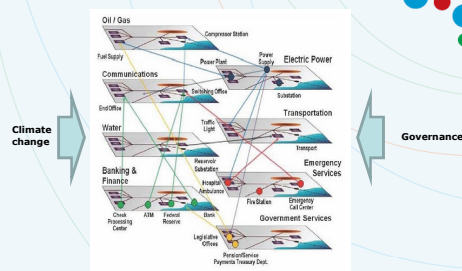
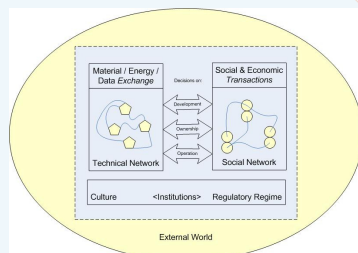
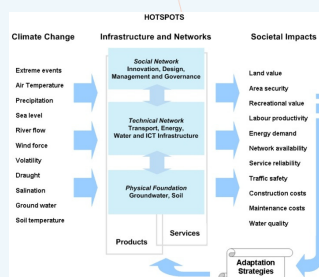




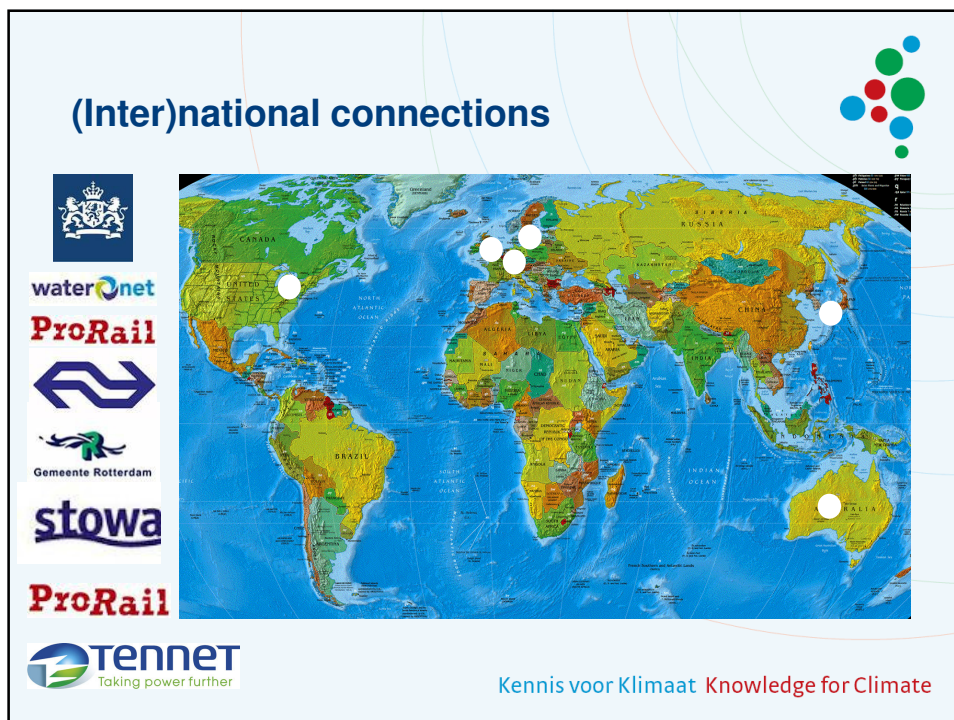
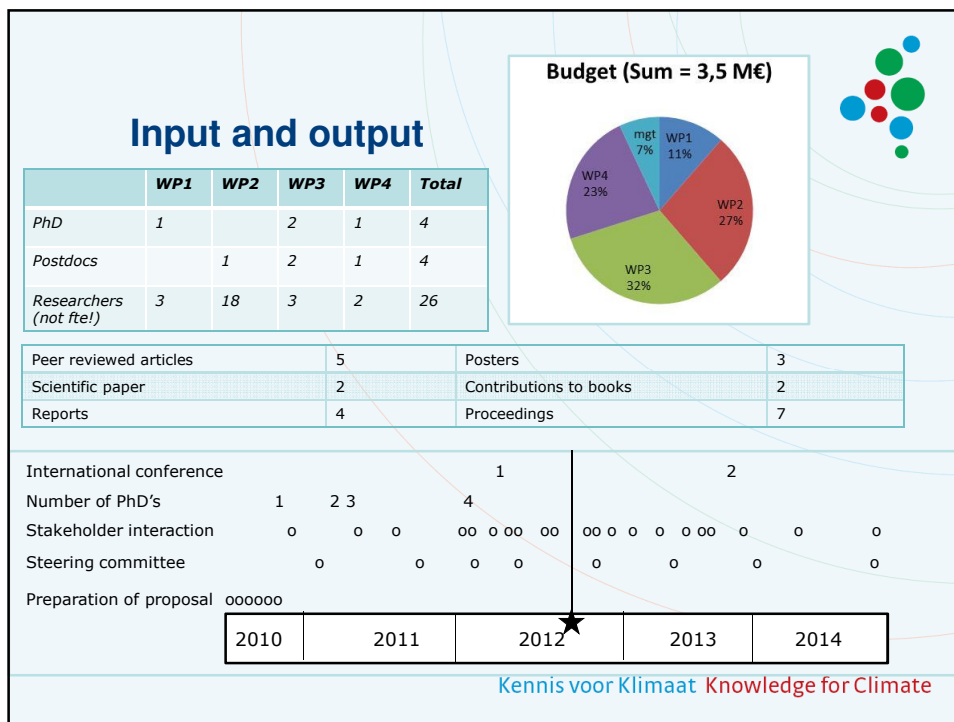
## Linkages activities & stakeholders



## WP 1: Group model building with stakeholders



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## Intermediate results (highlights)

### *Tentative overall conclusion:*

- Short term economic damages likely to be minor.
- Over the longer term effects are potentially large.
- Lack of awareness of long term impact.

### *Concrete results and recommendations:*

- Methodology for resilience assessment of physical infrastructure.
- Methodology to assess consequences for embankments.
- Relation between temperature/rainfall and pipe failure frequency.

### *Recommendations*

- Develop adaptive strategy for the long term.
- Make networks robust under present climate conditions.



## Challenges for the 2<sup>nd</sup> half

- Realization of research in subprojects, as planned
- Linking the networks to understand systemic effects
- Continuing the multidisciplinary work
- Extending the engagement with the outside world and raising awareness



## Key publications

- Bollinger, L.A., Dijkema, G.P.J. and Nikolic, I. Resilience of Electricity Infrastructures to Climate Change. Adaptation Futures 2012, Tucson, USA, 30 May 2012.
- Bhamidipati, S., Telli van der Lei, Paulien Herder (2012): From mitigation to adaptation in asset management for climate change: a literature review, accepted for 7th World Congress on Engineering Asset Management (WCEAM), Korea, October 8-10, 2012
- Chappin, E. J. L. & van der Lei, T. (2012), Modelling the adaptation of infrastructures to prevent the effects of climate change – an overview of existing literature, in 'Third International Engineering Systems Symposium – Design and Governance in Engineering Systems – Roots, Trunk, Blossoms', Delft, 18-20 June 2012
- Dijkema, G.P.J., L.A. Bollinger, M. Snelder, C.W.J. Bogmans, E.J.L. Chappin, I. Nikolic Infrastructure Networks, Climate Adaptation and Hotspots - Researching the Interconnections, Exploring Adaptation, *Planet Under Pressure 2012*, London.
- Maas N. (2012) Modelling as knowledge brokerage Instruments, in 'Third International Engineering Systems Symposium – Design and Governance in Engineering Systems – Roots, Trunk, Blossoms', Delft, 18-20 June 2012