Operationalising the insurance value of nature based solutions. An Urban living lab approach

Copenhagen, Rotterdam and Lodz

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Session ‘A2 – Brokering new partnerships and stimulating private sector engagement for resilience, 26.04.2018

Aim: to demonstrate the insurance value of ecosystems = role ecosystems can play in reducing water related risks (e.g. extreme events) as ***"Natural Assurance Schemes" (NAS)***

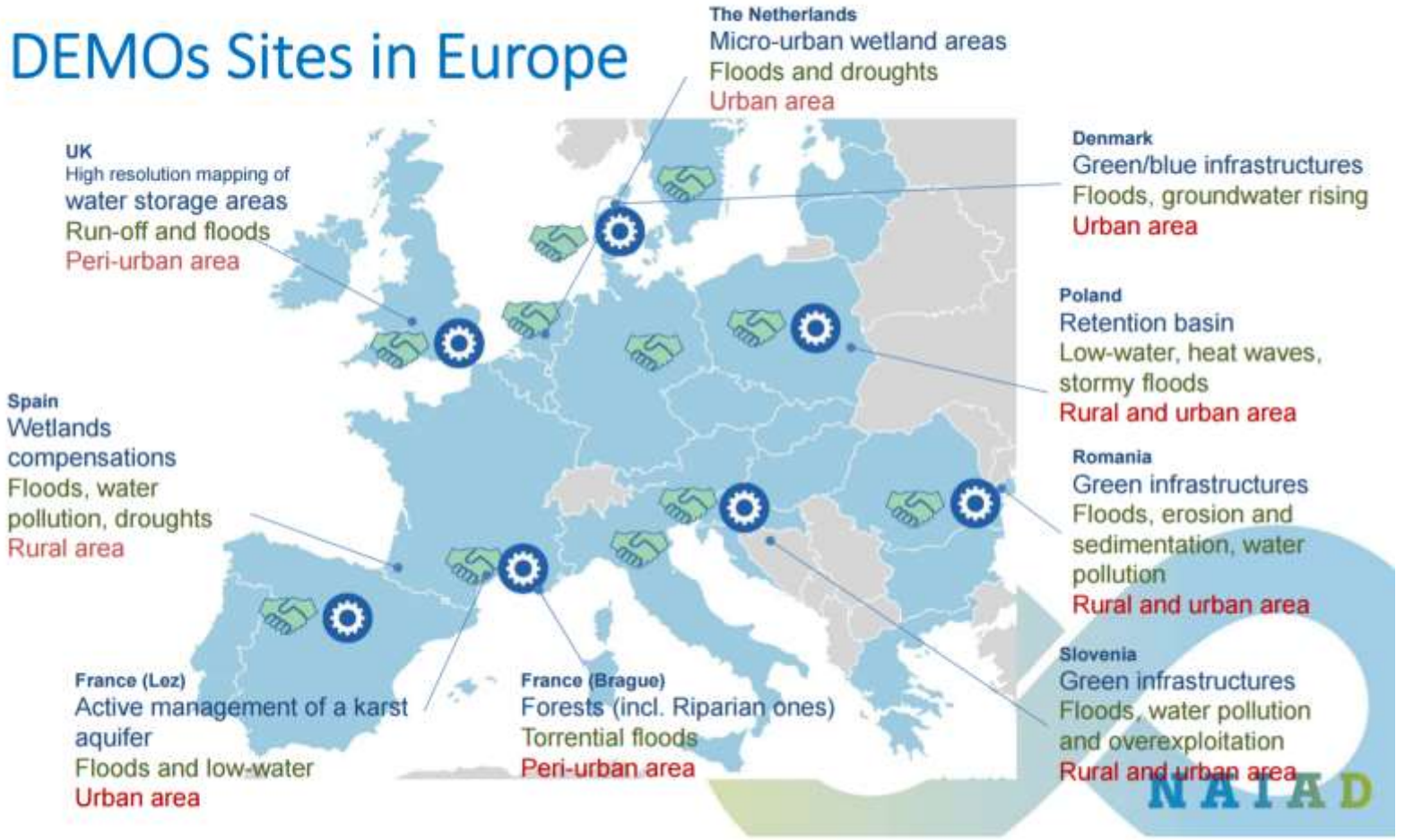
Strategic Goals:

1. Develop NAS Assessment frame
2. Test NAS in 9 DEMOS
3. Make NAS results accessible and useful to different stakeholders (policy makers, insurers, water users, etc)
4. Develop business models for NBS, PPP, financing NBS through Green Bonds and other models

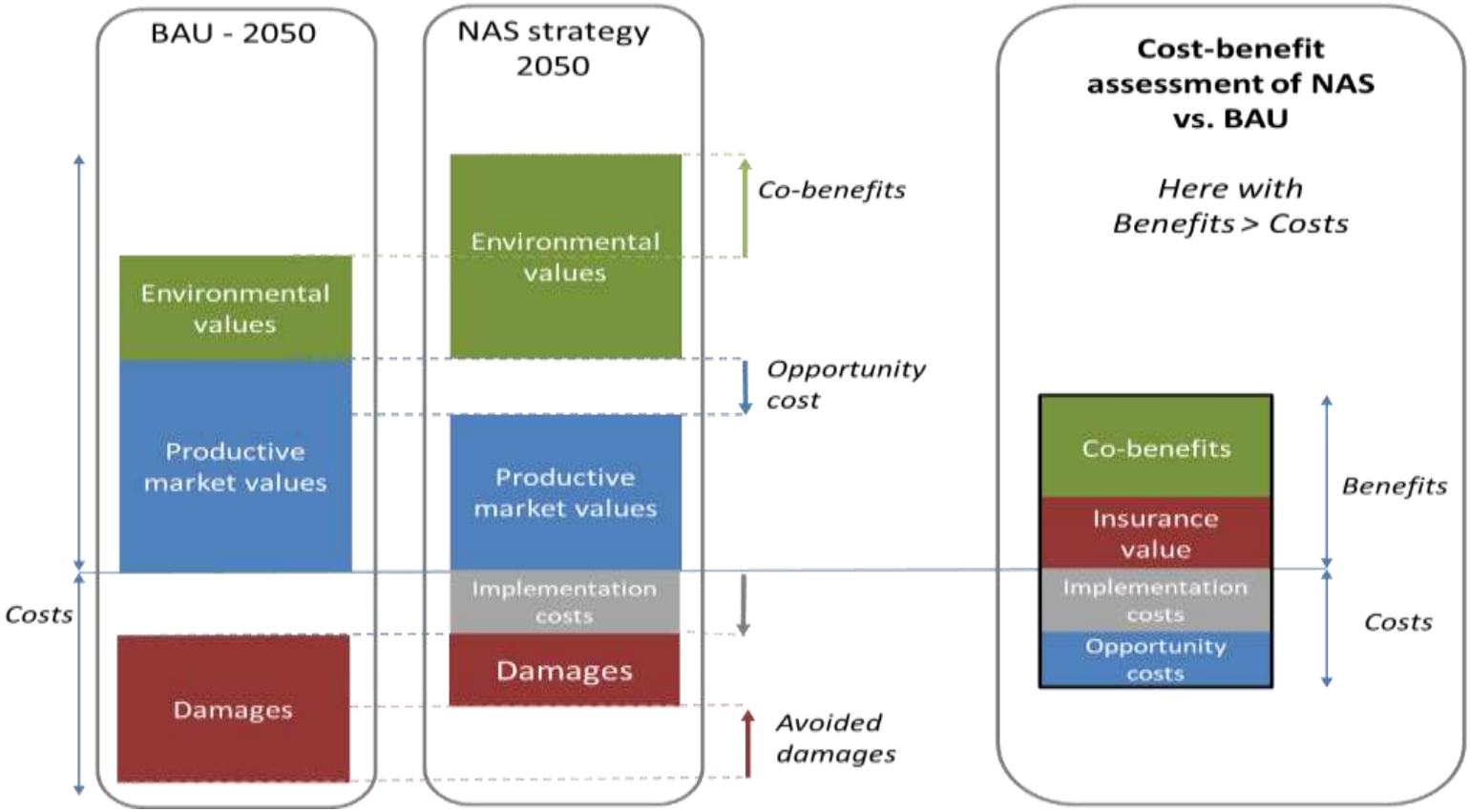
NAIAD

Resilient Cities 2018

9 DEMOs Sites in Europe



Economic analysis



Demo Copenhagen

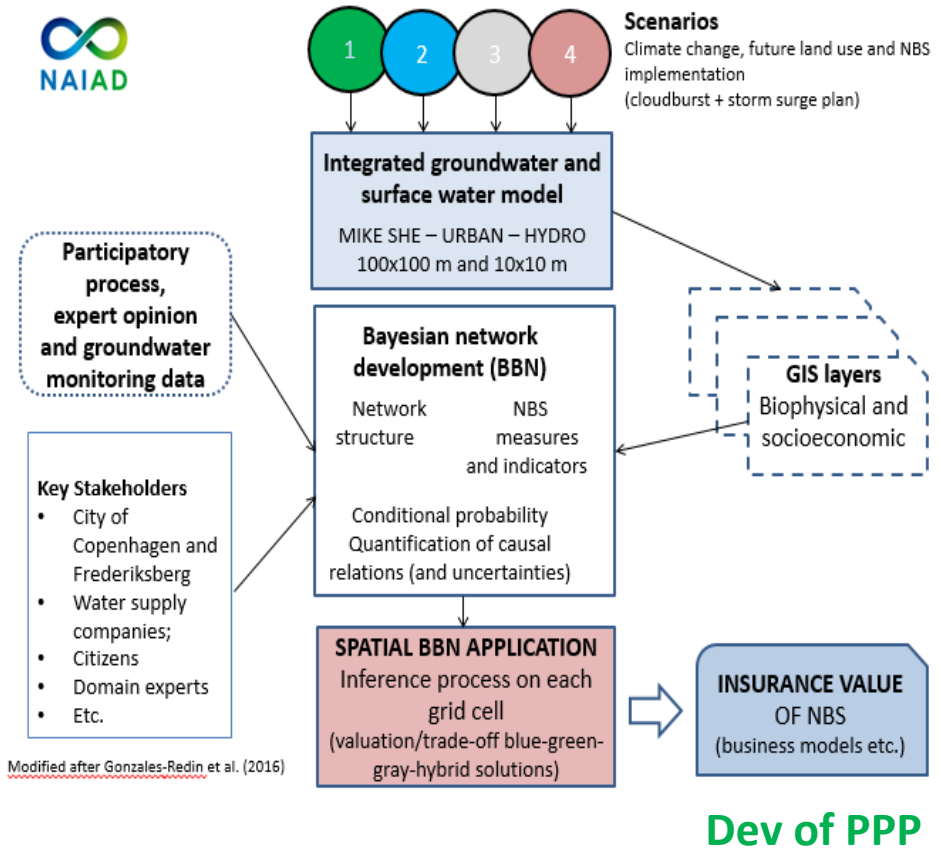
Copenhagen Climate Adaptation Plan
Adopted in 2011

Cloudburst event in Copenhagen Aug 2011

Cloudburst management plan
Adopted in 2012

NBS to mitigate pluvial flooding in the city of Copenhagen

Demo Copenhagen



Dev of PPP

NBS (co)benefit assessment by means of embedded model approach: street level city and Surrounding catchment at spatial resolution compatibel with Policy Support System

Stakeholder workshop to identify effects and co-benefits of NBS in Copenhagen

Stakeholders:

- Municipality of Copenhagen
- Regional authorities
- Water companies

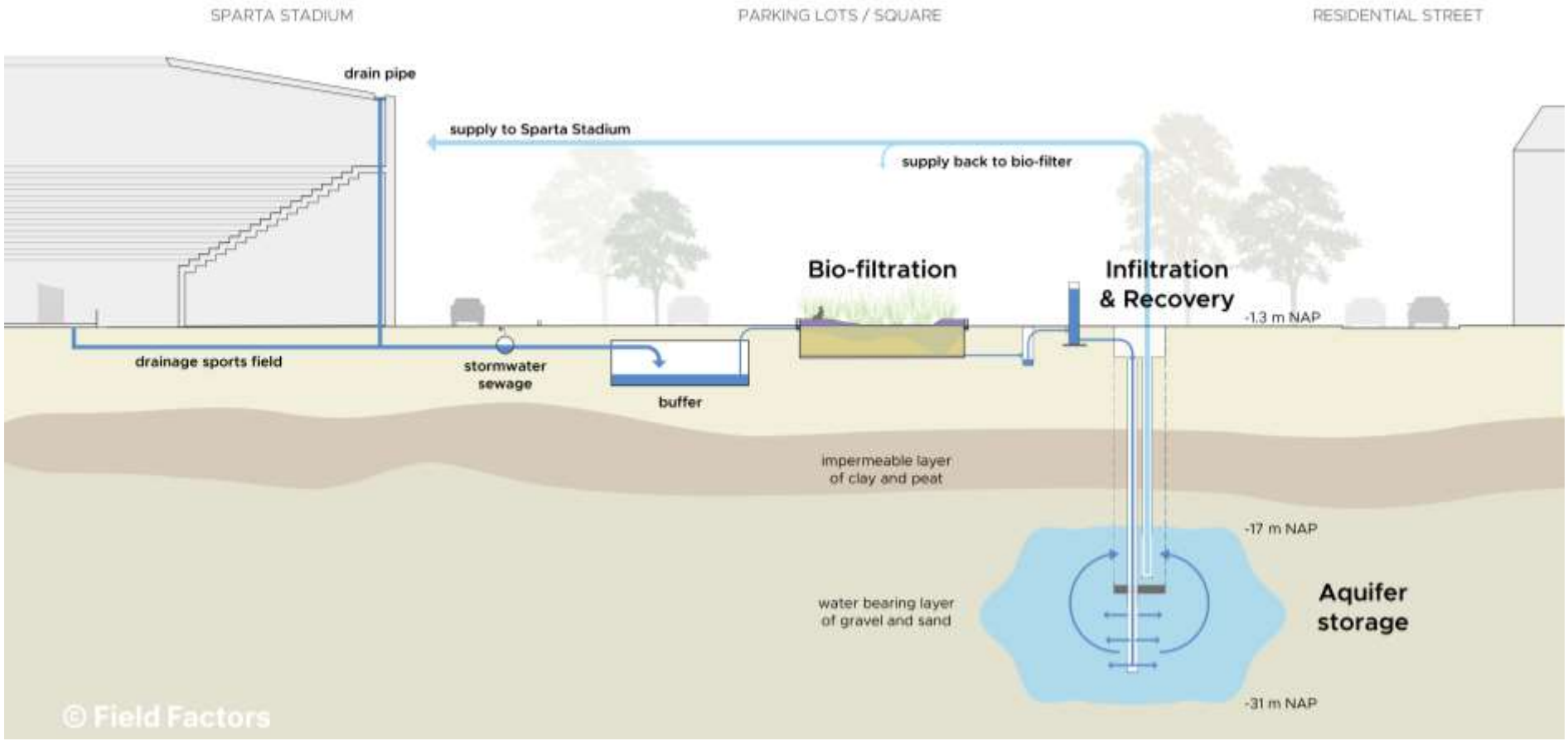
Identified (co)benefits of NBS:

- Reduced risk for pluvial flooding
- Improved living environment
- Increased public health
- Recreation
- Green jobs
- Export opportunities
- Learning (awareness)

DEMO Rotterdam

DEMO Rotterdam

(1) Reducing the risk of pluvial flooding and (2) saving drinking water by reusing rainwater



DEMO Rotterdam

- Stakeholders workshop:
  defining co-benefits of the NBS

DEMO Rotterdam

Stakeholders involved:

- Municipality of Rotterdam: discharge runoff
- Water board: Increase retention capacity
- Water Utility: exploiting a new source of freshwater
- Private sector: design, build and maintain NBS

End-users:

- Sparta Stadion, reliable use of freshwater
- inhabitants: more green and spatial quality betterment

DEMO Rotterdam

- Co-benefits identified

Reduce costs	Increase water awareness	Improve (ground) water quality
Stormwater re-use	Increase green	Reduction risk of damage
Spatial quality betterment	Economic benefit of reduction of stormwater to be treated in public sewerage system	Temperature reduction (cooling)

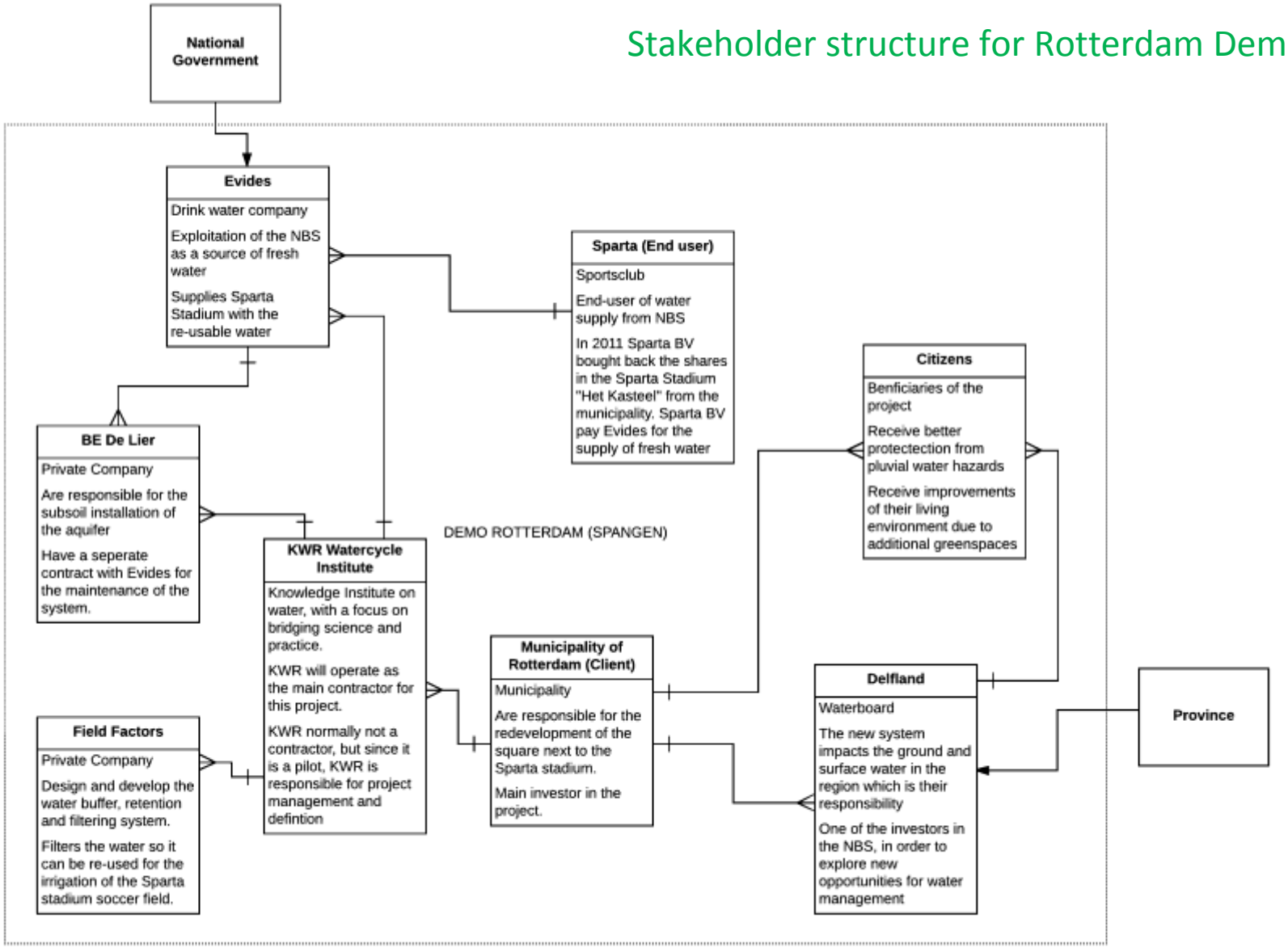
DEMO Rotterdam

Resilient Cities 2018

- From singular approach to finance water management towards an integral investment case for multiple stakeholders and partnerships (public + private)
- Make explicit the ‘co-benefits’ for each stakeholder and partnerships to tailor new business cases

Demo Rotterdam

Stakeholder structure for Rotterdam Demo



DEMO Łódź

Urban flooding

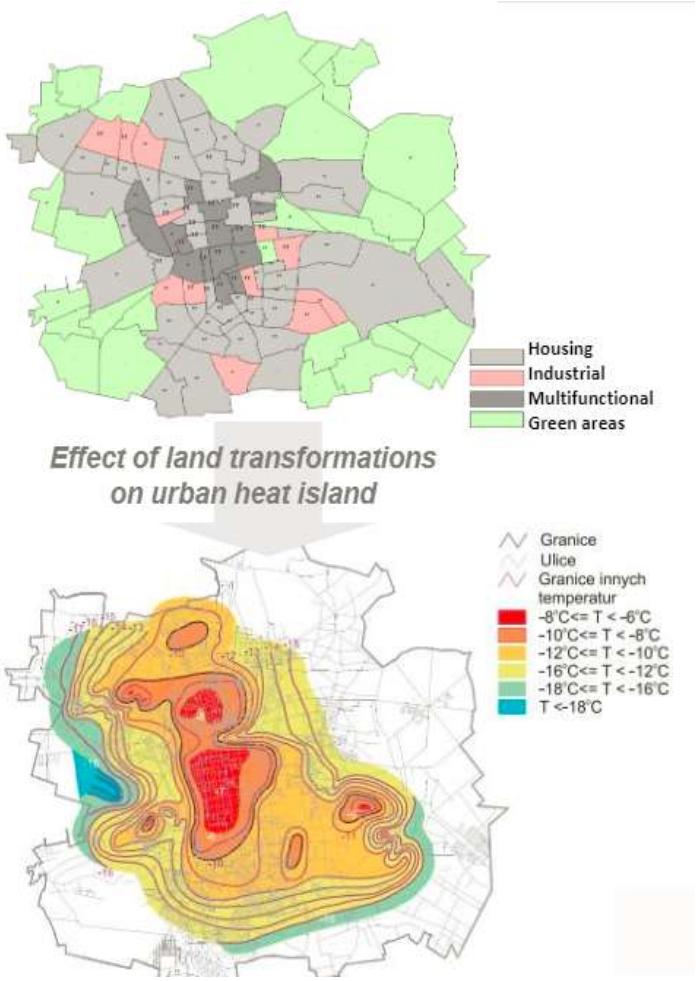
Urban drought

Water quality and health issue a big problem

DEMO Łódź

Defining and operationalizing natural capital of 18 rivers of Lodz and restore ESS

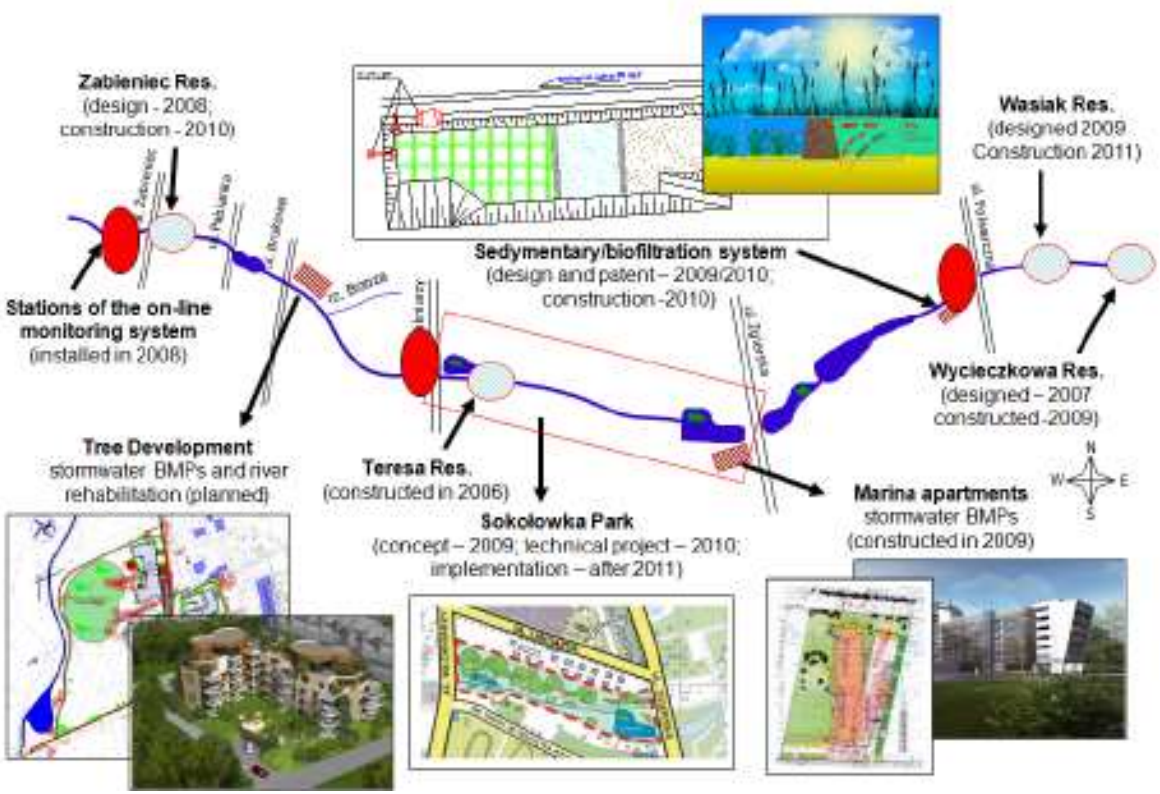
Pluvial flooding and green areas



Heat island effect and green areas

DEMO Łódź

Restoration of ESS in the Sokolówka river valley



Source: SWITCH project

Pluvial flooding and green areas

Heat island effect and green areas

DEMO Łódź

The general legal framework for recognizing co-benefits of NBS in the area of water sustainability is from (1) Plans of Urban Adaptation to Climate Change and the (2) new Water Law.

Climate Change Urban Adaptation Plans (ongoing) – refer to cities with more than 100,000 inhabitants in Poland, they define vulnerable sectors and link them to exposure to hazards, and provide a basis for local regulations
The action involves several projects analysing the local conditions, people preferences for blue-green spaces, options for mitigation of carbon and water footprint.

2. Water Law – the first time ever imposes the fees for release of rain water into the stormwater system, and indicates the importance of local infiltration.

DEMO Łódź

Establishing Learning Alliance as a platform for developing city vision & water strategy

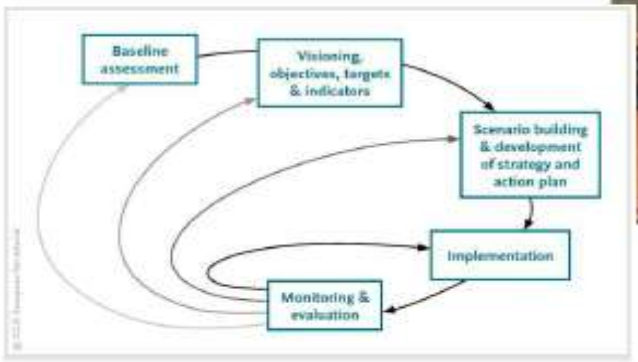
Partners and LA members involved

The Lodz Learning Alliance (LA) was launched in May 2006. The group of members is constantly growing and the LA has now a wide representation of stakeholders from the national, regional and local levels. The key partners on the City level are:

Authorities:
- City of Lodz Office
- Lodz Infrastructure Company (LSI)

Researchers:
- University of Lodz
- European Regional Centre for Ecohydrology u/a of UNESCO, PAS
- Lodz Technical University: Department of Environmental Engineering
- Nofer Institute of Occupational Medicine in Lodz

Service Providers:
- Waterworks and Sewage Systems Company (ZWiK)
- Waste Water Treatment Plant (GOS)



Engagement for resilience
Brokering new partnerships & stimulating private sector

NAIAD Demo (NBS)	Main public / private partnerships
Rotterdam (Urban Water Buffer)	**Public**: Municipality of Rotterdam, Delfland Water Board **Private**: water utility company, companies that design, install and maintain NBS Urban Buffer components, end user (football stadion)
Copenhagen (Green / Blue infrastructure)	**Public**: Municipality of Copenhagen, Greater Copenhagen Region **Private**: water utility companies, real estate financing companies that support NBS projects, foundations for financing CCA projects, home owners
Lodz (River Restauration / Green / Blue infrastructure)	**Public**: City of Lodz, Lodz infrastructure, knowledge providers (universities etc.), NGO's **Private**: water utility companies, insurance companies, brokers, asset managers