Nature-based solutions to climate change mitigation and adaptation in urban areas - indicators of success, barriers and opportunities

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The story

- Preparatory workshop Island of Vilm, March 2015
- Review on NbS in BioClim (BfN)
- Previous and ongoing work in URBES (BiodivERsA) and GREEN SURGE (FP7)
- Conference on Nature-based Solutions (NbS) - Today!
Preparatory Workshop BfN, Island of Vilm

• 34 participants from seven European countries

• Three days intensive discussion on Nature-based solutions in urban areas and their rural surroundings concerning:
  ➢ case studies
  ➢ indicators
  ➢ barriers & opportunities to action
Knowledge gaps

- Effectiveness of NbS
- NbS & society relations
- Implementation
- Design of NbS
Indicators of NbS effectiveness

Integrated environmental performance

Health and well-being

Transferability and monitoring

Citizen’s involvement

Three main needs derived from the workshop discussion

1. Produce evidence of NbS for climate change adaptation and mitigation

2. Adapt for governance challenges in implementing NbS

3. Consider socio-environmental justice and social cohesion when implementing NbS
A bundle of factors need to be considered when implementing climate adaptation and mitigation measures through green roofs and walls: geographic location, building characteristics, energy use, plant species and precipitation properties.

NbS through green roofs and walls are multi-purpose, multi-functional and multi-beneficial: provide habitats, retain stormwater (thus, reduce run-off), improve air quality, store CO$_2$, contribute to natural cooling and heating of the building (thus, enhance energy efficiency), provide space for urban agriculture and recreation, increase the aesthetic value of building.

Kabisch, N., Bonn., Stadler, J., Korn. (in prep). *BfN Skripten*
2. Adapt for governance challenges in implementing NbS

Thierfelder, H., Kabisch, N. (in press) Env Science and Policy,
3. Consider socio-environmental justice and social cohesion when implementing NbS

- Living close to an urban green space was found to have a number of positive effects such as improvement of perceived general health, promotion of physical activity, social interaction,….

- Access to green spaces is particularly important for children and their cognitive development influencing their future health and environmental awareness.

- NbS may not always be beneficial for all population groups in the same way.

- Urban greening projects can set off rounds of gentrification.

3. Consider socio-environmental justice and social cohesion when implementing NbS

Share of population with access to urban green (≥2 ha within 500m) as an indicator for socio-environmental justice.

3. Consider socio-environmental justice and social cohesion when implementing NbS

Green Gentrification

- Implementing NbS through green & blue projects can alter housing opportunities for low income households completely and set off rounds of gentrification.
- “green paradox” (Wolch et al., 2014), eco gentrification (Haffner, 2015; Patrick 2011), ecological gentrification (Dooling, 2009) or environmental gentrification (Checker 2011)
- Cases from Seattle, New York, Seoul, etc.

Thank you for the attention – enjoy the conference!

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