WATERWORKS 2017 RDI FUNDED PROJECTS BOOKLET
Project: Research-based Assessment of Integrated approaches to Nature-based SOLUTIONS
Acronym: RainSolutions
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Project structure (WPs description):

WP1. Building on existing knowledge to support Themes 1.1, 1.2, 2.1, 2.2 and 2.4 (led by UT; supported by all partners, except TYPSA for theme 2.1). Starting from the current state-of-the art of NBS in urban areas, this WP intends to explore existing successful implementations of the key nature-based technologies and challenges of their implementation, and investigate stakeholder and end user's attitude to adopt the NBS, as a way to identify catalysers, but also the main barriers such as costs, which were limiting the installation in urban areas. The WP will assess previous projects concerning social inclusion through NBS, and assess existing guidelines for planning and design of the different cost-effective solutions, as well as the potential for their transferability and training.

WP2. Improving landscape, environmental and water quality aspects of urban water resources to support Themes 1.1 and 1.2 (led by DDNI; supported by WUR, VESI, UJ and ULUND). This WP is concerned with NBS for integrated and ecologically coherent urban landscape planning. The main task is to identify appropriate up-to-date indicators for evaluation of ecosystem services of key NBS implementation. Ecological characteristics of the sites will be assessed and a review of knowledge about ecosystem restoration in urban water as well as their success and failure from the ecosystem point of view will be performed. Connectivity between existing, modified and new ecosystems as well as restored and rehabilitated ecosystems will be the focus. Indicators to measure the positive impacts of the selected blue-green solutions on the urban ecosystems will be identified, and will include water purification, water supply, habitat improvement, aquatic flora and fauna enhancement, microclimate regulation, food and organic matter production, waste disposal, as well as the improvement of green and blue corridors.

WP3. Increasing urban resilience to climate pressures to support Themes 1.1 and 1.2 (led by WUR; supported by UIT, UP and ULUND). This WP integrates the multiple function of NBS to enhance urban resilience towards climate change and potential water resource depletion. A geo-spatial and temporal model will be built to support interactive, participatory planning of NBS for mitigating multiple climate-change hazards including flood, drought and combined sewer overflows in cities. Moreover, building on WP2, knowledge gaps for matching urban storm water supply and potential demand by urban ecosystem services based on water quality as well as both spatial and temporal quantity will be identified and reflected through a participatory approach with multiple related urban actors. The water quality degradation over transportation will be integrated to the model to ensure the safe re-use for urban ecosystem services. New insight into the scientific process such as the use of NBS for mitigating flood and combined sewer overflows, the minimisation of water quality degradation during transportation and quality-oriented non-portable water reuse within the city will be addressed via geo-spatial modelling and validated via field monitoring.
WP4. Legal and institutional arrangements to sustain NBS for social inclusion to support Themes 2.1, 2.2 and 2.4 (led by UIT; supported by all partners, except WUR and TYPSA for theme 2.1). The main task is to identify up-to-date indicators for the evaluation of the societal benefits of NBS particularly in socio-economic challenging neighbourhoods. Indicators will mainly be concerned with the planning stage and may include community acceptance and increased amenity as a surrogate measure of increased community well-being. A large-scale review of existing knowledge about legal guarantee, institutional arrangement, human perception in ecosystem restoration and rehabilitation concerning NBS, their success and failure, from a viewpoint of policy development, governance and sociology will be assessed. Methods will be developed to evaluate how fair and equitable benefits from urban waters are shared between cities and peri-urban areas, between rich and poor, between development and protection and among water-related sectors and how these could be sustained. A legal framework, institutional arrangements and sociological analyses of fair and equitable allocation of benefits and responsibilities of urban restoration projects as well as their procedural aspects will be developed. Specific attention to NBS as sustainability

innovations will be paid to. RainSolutions will build societal capacity to increase the shared responsibility among people.
WP5. Integrated framework development to support Theme 3 benefitting particularly Themes 1.1 and 1.2 (led by UIT; supported by all partners, except WUR). This WP will focus on the development of the integrated framework for NBS assessment. The framework will contain a toolbox type repository of tools, methods, technologies and standards/guidelines developed in WP2-5. The aim is to customise all this to support urban planners, consultants and other stakeholders/end-users in making decisions concerning the planning and design of NBS at various scales. The central part of the framework (open access) will be a decision support type tool that will enable selection of optional intervention strategies by using multiple criteria based on wide-ranging benefits and costs identified in WP2-5. The selection of optimal solutions will be based on the multi-criteria decision analysis type methodology such as analytical hierarchy process and compromise programming thus supporting different types of stakeholder preferences. The tool will also provide support for modelling multiple scenarios of different possible futures and will enable identifying the robust and resilient solutions for the prevention of further degradation, rehabilitation and maintenance of urban and peri-urban ecosystems and the related ecological coherence and integrity of cities.
WP6. Framework application to selected case studies to support all selected themes (led by case study leaders (see section 2.1.7) but VESI takes the overall responsibility). This WP assesses the potential of NBS implementation for restoration and rehabilitation of urban ecosystems. This will be done by using the framework developed in WP6. The WP lead will develop a testing protocol to ensure that similar information will be collected from all case sites.
WP7. Dissemination, stakeholder engagement and communication to support all selected themes (led by ULUND; supported all partners). This WP deals with dissemination, awareness raising and outreach activities including participatory approaches from all stakeholders and education of citizens about the benefits of nature for their social, economic and cultural well-being.

WP8. Project management and coordination to support all selected themes (led by ULUND). ULUND, UIT, WUR and DDNI form a Project Coordination Group, which will have collective responsibility concerning strategic issues of the consortium including work package definition and distribution, budget and task allocations, cooperation and communication within and outside the consortium as well as project output and deliverables.
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