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34. Research-based Assessment of Integrated approaches to Nature-based SOLUTIONS (RAINSOLUTIONS)

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RainSolutions assesses innovative *nature-based solutions* (NBS) for the sustainable management of nature, addressing a combination of societal challenges such as *climate change, water security, water pollution, human well-being and risk management*. With specific focus on drought alleviation (water supply and management), different relevant NBS products and technologies such as sustainable flood retention basins, integrated constructed wetlands as well as rainwater harvesting and reuse techniques will be evaluated.

RainSolutions aims to develop an integrated framework of methodologies to assess NBS for the restoration and rehabilitation of urban water resources systems.

The objectives are as follows:

a. to identify stakeholder and urban ecosystem needs to inform planning/design;

b. to review and capitalize upon existing experiences of good practices;

c. to simulate the impact of climate variability and existing urban infrastructure on NBS within scaled pilot laboratory and field installations;

d. to develop an integrated indicator system for the evaluation of key NBS in terms of closing the water quantity and quality gap addressing also socio-economic aspects such as well-being and costs;

e. to map ecosystem services delivered by NBS for an evaluation of the best technology to implement in different urban contexts to support sustainable water management;

f. to create a NBS planning and design framework supported by machine learning to generate recommendations addressing challenges associated with climate resilience and well-being in urban areas

g. to disseminate the self-sustainable web-based framework in collaboration with national stakeholders fostering the transfer of NBS knowledge and communicate the project impact. The project consortium consists of the following partners: Lund University; University of Johannesburg (UJ); University of Pretoria (UP); VESI

Environmental (VESI); Federal University of Technology (UTFPA); Oslo Metropolitan University); Wageningen University (WUR); Técnica y Proyectos S.A. (TYPSA); University of Tartu (UT);Danube Delta National Institute for Research and Development (DDNI).

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