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UN 2023 Water Conference Side Event

Nature Based Solutions for Sustainable Riverine Systems

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Organized by:

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Background on the event

Water-related disasters like floods and droughts are among the most frequently occurring natural disaster events. The occurrence of these disasters is expected to increase with a changing climate. Besides such water quantity related disasters, many locations worldwide suffer from increasing problems with water quality, especially in Deltaic areas. 'Nature Based Solutions' (NBS) are increasingly seen as a promising approach to solve such complex and interrelated problems. Although the NBS concept is enthusiastically embraced by e.g. policy makers, water managers, NGO's, industry and scientist, the applications of NBSs are still limited, and usually on a small scale. There are still important knowledge gaps in NBS's performance in risk reduction, as well as in their impact on the (social) environment.

In this on-line meeting we have presented four examples of local riverine cases (the Netherlands, Bangladesh, Indonesia and Australia) and shared experiences and insights on current issues regarding river management, and the potential of NBS for a sustainable riverine area.

Water Action Agenda

Nature Based Solutions (NBS) provide many important ecosystem services. Conservation and restoration of nature is important for future availability of sufficient freshwater and water of good quality for humans and nature. NBS contribute to a more sustainable society.

Four cases

Room for the River project ‘Polder Noordwaard’ (the Netherlands)

To protect the city of Dutch city of Dordrecht against flooding during extreme water levels in River Rhine, part of the upstream dike has been lowered so that the polder behind it can be used as additional flow area during extreme water discharge. The houses, farms and roads in the de-poldered area have been raised to protect people, buildings and livestock. Farmers receive compensation for the times that their land is used as a side channel to protect the nearby city of Dordrecht.

Tidal River Management (Bangladesh)

Tidal River Management (TRM), practiced in the South-West coastal areas of Bangladesh, is the process of temporarily inundating floodplains through periodic opening and closing of polders for accelerating land accretion or reclamation. This approach serves two main purposes: reducing waterlogging and drainage congestion, and increasing the navigability of adjacent rivers. The TRM approach helps elevating the flood plain area by 1–3 m through natural siltation process within 3–5 years and hence, this is an effective strategy to solve permanent waterlogging in the floodplain and siltation of riverbeds. TRM represents a departure from a sole focus on maximising agricultural development through engineered flood protection and land improvement to a more comprehensive approach that recognises the complex interplay of natural and anthropogenic forces and the importance of local knowledge and engagement.

The Bengawan Solo Watershed (Indonesia)

The Bengawan Solo is the longest river on the island of Java, Indonesia, with a length of 548.53 km and crosses two provinces, namely Central Java and East Java. This watershed has an area of 1,610,000 ha which is a flat to mountainous area with a sloping and steep topography. During the dry season, the Bengawan Solo Watershed often experiences drought and seawater intrusion problems, whereas during the rainy season several districts often experience floods which result in loss of property and human lives. Various research including ecosystem-based climate change adaptation efforts have been carried out to reduce the impact of climate change in the Watershed.

Case: Restoration of Seagrass Ecosystem Services in Shark Bay (Australia)

This is an ongoing initiative in Western Australia aimed at restoring seagrass meadows in Shark Bay, which is a UNESCO World Heritage site and home to the largest seagrass meadows in the world. The project involves replanting seagrass meadows that have been lost due to a marine heatwave event and monitoring the success of the restoration efforts. The project also includes research into the economic value of seagrass meadows for carbon sequestration and fisheries.

Key recommendations for action

- Try to combine multiple functions when implementing NBS
- Learn from examples
- NBS can release pressures on the water system
- Implementation of NBS is more successful when the initiative comes from local people
- Long-term efficacy requires sequential planning
- Pay attention to differences in individual and collective interest
- While NbS promise more environmentally sustainable society, it doesn't automatically make for a more socially sustainable society. That's why a fundamental dialogue to understand stakeholder needs and concerns is of the essence.