



Sponge City Green Infrastructure: Nature Based Solutions for Climate Resilience

9 November 2021, Tuesday
4-5:30 p.m. Manila Time (GMT+8)
Zoom



Nature-based solutions (NbS) to improve climate resilience have been rediscovered and universally promoted and identified as essential moving forward on climate action, as in the UNFCCC's 2020 annual report. ADB has been supporting NbS and green capital development in various countries. The seminar provided basics on NbS as green infrastructure to improve resilience to urban flooding, heat waves, dry periods and desertification.

Professor Herbert Dreiseitl presented principles and international cases with lessons, supplemented by cases from the PRC's Sponge City program and guidelines promoting NbS nationwide to increase stormwater retention, infiltrate or reuse captured water resources, reduce urban runoff and increase flow

capacity of rivers reducing flood risk. John Matthews delivered a report from Glasgow on global climate policy related to NbS. The seminar shared evidence to overcome reservation and inertia challenges still prioritizing gray over green infrastructure by leaders, engineers and contractors.

We need system thinking to make resilience and water solutions a main strategic plan for a city to survive and be more resilient in the future.

HERBERT DREISEITL
Founder of Atelier Dreiseitl (Ramboll Studio Dreiseitl)
and the Liveable Cities Lab (Ramboll)

SPEAKERS



HERBERT DREISEITL

Founder of Atelier Dreiseitl (Ramboll Studio Dreiseitl) and the Liveable Cities Lab (Ramboll), Visiting Professor at NUS Singapore, Harvard GSD, Rapperswil



SONIA CHAND SANDHU

Principal Evaluation Specialist, ADB



JOHN MATTHEWS

Executive Director, Alliance for Global Water Adaptation (AGWA)



HINAKO MARUYAMA

Senior Urban Development Specialist, ADB



CHARLES RODGERS

Senior Advisor for Climate Change Adaptation, Consultant, ADB



NENGSHI ZHENG

Landscape Architect and Water Engineer, Consultant

RAPPOREUR



KARMA YANGZOM

Principal Environment Specialist, SDCC, ADB

MODERATOR



STEFAN RAU

Senior Urban Development Specialist, ADB

KEY MESSAGES

- Managing water through sponge cities can transform urban environments and play a critical role in addressing threats to cities such as climate change related hazards like flooding, water scarcity, urban heat island effect, and water pollution.
- Recent findings from the IPCC and discussions at COP26 in Glasgow demonstrate that climate change is already apparent, especially in Asia and the Pacific, with record temperatures and many disasters in recent years
- Sponge cities, and more generally nature-based solutions (NbS) can be transformative adaptation actions for managing water-related climate risks and the local water cycle contributing substantially to climate resilience.
- Sponge city is a concept primarily used in the People's Republic of China (PRC) with that name. It takes its roots in concepts developed around the world like low-impact design, water-sensitive design, among others. It applies green infrastructure and functionally designed green spaces into a system and network of blue-green infrastructure to manage rainwater and stormwater reducing urban runoff and increasing natural infiltration and retention and detention. This reduces the amount and speed of flood water and also cleanses stormwater before it goes into rivers.
- Examples of sponge cities and NbS delivered around the world demonstrate the significance of the many additional co-benefits for the environment and people, such as public green space for community activities, recreation, exercise, health, learning and as habitat for plant and animal biodiversity. They generate “win-win” and significant economic benefits at reasonable cost compared with gray infrastructure investments.
- Examples include projects supported by ADB and by the government of the PRC under a pilot program that supported 30 cities in the PRC since 2015, demonstrating the wide range of solutions and benefits that come with implementing sponge cities.
- Lessons show that sponge cities green infrastructure should be systemically planned, covering the entire reach of a city and be integrated with gray infrastructure systems in urban areas and always be considered and planned across disciplines and sectors. To be effective they require a systems approach that breaks down silos and brings together urban planning and design, environmental management, protection and monitoring, water resource and flood risk management, transport planning and management, public health, and others. Integrated asset management is an important aspect to ensure operations and maintenance is done sustainably as this kind of infrastructure requires different knowledge and skills.

- A recent evaluation undertaken by ADB's Independent Evaluation Department emphasized the importance of shifting infrastructure investment beyond a 'grey' infrastructure mindset towards achieving greater transformation through NbS and hybrid solutions of gray and green infrastructure integration.
- However there is still an acceptance challenge among leaders, experts, engineers about green infrastructure and gray infrastructure is also still part of an institutional and commercial system with engineering handbooks, methods of calculation of functions and a lot of inertia on regulations, roles and responsibilities and contractor experience and practices that needs to be overcome promoting NbS.
- Capacity building, stakeholder consultation, and awareness-raising for government leaders and officials, experts and engineers, local communities and residents is required to build ownership and ensure that solutions are sustainable in the long term. Delivering nature based solutions requires a change of mindset.

FURTHER INFORMATION

ADB. 2021. Creating Livable Asian Cities (Chapter 5E). <https://www.adb.org/publications/creating-livable-asian-cities>

ADB. 2021. Bridge to Future Livable Cities and City Clusters in the People's Republic of China: Policy Opportunities for High-Quality Urban Development <https://www.adb.org/publications/livable-cities-peoples-republic-china>

ADB. 2021. Sponge Cities in the People's Republic of China - Evolution of ADB Support. <https://events.development.asia/materials/20210715/sponge-cities-people-s-republic-china-evolution-adb-support>

ADB People's Republic of China Jiangxi Pingxiang Integrated Rural-Urban Infrastructure Development Project. <https://www.adb.org/projects/47030-002/main>

ADB Jilin Yanji Low-Carbon Climate-Resilient Healthy City Project. <https://www.adb.org/projects/50322-002/main>