ADB

The Nature Conservancy

MONASH University

MONASH SUSTAINABLE DEVELOPMENT INSTITUTE

Water Sensitive Cities Australia

NATURE AND CLIMATE NEXUS

Nature-Based Solutions for Urban and Rural Landscapes

17–19 September 2024

TRAINING PROCEEDINGS AND SUMMARY

CONTENTS

I. INTRODUCTION AND RATIONALE

Development projects in urban and rural communities are largely focused on traditional gray infrastructure, such as seawalls, dams, and water treatment plants, especially in Asia and the Pacific.

Nature-based solutions (NBS) provide an improved approach to infrastructure development. They consider ecological services and value biodiversity's benefits. Integrating NBS in infrastructure projects can shift development from purely gray infrastructure toward nature-positive investments. NBS can help reduce disaster risks, increase water and food security, protect and restore biodiversity, minimize pollution, improve cost-effectiveness, and contribute to carbon sequestration, among other advantages.

The Asian Development Bank (ADB), The Nature Conservancy (TNC), and Monash University organized a hybrid public lecture series and internal project design clinic called Nature and Climate Nexus: Nature-Based Solutions for Urban and Rural Landscapes from 17–19 September 2024. This knowledge event and capacity building training shared best practices and how NBS can be further integrated into ADB investments, particularly in urban and rural development projects. This event also aimed to improve projects with NBS components and help advance ADB's role as the climate bank of Asia and the Pacific, enhancing climate and nature resilience across the region. To ensure active participation from the participants, the event employed hands-on activities with the use of Mentimeter's interactive surveys, quizzes, and group work (clinic sessions) as well as pre- and post-clinic sessions to engage and support the participating project teams.

ADB staff from Armenia, Bangladesh, the People's Republic of China (PRC), and Thailand attended the in-depth training design clinic and developed action plans with NBS investment options for their respective projects. This event was organized by the ADB Environment Group as one of the activities under the NBS working group of the Environment Community of Practice with support from the Budget, Personnel, and Management Systems Department and in collaboration with the Water and Urban Development Sector Group and the Agriculture, Food, Nature, and Rural Development Sector Office through the One ADB approach. This is part of the Nature and Climate Lecture Series that started in 2022 for enhancing knowledge and capacities on NBS for tackling climate change, building disaster resilience, and enhancing environmental sustainability.

Nature and Climate Nexus: Nature-Based Solutions for Urban and Rural Landscapes in Development Asia

September 2024

The Nature and Climate Nexus: Nature-Based Solutions for Urban and Rural Landscapes lecture series and in-depth clinics received the highest engagement among event posts on Development Asia (DevAsia) in September 2024. For more information and access to event materials and recordings, please visit DevAsia Nature-Based Solutions Data Room and ADB Knowledge Events. DevAsia is ADB's knowledge collaboration platform for sharing development experience and expertise, best practices, and technology relevant to the Sustainable Development Goals. DevAsia also provides opportunities to interact with experts, policymakers, and other practitioners in related fields. It aims to share development knowledge generated from ADB events with the international development community and the public

II. EXPECTED OUTCOMES AND OUTPUTS

The following are the expected learning outcomes and outputs:

- Improved understanding on what NBS is and how they can help address societal development challenges whilst generating co-benefits for people and nature
  - » Identified barriers to designing and implementing NBS investments that integrate upstream, midstream, and downstream options in a way that supports mainstreaming and upscaling
- Enhanced skills in applying NBS components from theory to practice
  - » Action plans prepared with prioritized package of NBS that can be implemented at the scale needed to deliver measurable results, as well as associated governance and funding packages
- Increase capacities in creating and evaluating NBS for implementation
  - » Designed approaches and tools to undertake a prefeasibility or feasibility studies for NBS components of a project, including measure of potential co-benefits

III. NATURE-BASED SOLUTIONS FOR URBAN AND RURAL LANDSCAPES

NBS Lecture Sessions (17-19 September 2024 • 9:00 am – 12:30 pm Manila time)

Key Messages and Takeaways

Yoko Watanabe, Director, Environment, Climate Change, Resilience, and Environment (CCRE), Climate Change and Sustainable Development Department (CCSD), ADB gave the welcome and opening remarks. The following are the key messages:

- NBS is placed at the core of our business, which is aligned to ADB's policy. The Environmental Action Plan that is being developed renews commitment to strengthen the scope and scale of ADB's work on environment. This has three pillars as a response to the triple planetary crisis on biodiversity loss, pollution, and climate change. These pillars are focusing on biodiversity and ecosystem management, air quality and circular economy, and nature-based climate solutions.
- There is an opportunity to leverage NBS both at economic and climate angles. Nature is the base of our economy in Asia and Pacific, which half of the annual gross domestic product is dependent on. Without NBS, conserving nature, and sustainably using resources (e.g., forests, fisheries, other ecosystems), the future of the region would be in peril as degradation lands, forests, and oceans are key elements of climate change.

Brooke Atwell, Associate Director (Resilient Watersheds), TNC, served as the main facilitator and provided the training overview, objectives, and expectations. Overall, the training presentations, discussions and interactive surveys emphasized the critical role of NBS in sustainable development and the importance of collaborative efforts to scale up these solutions. The discussions provided valuable insights into the practical challenges and opportunities associated with implementing NBS. The following are the key takeaways:

- **NBS is crucial** for addressing biodiversity loss, pollution, and climate change. They offer sustainable ways to manage ecosystems and provide multiple co-benefits, including water security, job creation, and improved human well-being.
- **Successful NBS implementation** requires collaboration among various stakeholders, including governments, NGOs, local communities, and the private sector. Cross-sectoral partnerships and integrated planning are also essential for scaling up NBS.
- **Common challenges** include lack of coordination, funding, and stakeholder engagement. **Potential solutions** involve using scientific data for decision-making, engaging local communities, and ensuring long-term maintenance and monitoring.

Case Study Examples

Various case studies from differen countries (e.g., Australia, Brazil, the PRC, South Africa, United Kingdom, and the United States) highlighted the diverse applications and benefits of NBS. Each case study demonstrated unique approaches to addressing local environmental challenges through NBS.

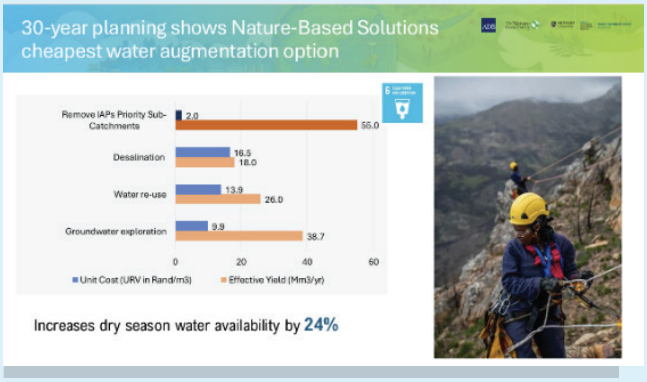
Lyndon DeSalvo, Urban Conservation Program Manager of TNC, presented urban case studies from the United States. These include:

- Green City, Clean Waters Plan (Philadelphia, Pennsylvania)
- Southbridge Wilmington Wetlands Park (Wilmington, Delaware)
- Sweetwater Wetlands (Tucson, Arizona)
- Aurora Bridge Bioswales (Seattle, Washington)

In the United States, stormwater management is often the impetus for urban NBS projects; however, these projects can offer many co-benefits to local communities and can be designed intentionally as multi-benefit projects for people and nature. Case studies highlighted the ability of NBS to manage stormwater, reduce flood risk, enhance recreation, increase water supply, and improve aquatic habitat and species restoration efforts.

In-depth case studies included the **Greater Cape Town Water Fund**, a project focusing on invasive species removal to improve water supply. The following are the key highlights:

- **Water demand management** strategies to improve water supply included wastewater reuse, seawater desalination, and deep aquifer drilling, but **invasive species** like pine and eucalyptus continued to significantly reduce surface and groundwater flows.
- **Implementation challenges** included inconsistent government funding and fragmented implementation efforts. Issues with maintaining cleared areas and prioritizing high-impact zones for invasive species removal remained a challenge.

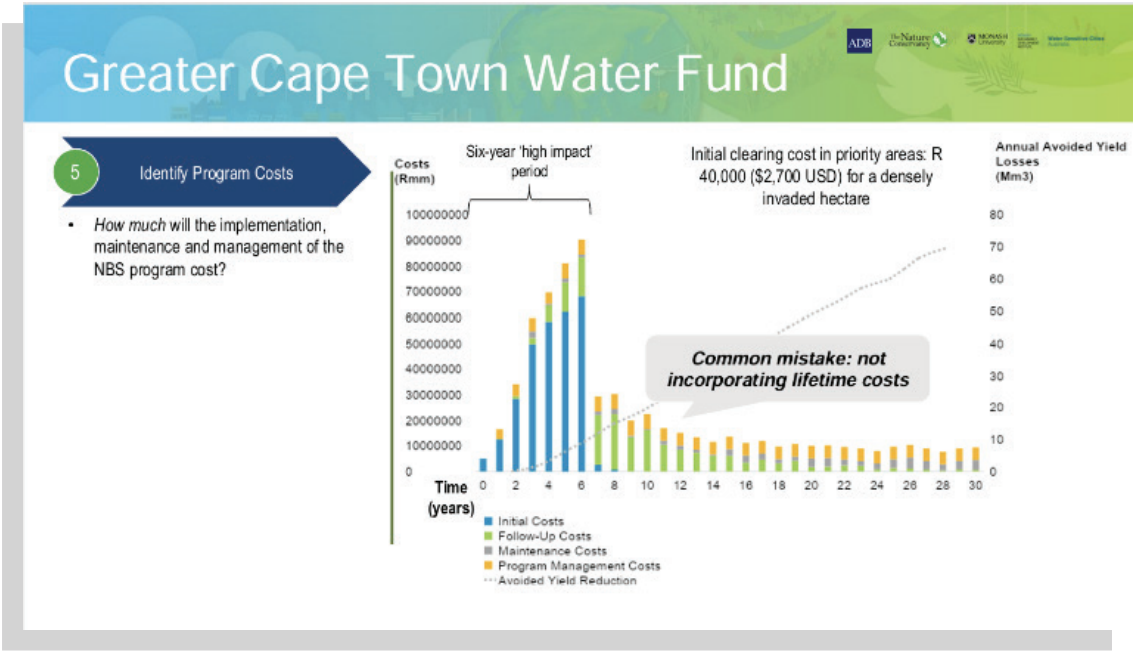


- **A 30-year planning and modeling exercise** was conducted to compare the costs and benefits of NBS against other interventions. Analysis showed that invasive species removal is **cost-effective** and critical for water security compared with gray infrastructure, and could provide even more replenishment than most grey infrastructure options if delivered at scale.
- **Community and Gender Equity Program** was included in the project to increase women's involvement in invasive species removal. **Green jobs** creation and local **community involvement** were highlighted as significant **co-benefits.**
- **Online decision support system** was implemented to coordinate investment decisions and monitor implementation.
- **Governance and coordination** in mobilizing support with various stakeholders for successful implementation.
- **Technical and financial feasibility** with detailed cost-benefit analysis and sensitivity testing to ensure the financial viability of NBS projects.
- **Broader economic and social benefits**, including job creation, gender equity, and improved water security.
- **Changing public perception** and concerns about tree removal through awareness campaigns linking invasive species to water scarcity.

Return of Investments Evaluation for Nature-Based Solutions

Erik Spiro-Larrea, Senior Engagement Manager (Nature for Water Facility), TNC, led the lecture session on Return on Investment Evaluation (ROI) for NBS and used the Greater Cape Town Water Fund project as a test case. Highlights include:

- Economic analysis is often important for motivating stakeholders, and prioritizing between different types of NBS and benefits which help determine bankability of projects.
- An ROI helps compare costs and benefits for a specific project, and how do these materialize over time. This is useful for a specific audience when considering the internal rate of return.
- In the case of the Greater Cape Town Water Fund project, the ROI helped determine the cost of operations against avoided water yield losses.

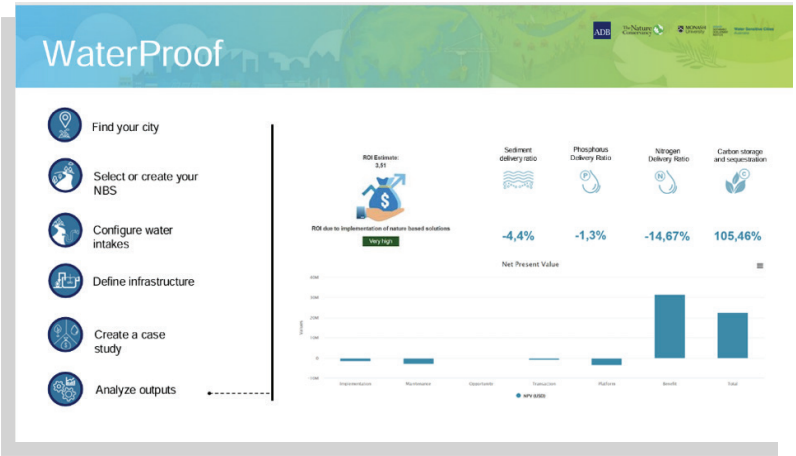


Ben Furmage, Chief Executive Officer, Water Sensitive Cities Australia, presented the NBS Cost Benefit Analysis (CBA) from an urban point of view and used Resilient Urban Centers and Surrounds (RUCaS) as a test case, particularly the Rayong Cool Green Central Business District (CBD) of Thailand. Highlights include:

- The Rayong CBD was concerned with regular flooding and poor water quality water quality largely due to a combined system that was not sufficient to deal with the volume of water and waste. The district also suffers from radiant heat from very high temperatures.
- The proposed NBS were multipurpose: to detain water and provide cooling. These NBS also provide more benefits through network of economies.
- CBA helps determine sequencing NBS that provides quick wins at lower costs and risks and create learning opportunities for replication and upscaling. CBA can also assess the distribution of benefits and costs to stakeholders which could help determine the right mix of tariffs, taxes, and transfers.

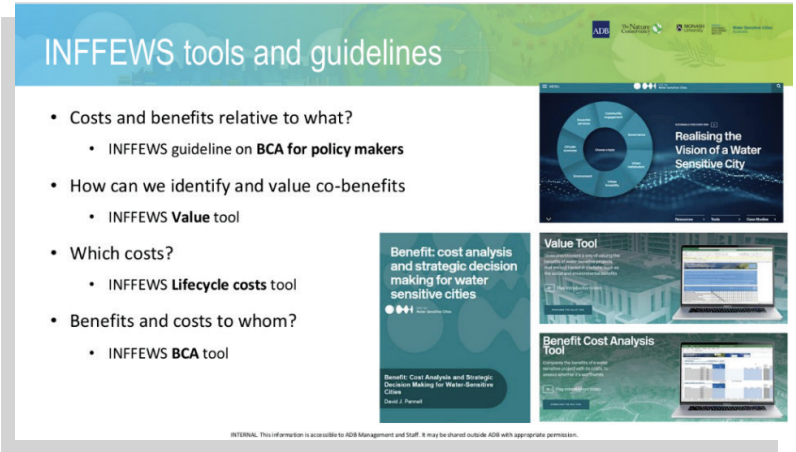
In addition, several tools were shared in conducting NBS ROI and CBA:

WaterProof is an online open access Hydrologic modeling platform developed by TNC with the following features:



- Includes global data sets such as land cover, land use, and climate.
- Runs standard ecosystem benefit models that utilizes InVEST and RIOS.
- Includes drag-and-drop features to create various scenarios.
- Uses customizable functions to deliver high-level investment option figures.

INFFEWS (Investment Framework for Economics of Water Sensitive Cities) provides a strategic CBA overview with supporting tools to help with:



- Problem definition
- Option identification and evaluation
- Valuation of direct and indirect benefits and costs
- Distribution of costs and benefits between stakeholders

In-depth Clinics and Concluding Session

NBS in-depth clinic sessions (17–18 September 2024 • 2:00–5:00 p.m. Manila time)

Four in-depth clinics were conducted for ADB projects in Armenia, Bangladesh, Thailand, and the PRC and focused on urban and rural development, water management, and climate resilience. Each project had specific challenges such as flooding, water quality, biodiversity, and community engagement. The following are highlights of each project:

Armenia: Yerevan Urban Development Investment Project

- Rehabilitation of Komitas Park in Yerevan, including green infrastructure and stormwater management.
- Broader planning includes forest restoration, sustainable urban development, water quality improvements in the lake, and an active transportation network, including bike paths.
- Community engagement and park activation through educational programs and cultural events.

Bangladesh: Coastal Towns Climate Resilience Project

- Coastal town climate resilience project in 22 municipalities.
- Key interventions include institutional capacity building to inform locally driven pilots that can then be scaled up in municipal infrastructure improvements and livelihood enhancement.
- Focus on flood management from multiple sources (coastal, riverine, pluvial, etc.), waste management, and community empowerment.

PRC: Shandong Qixia Ecological Function Conservation Demonstration Project

- Addressing water scarcity, flooding, and pollution in Qixia City, Shandong Province.
- Initiatives include smart orchards with drip irrigation, mixed cropping, recycling agricultural plastic waste, restoring wetlands, and restoring river channels and riparian buffer zones.
- Emphasis on ecotourism and organic certification to boost local economy.

Thailand: Climate Adaptive Strengthening of Lower Eastern Chao Phraya River Water System Project (upcoming)

- Focus on flood management and water quality improvement in the eastern provinces of Bangkok, primarily through improvements to the irrigation network.
- Proposed interventions include dredging canals, installing water gates, and creating linear wetlands.
- Challenges include resettlement, ensuring buy-in from both local communities and key project stakeholders such as the Thai Royal Irrigation Department.

The project officers presented their respective project cases and NBS investment options on the last day of the event. This was followed by a presentation of ADB trust fund managers and discussions how to further support the projects through needed additional resources. To conclude the event the following next steps were identified:

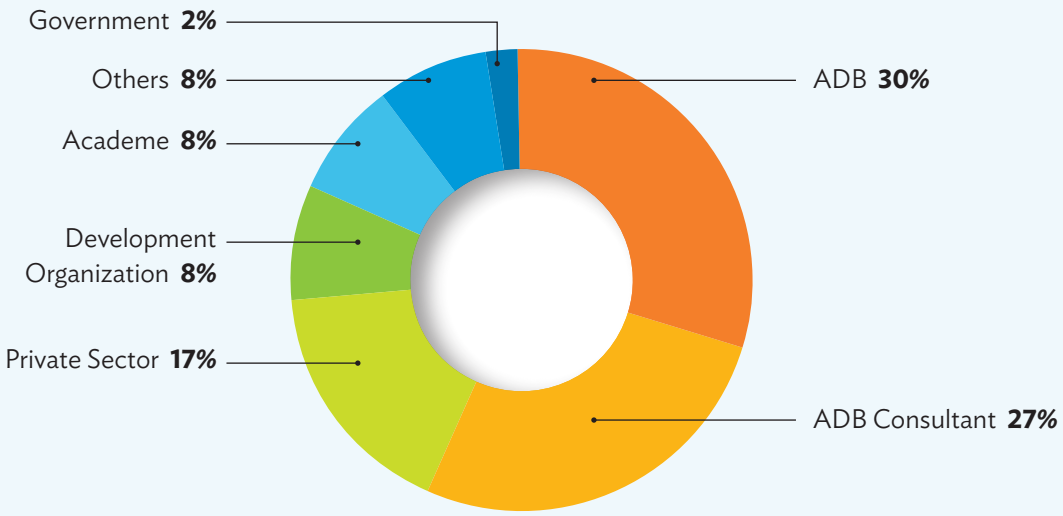
- Finalize conceptual designs and cost-benefit analyses for the incorporation of NBS into each project, in line with guidance and needs from local partners.
- Engage with stakeholders and securing funding.
- Implement pilot projects and monitoring their impact.

IV. FEEDBACK AND EVALUATION RESULTS

Profile of Attendees

There were a total of 105 attendees that joined the event onsite (28 attendees) and online (77 attendees) of which 57.5% were female. About 57% of the attendees were from ADB, and about 35% were from the private sector, academe, development organizations, and government. The remaining 8% of attendees were undefined and mostly participated online. The response rate from the online feedback form was at a modest 17%, comprising of 61% female respondents.

PROFILE OF ATTENDEES



Evaluation Results

The learning event achieved the set objectives as indicated by the 100% positive responses from participants. The following objectives were to:

- Have a better understanding of what NBS is and how they can help address critical water security challenges such as water quality, floods, or droughts.
- Develop a shared understanding regarding overall process, activities, and milestones for incorporating NBS into water management investment programs in rural and urban areas.

SUMMARY OF RESPONSES

Survey item	Too little	Sufficient	Too much
Level of detail in the information covered and provided	-	**89%**	**11%**
Total length of workshop	**6%**	**83%**	**11%**
Length of each session	-	**94%**	**6%**
Level of participation	**11%**	**83%**	**6%**
Usefulness of clinic sessions on ADB projects	-	**100% (Useful)**	-
Do you believe you will apply this training practically in your work going forward? (open question)	-	**67% (Yes)**	-

The feedback survey also included open questions on how to improve the event. The following are some excerpts:

Positive Feedback

- Expectations are met
- Overall, the sessions were interesting and interactive
- Good informative and wonderful sessions
- I really appreciate all speakers who gave their time
- The workshop was very helpful
- I received a lot of knowledge

Room for Improvements

- Including client representatives in the workshop could be more beneficial
- Add more participation and engage more audience
- Allow even more discussion and interaction time

Other topics to consider

- Funding opportunities
- More examples in developing member countries (DMCs)
- Needs identification options
- Flood control program in other countries
- What crops are suitable during dry season
- Other water management and land problems

V. LESSONS LEARNED AND RECOMMENDATIONS

The feedback received indicates great interest in engaging more audiences, particularly DMC representatives. The engagement session with ADB fund managers was particularly beneficial and the topic on other funding opportunities for NBS should be considered in future events. There is also always room for improvements with regards to audience interaction. For example, even though majority of the respondents found that the level of participation was sufficient, there were a few who found it either too little or too much. Perhaps balancing between the use of open-ended questions for discussions and Mentimeter for survey may further enhance participation and interaction. More ADB and DMC project case studies should also be included in the program design. Overall, the lecture and clinic sessions were well received.