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Reporting findings of Building with Nature expert workshop
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ACCELERATING ADAPTATION THROUGH BUILDING WITH NATURE IN ASIA



Context

Governments and donors throughout Asia are increasingly applying Building with Nature or nature-based solutions (NBS) to reduce hazards, mitigate and adapt to effects of climate change and to improve water management and limit heat stress. Examples from across the globe demonstrate that the approach is viable, yet uptake at scale is still slow. Significant challenges are being faced when starting actual implementation of these approaches. To accelerate implementation of nature-based solutions, Asian countries gathered July 2019 in Delft, the Netherlands. Government officials, global technical experts and international financing institutions brought country specific case-studies and collaboratively worked on identifying barriers and enablers. Those were collated and used to formulate a vision and a path forward. This report provides a synthesis of their main findings.



Nature-based solutions to accelerate adaptation

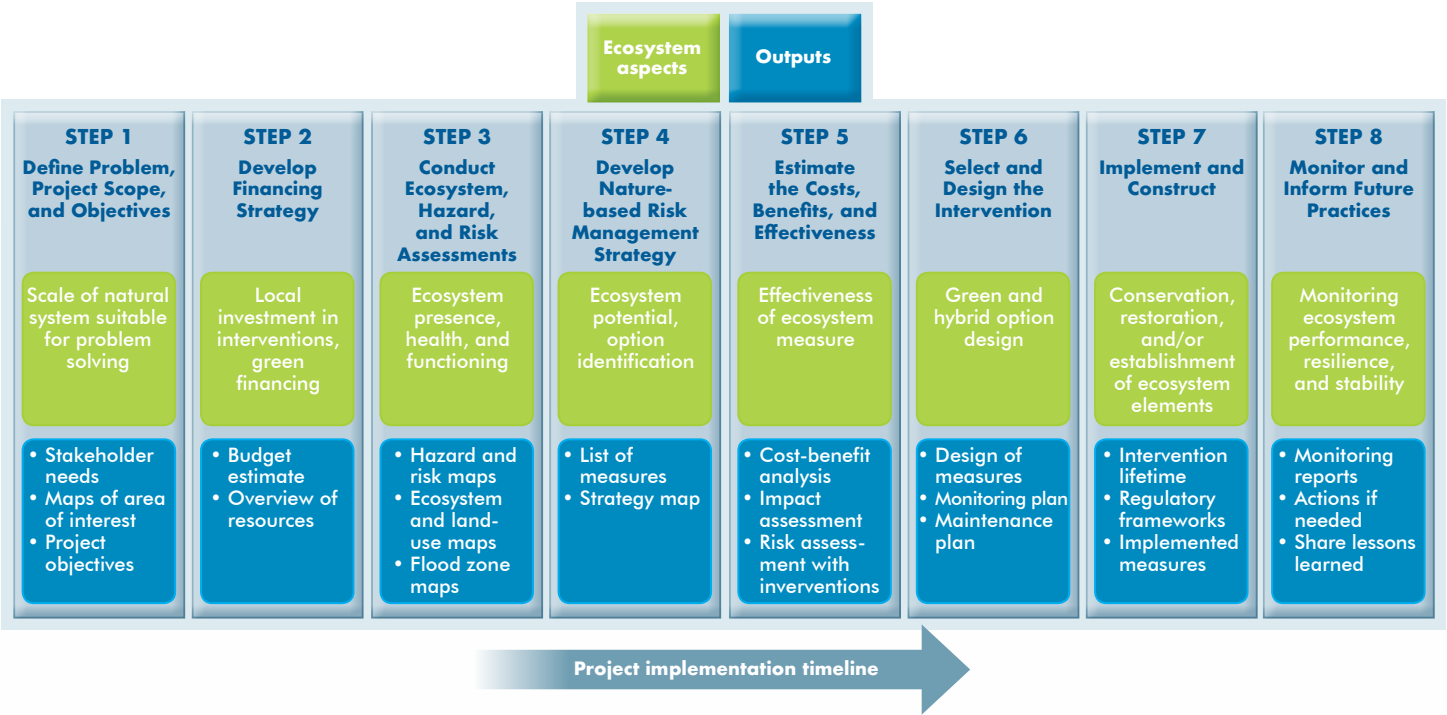
Increasing global hazards related to climate change and extreme weather, warrant an urgent need to accelerate climate change adaptation efforts. Especially in Asia, population growth and infrastructure development intensify exposure to these hazards and put pressure on environmental resources and ecosystems. Nature-based solutions can be part of the answer in helping people cope with consequences of a changing climate and extreme weather while enhancing natural values and realizing multiple other socio-economic benefits. In Asia the concept of nature-based solutions is embraced by the Indonesian government and referred to as Building with Nature (www.ecoshape.org). Building with Nature is a design philosophy that integrates the services that nature provides into civil engineering

practice. Nature-based solutions offer good alternatives for or complement traditional engineered infrastructure while striving to meet similar user requirements and safety levels. They are often considered low- or no-regret interventions, implying that adaptive management and incremental development of NBS allow for flexibility to align with long-term climate risks and development objectives. Moreover, projects are often less expensive on a life-cycle basis than traditional engineering solutions, while reflecting interests of multiple stakeholders through providing food security, livelihood development, carbon storage and biodiversity conservation. To fully embrace natural solutions and work with the power of nature cross-sectoral and interdisciplinary projects and policies are needed.

Project implementation

Currently several projects with nature-based solutions are implemented or are facing implementation across the world. Eight of these projects from across Asia were used as case study projects to identify barriers and enablers

for NBS implementation. Implementation of NBS projects should typically be done along the project steps identified between multiple partners working on nature-based solutions in 2017 (<https://www.naturebasedsolutions.org/>).



Framework for step-wise project implementation. Note that project implementation along the project steps will be an iterative process with multiple feedback loops between the steps.

Case study projects

Philippines flood risk management

The project “Philippines: Integrated Flood Risk Management Sector Project” of the Asian Development Bank, aims to reduce flood risks in six river basins throughout the Philippines. It is expected that NBS will provide sustainable and cost-effective options with multiple benefits, not only improving the flood-risk management, but also restoring ecosystems, promoting sustainable urbanization, and addressing climate change.



Philippines New Clark City

The government of the Philippines is executing an enormous city development project called “New Clark City,” on a former military base. ADB is supporting the government to conserve biodiversity and ecosystems by conducting assessment studies to inform how NBS could be integrated into the NCC Masterplan and urban design guidelines for the built infrastructure. This should result in conservation of the biodiversity, managing water resources in the basin and the city, and reducing risks of natural disasters, improving water and air quality, and providing opportunities for ecotourism. A river park with natural edges is already being conserved in the city as a buffer area, as construction moves ahead.

Malaysia Small island erosion

Over the last decade, wave erosion problems have increased for small island resorts in Malaysia. Local governments struggle to repair collapsing sea walls and damaged foundations. Innovative efforts in erosion control consist of placing collapsible concrete blocks that inhibit wave run-up during minor storms. NBS strategies using sand nourishments can play an important role to conserve esthetic, natural and touristic values of beaches.

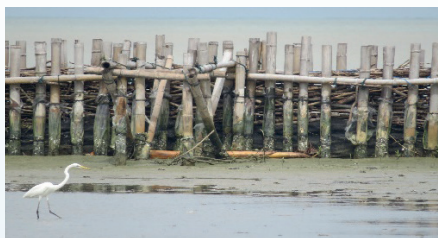
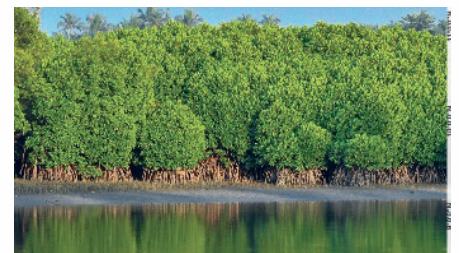


Thailand river siltation

Huai Sai Bat sub-river basin in Thailand suffers from water shortage and excessive siltation of reservoirs. Therefore, continuous dredging is required. As an alternative NBS solution a pre-reservoir with wetland was proposed. The wetland pre-reservoirs will function as sediment traps and filter water flowing downstream. They can be locally managed, as basin inhabitants could dredge, process and use the sediment as fertilizer for agricultural purposes. The improved ecosystem conditions will provide better livelihoods for the local community.

India Kerala coastal management

The Kerala coastline is frequently hit by tropical storms and flooding. With 41 rivers flowing into the sea along the coast of Kerala, it is also home to several unique fresh, brackish and salt ecosystems. Combining risk reduction with conserving some of these important ecosystems while boosting community livelihoods requires a combination of approaches including NBS, such as sand nourishment and mangrove restoration and grey strategies.

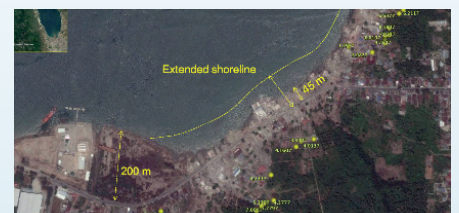


Indonesia Restoration of mangrove mud coasts

Coastlines of North Java are rapidly eroding due to land-use practices and groundwater extraction. The Building with Nature initiative aims to increase resilience along eroding coastlines by restoring the sediment balance with permeable structures, creating habitat for mangrove restoration and by rehabilitating aquaculture practices. The project aims to scale-up NBS approaches throughout Indonesia.

Indonesia Palu tsunami protection

The city of Palu was severely hit by a tsunami 2018. This has drawn serious attention towards effective coastal protection. Due to hazard intensity and lack of space a combination of NBS and grey approaches is required. NBS including mangrove restoration might offer a suitable measure in the western part of the bay. The eastern part already has grey measures implemented.



Japan Hybrid coastal defenses

To protect Nakatsu area in Japan against high tides and storm floods a large seawall was proposed. The seawall would enclose the tidal flat ecosystem which inhabits 655 species of fauna and flora, including 299 threatened species. To conserve the tidal flat a combined approach including NBS of using ecosystem services of the mudflat, such as wave dissipation, and a seawall behind it were proposed.

Barriers

Implementation of NBS is partly done along the same process as implementation of grey infrastructure. However, experience with NBS is far less. To get a grip on what impedes implementation of NBS workshop participants discussed barriers for implementation encountered in their case studies. The five most conspicuous barriers were:

1. **Community involvement:** the complexity of involving the local community,
2. **Limited knowledge:** the lack of knowledge on how to design, construct and maintain NBS, little guidelines for design, construction and maintenance.
3. **Conflict of interest:** NBS requires joint action of different institutional units. However, currently the mandate between departments regarding NBS is unclear.
4. **System understanding:** natural systems are dynamic and need to grow. Large-scale analysis, basin planning and ICZM are often not practiced but are urgently needed for NBS, especially in combination with grey infrastructure.
5. **Lack of data:** with respect to the performance of NBS. Will it work? What will it cost? Scenario analyses and cost-benefit analysis are not often executed. Lack of data and capacity is a daily reality.

Some of the barriers listed are not specific for nature-based solutions but also apply to traditional engineering,

such as the conflict of interest and to some extent community involvement. However, uncertainty on performance is likely larger with nature-based solution due to natural dynamics and limited experience.

Enablers

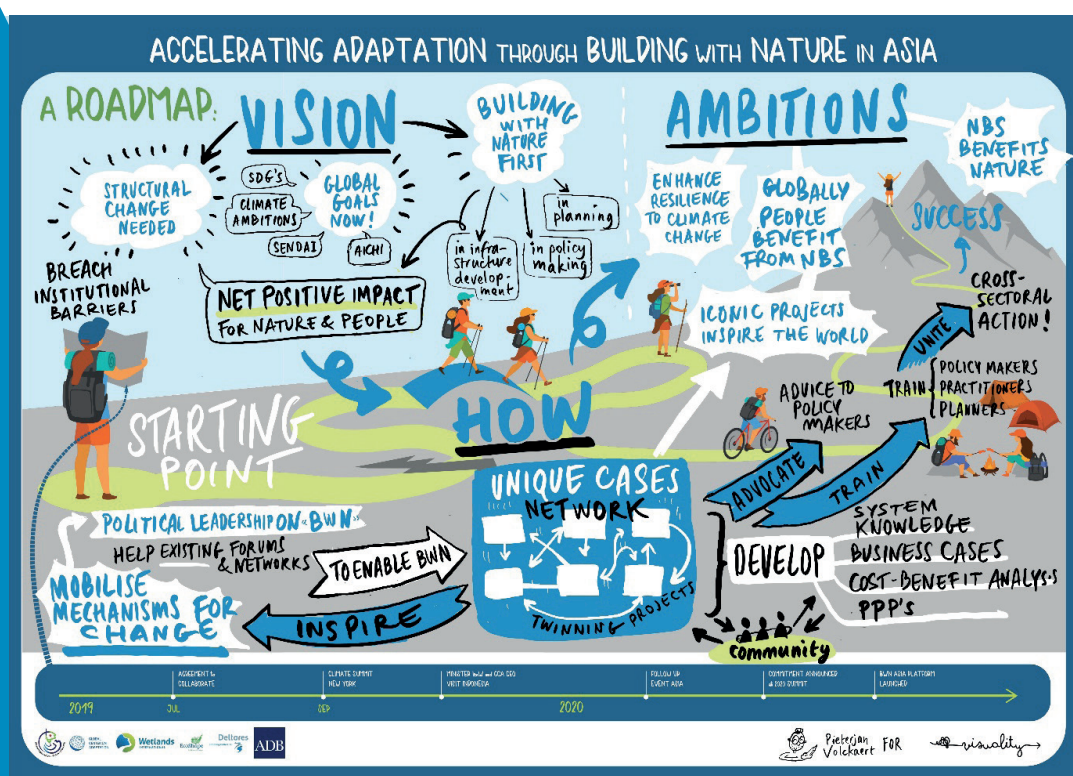
Several mechanisms may facilitate implementation of NBS and help to overcome the barriers. The five most important ones that emerged from the case studies were:

1. **A local hero:** a person in the community that advocates use of NBS
2. **Political leadership:** politician that advocates use of NBS
3. **Community ownership:** a supportive community that sees advantages in use of NBS
4. **Knowledge development:** to reduce uncertainties
5. **Capacity building:** to increase familiarity of people with NBS and facilitate implementation

The enablers can be used to overcome the barriers.

Vision

To facilitate adaptation and safeguard natural capital, radical and structural change in our economic, political and institutional systems is needed. Removing barriers between departments and within institutions constitutes an important part of this. In addition, rapid action is required to work towards a sustainable future where economic development and safeguarding environmental



Roadmap with the vision, ambitions and path forward developed during the expert workshop and write shop by Visuality



quality are not counteracting forces. To achieve this, realization of global goals that were agreed upon such as the climate ambitions, SDG's, SENDAI and AICHI should become a main priority and nature should be put first instead of economic benefits, as defined by our current economic system. This would generate a paradigm shift from minimizing negative impacts of developments to maximizing positive impacts for society and nature, which is the core of the Building with Nature philosophy.

Ambitions

There are multiple ways to accelerate adaptation but to be most effective, action on all levels is needed. In general, there are barriers that are in the way of NBS uptake, enablers that allow for uptake of NBS and sometimes really push for NBS. Barriers that hinder NBS uptake, should be actively removed. The main systems that are currently impeding a paradigm shift towards large-scale NBS implementation and that need to be challenged are:

1. Economic systems,
2. Institutional systems, and
3. Evaluation systems.

First, economic systems impede uptake of nature-based solutions by accounting for profit in terms of increasing GDP only and thereby neglecting additional benefits, but also not accounting for the impacts of projects on biodiversity and natural resources, such as water, sediment and minerals. Institutional systems impede the uptake of NBS by being divided into different sectoral units that do not always communicate or cooperate. Nature-based solutions and Building with Nature is a cross-sectoral topic and costs and benefits for nature-based solutions may end up in different departments. Finally, evaluation systems are often simplistic and use improper indicators for success. Therefore, current evaluation metrics do not achieve the best projects. For example, for restoring natural landscapes often the number of trees planted are used instead of doing a proper biodiversity assessment, determining a baseline and then defining targets for increased and native biodiversity. Also, project managers are often evaluated based on budgets or risks instead of doing the best project or on doing no environmental harm. Hence, working on transforming economic systems, crossing institutional boundaries and on improving indicators will constitute the way forward.

Path forward

Relatively few mechanisms and initiatives support, facilitate and favor NBS. Hence, there are multiple opportunities there. The case study projects and new (pilot) projects can serve as a base for knowledge exchange and collaboration. To facilitate good NBS projects and knowledge exchange twinning arrangements can be made between similar projects within and between countries. Networks of knowledge institutes can be formed to establishing a socioeconomic and biophysical knowledge base and translate knowledge into design guidelines, protocols for monitoring and adaptive management, research projects and training/capacity building. To achieve this existing initiatives and platforms could be largely instrumental and provide a solid base for collaborative learning.

To create an enabling policy environment, resolving barriers through policy reform and development of incentives for NBS implementation is required. This goes hand in hand with development of guidelines, tools, enhanced procurement protocols and mobilising finance. Finally, even though above changes are not in place yet, projects should strive to put Building with Nature solutions into practice at scale by multi-disciplinary public-private consortia to inspire uptake by others and to learn by doing. To establish successful projects and initiatives good planning, teamwork and leadership are essential.

Colophon

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