

i. **Title/Heading:**

Accelerating adaptation by spurring a paradigm shift in water engineering in Indonesia, with replication in Asia and globally



ii. **Context and rationale:**

Governments, city authorities and companies face the challenge to deliver hydraulic infrastructure that provides better services to society as a whole, while enhancing the natural environment and increasing climate resilience. Inclusive, innovative approaches are needed to come up with better and more sustainable solutions for these challenges. Building with Nature (BwN) is a design approach, representing a paradigm shift from minimizing negative impacts to maximizing positive impacts for society and nature. This is achieved by integrating the services that nature provides into engineering design and implementation in an inclusive way. Since 2012, the Indonesian Ministry of Marine Affairs and Fisheries (MMAF), with Wetlands International, local communities and other partners, have together trialled the BwN approach to address erosion linked to mangrove loss, which threatens the land and properties of more than 70,000 people. The program focuses on recreating the conditions for natural mangrove regeneration and transforming the local economy that caused the collapse of mangroves. A small scale trial in one village in 2012 has now grown into a landscape scale multi-sectoral initiative, inspiring potential spin-off in Semarang city and harbour. Considerable progress has been made with the uptake of BwN in Indonesia, replication is already realised in 15 districts in Indonesia. Lessons learned are strongly welcomed by the private and public sector and opportunities exist to embed BwN principles into strategic policies and planning allowing implementation at scale in a wide range of settings from urban to rural, from mountain to coast.

iii. Overview of the contribution:

It is MMAF's ambition to spur a paradigm shift in hydraulic engineering in Indonesia, Asia and ultimately worldwide through the establishment of a BwN platform, to convene public private and civil society actors in the fields of science, policy, practice and finance across disciplines.

Objectives include:

1. Developing the socioeconomic and biophysical knowledge that underpins successful BwN solutions, translation into design guidelines and training to stimulate sound replication;
2. Contributing to an enabling policy environment for BwN solutions, resolving barriers through policy reform, development of guidelines, tools, enhanced procurement protocols and mobilising finance.
3. Putting BwN solutions into practice at scale through projects in vulnerable environments, implemented by multi-disciplinary civil society-public-private consortia.

iv. How might the contribution support both climate, mitigation and adaptation as well as other important co-benefits and social, economic and environmental outcomes in coming years?

BwN allows for low-cost, low carbon and adaptive water and coastal zone management that balances social, ecological and economic requirements with climate-resilient development. The approach makes use of and creates ecosystem services that deliver multiple benefits to multiple stakeholders. Projects are often less expensive on a life-cycle basis than traditional solutions and adaptive management and incremental development allow flexibility. While hydraulic engineering potentially emits vast amounts of carbon dioxide emissions by impacting sediments and ecosystems, BwN solutions may offer opportunities for preventing such emissions and enhancing carbon storage. BwN technical solutions go hand in hand with socio-economic measures that enable more productive and multi-functional land-use. For instance in Indonesia, besides restoring the mangrove belt and its biodiversity, a model for sustainable aquaculture was introduced to enhance fish and shrimp production. As such BwN contributes to Sustainable Development Goals 1, 2, 3, 6, 8, 9, 11, 12, 13, 14, 16, 17.



v. **Which countries and organisations are involved in the contribution?**

Indonesian Ministry of Marine Affairs & Fisheries; collaborating with lead ministries in Indonesia and other Asian countries. Organisations involved include the Global Centre on Adaptation, Wetlands International, Ecoshape Foundation, engineering firms and dredging companies, research institutes, NGO's and local communities.



vi. **How have stakeholders (for example indigenous peoples, local communities, and youth) been consulted in developing the contribution?**

Building with Nature is a participative approach that aims to create benefits with and for multiple stakeholders. Stakeholders – specifically local communities - typically are equipped with knowledge and financial means and work side-by-side with their government and contractors. This contribution has been developed by public and private partners.

vii. **Where the contribution can be put into action?**

Upscaling is planned in Indonesia, India, Philippines, Malaysia/Singapore, China and Vietnam. There is worldwide replication potential in view of rising investments in hydraulic infrastructure and the fact that in many vulnerable settings Building with Nature is the only realistic way forward. Various approaches have been implemented across the globe, see Engineering with Nature: an Atlas.

viii. **How the contribution will be delivered? How will different stakeholders be engaged in its implementation?**

BwN is implemented through public private partnerships including with local communities and all levels of government. BwN connects world class expertise and experience with local and context specific knowledge on engineering, land use, ecosystems, capacity building and governance. Design, implementation and maintenance of technical and socio-economic BwN measures is guided by experts, implemented by local communities and government and

embedded in policy and planning. To achieve this, awareness raising, training and policy dialogue as coordinated by the BwN platform are key.

- ix. **Is this initiative contributing to other Climate Action Summit workstream (industry transition; energy transition; climate finance and carbon pricing; infrastructure, cities and local action; resilience and adaptation; youth and citizen mobilization; social and political drivers; mitigation strategy)?**

Infrastructure: the ambition is that this way of working with nature and natural processes becomes the dominant approach to tackle water challenges – sought by governments, cities, ports – and supported by planners and investors, and adoption of the approach into engineering designs and plans for coastal adaptation and sustainable development.

- x. **Examples of experiences to date: how does this contribution build upon this experience? How does the contribution link with different ongoing initiatives?**

The initiative builds on a successful BwN pilot in Indonesia (see www.indonesia.buildingwithnature.nl) and is linked to the Ecoshape platform: a consortium of 20 government agencies, dredging companies, engineering firms, research institutes, and NGO's, that develops and shares Building with Nature knowledge and experience through the implementation of projects on the ground (www.ecoshape.nl).

- xi. **Mechanisms for funding (with specific emphasis on potential for partnerships):** A combination of financing through Climate Funds, Development Banks, national government budgets and Public Private Partnerships.

- xii. **Means of stewardship, metrics for monitoring:** BwN projects adopt a learning-by-doing approach, advancing system understanding during implementation. Regular monitoring and evaluation, in collaboration with communities and local universities allow for adaptive management to respond to dynamic and changing conditions and rapid uptake of lessons learned.

- xiii. **Communication strategy:**

In Indonesia we successfully implement a communication and policy advocacy strategy to engage, empower and connect all stakeholders from local to national level. This strategy will be updated for implementation in the other countries of the BwN Asia platform.

- xiv. **Contact details of proponents (indicating the degree of commitment among the countries and organizations that are named).**

Ministry of Marine Affairs and Fisheries of the Indonesian Republic (Dr. Abdul Muhari,), committed to lead the formation of a consortium of public and private partners to accelerate adaptation in Asia together with the Global Centre for Adaptation, Wetlands International (Dr. Femke Tonneijck, Programme Manager Coastal Wetlands Femke.Tonneijck@Wetlands.org) and other partners.

