

Adaptation in Ecologically Critical Areas in Bangladesh (AECAB)

Nature Based Adaptation towards Prosperous and Adept Lives & Livelihoods in Bangladesh (NABAPALLAB/ নবপল্লব)

A Briefing Note on

Climate-Biodiversity Nexus: Global and Bangladesh Landscape

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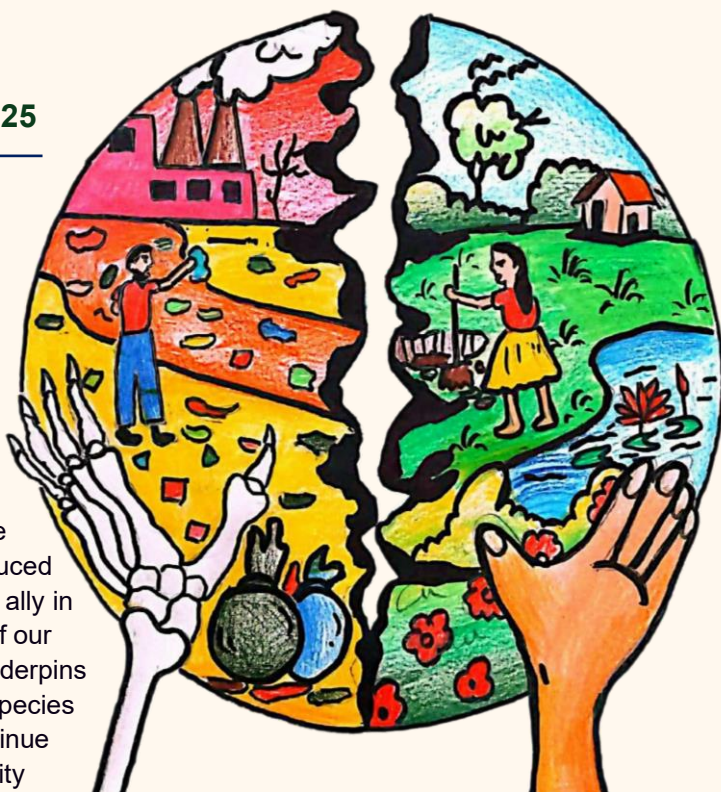
EDITORIAL

As the world gathers for COP30 in Belém, Brazil, a symbolic host city at the heart of the Amazon it is evident that the global community stands at a decisive moment in history. The intertwined crises of climate change and biodiversity loss have reached a critical threshold, demanding unified and transformative action. Nature, long regarded as a victim of human-induced change, must now be recognized as our most powerful ally in shaping a sustainable and resilient future. The health of our ecosystems (forests, wetlands, oceans, and coasts) underpins the well-being of all life on Earth. Yet, unprecedented species loss, habitat degradation, and ecosystem collapse continue to accelerate. The Kunming–Montreal Global Biodiversity

Framework (GBF) and the Paris Agreement offer a shared vision: to live in harmony with nature by 2050. But achieving this vision requires urgent translation of commitments into concrete actions anchored in nature-based and locally led solutions that empower communities, safeguard biodiversity, and strengthen climate resilience.

In Bangladesh, these global aspirations find local expression through initiatives like Nature-Based Adaptation towards Prosperous and Adept Lives & Livelihoods in Bangladesh (NABAPALLAB), a project implemented by a CARE-led consortium. Operating across two Ecologically Critical Areas the Sundarbans and Hakaluki Haor. The project demonstrates how ecosystem restoration, sustainable livelihoods, and climate adaptation can advance hand in hand. Through reforestation, wetland revival, and community-led conservation, NABAPALLAB embodies the spirit of the Global Biodiversity Framework: local actions driving global transformation.

As the COP30 deliberations unfold, Bangladesh's voice will resonate with the lived realities of millions who depend on fragile ecosystems for their survival. Protecting biodiversity is not only an environmental imperative but a moral and developmental one. It is a call for solidarity, equity, and shared responsibility to secure a planet where both people and nature can thrive. This is our defining decade. The choices made today will shape the legacy we leave behind. Let us move forward together with science, compassion, and courage to ensure that the promise of COP30 becomes a turning point for our collective future.





Current Realities of Global and National Biodiversity Loss

Biodiversity, the foundation of life on Earth, is experiencing an unprecedented decline due to the two-fold crisis arising from anthropogenic actions and climate change. Globally, climate change is significantly altering ecosystems by shifting species distributions, increasing extinction risk, and disrupting ecological interactions. For instance, climate change-induced hazards, such as rising temperatures, altered precipitation patterns, and extreme weather events, disrupt the phenology and reproductive cycles of various flora and fauna. The Intergovernmental Panel on Climate Change warns that even if global warming is limited to 1.5°C, 70 to 90 percent of warm-water reefs could vanish by 2050.¹ At a 2°C warming limit, nearly all reefs would disappear, threatening biodiversity, food security, and climate resilience. Besides, amphibians (40%) and insects (10%) are projected to face extinction if no action is taken.²

Apart from climate change, anthropogenic drivers still remain the primary cause of biodiversity degradation and loss. Land-use change, agricultural expansion, unplanned urbanisation, deforestation, overexploitation of species, pollution, illegal poaching, unregulated wildlife trade, over-harvesting of forest products, and the introduction of invasive species contribute significantly to biodiversity loss. For example, cane toads

(intentionally introduced to various Caribbean islands to control agricultural pests, particularly in sugarcane plantations) in Australia are causing declines in Northern Quolls. Additionally, the lack of implementation of policy frameworks, limited intersectoral coordination, and inadequate knowledge of ecosystems contribute to biodiversity loss.³ According to the World Wide Fund for Nature (WWF) reports that the most vulnerable regions, such as tropical areas, specifically the Amazon and Southeast Asia, will continue to lose biodiversity due to deforestation and land-use change.⁴ Bangladesh, one of the most biodiverse countries in South Asia, has experienced severe biodiversity loss over the years. The primary causes include habitat destruction, pollution, deforestation, overexploitation of resources, intensive agricultural practices, and climate-induced disasters. Climate change is exerting a significant influence on biodiversity loss and degradation in Bangladesh through several interrelated mechanisms, including rising temperatures, altered rainfall patterns, sea-level rise, and increased frequency and intensity of natural disasters (floods and cyclones). There is clear evidence of anthropogenic and climate change-related factors that are adversely affecting biodiversity in different ecological areas. Bangladesh has 13 Ecologically Critical Areas (ECA). Among those ECAs, the Sundarbans face threats from rising sea levels, increased salinity and

¹WWF (2022). Living Planet Report.

²IUCN Bangladesh. (2015). Red List of Threatened Species of Bangladesh.

³WWF (2022). Living Planet Report

⁴World Bank. (2014). Bangladesh: Sundarbans Area Assessment Report.

cyclonic surges, which impact flagship species such as the Royal Bengal Tiger and the Irrawaddy Dolphin.⁵

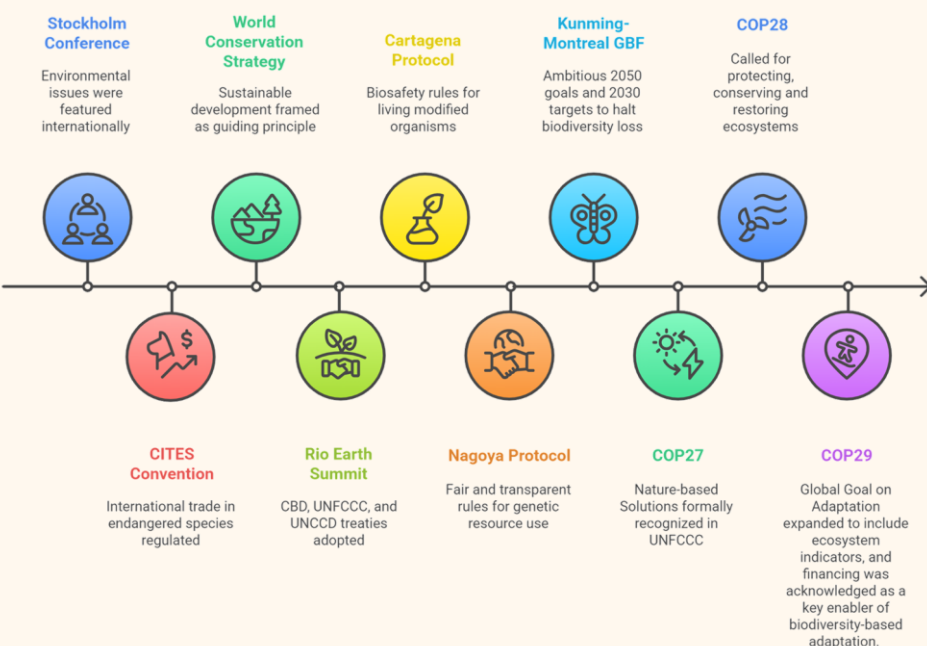
The Sundari (*Heritiera fomes*) is a key timber species whose stocks have been declining due to natural factors, but climate change is likely exacerbating this decline in the Sundarbans forest. On the contrary, the ecosystem of Hakaluki Haor (the largest inland

freshwater wetland in the country) faces degradation due to eutrophication, illegal encroachment, pollution, overfishing, and hydrological alterations. The Haor has experienced dramatic population declines of Giant River Catfish (*Pangasianodon gigas*) species due to overfishing, habitat loss, and changes in river dynamics.⁶

Global Efforts and Negotiations: Current Landscape for Biodiversity Protection and Conservation

Over the years, NbS have gained recognition as one of the most effective ways to build climate resilience while delivering biodiversity benefits. Mangroves, wetlands, and forests act as buffers against flooding, storm surges, and soil erosion while sequestering carbon and sustaining livelihoods. Compared to conventional “grey” infrastructure, NbS are often more cost-effective and deliver co-benefits, including food security, cleaner water, and improved health outcomes. Their inclusion in UNFCCC negotiations (formal recognition in the decision text at COP27 and the inclusion of ecosystem indicators in the Global Goal on Adaptation (GGA) reflects their growing importance as a global strategy for adaptation and resilience.⁷ Despite progress, biodiversity governance under the CBD continues to face persistent challenges. Many countries’ National Biodiversity Strategies and Action Plans (NBSAPs) remain narrow, with weak integration across agriculture, finance, and development sectors. Targets under the CBD, such as the Aichi Targets, have often been voluntary and loosely enforced, resulting in limited implementation. Ensuring accountability, mobilizing adequate finance and bridging policy silos remain key hurdles.⁸

Key Milestones in Global Biodiversity Conservation



Effective conservation requires robust financing. Several international mechanisms have emerged to fill this gap. These initiatives highlight a shift towards blending public, private, and market-based finance to sustain biodiversity goals.

- **Tropical Forest Finance Facility (TFFF):** Channels long-term private and institutional finance into sustainable land use and forest protection projects in tropical regions.
- **Biodiversity Finance Initiative (BIOFIN):** A UNDP-led program that helps governments estimate biodiversity finance needs, align budgets, and mobilise innovative funding sources.
- **REDD++:** Provides result-based payments to developing countries for reducing emissions from deforestation and forest degradation, while promoting forest conservation, sustainable management, and carbon stock enhancement.

⁵IUCN Bangladesh. (2015). Red List of Threatened Species of Bangladesh

⁶IUCN. (2020). IUCN Global Standard for Nature-based Solutions.

⁷Carsten Neßhöver, C. P. (2015). Biodiversity governance - A global perspective from the Convention on Biological Diversity. (1st, Ed.)

⁸https://doe.portal.gov.bd/sites/default/files/files/doe.portal.gov.bd/page/f49635bc_066f_4d55_936e_9c8a165c39b0/2020-01-21-12-13-50408cb45390746e867f5907e284fd9a.pdf

Global efforts to protect biodiversity are now at a crossroads. The Kunming-Montreal Framework, NbS integration into climate negotiations, and emerging finance mechanisms provide unprecedented opportunities to bridge the biodiversity and climate agendas. Success will depend on countries translating global commitments into integrated national strategies, strengthening accountability, and ensuring that local communities, who are custodians of much of the world's biodiversity, are at the centre of action.

It is evident that biodiversity protection is no longer just an ecological concern; it is an essential pillar of climate resilience, sustainable development, and human well-being. The next decade will determine whether humanity can live up to the promise of reversing biodiversity loss and securing a healthier planet for future generations.

Best Practices of Biodiversity Conservation and Protection

Costa Rica's forest restoration and ecotourism model, Rwanda's national payment-for-ecosystem-services program, and Bhutan's constitutional mandate to keep 60% of its land under forest cover showcase innovative governance models. These cases reveal that aligning biodiversity with local development priorities, incentives, and cultural values can yield lasting conservation outcomes.

Bangladesh's Commitment to Biodiversity Conservation

Policy Frameworks Supporting Biodiversity Protection

Bangladesh lies in an ecotone where diverse ecosystems intersect, making it one of the world's biodiversity-rich countries. The nation's ecological diversity is reflected in three broad ecosystem categories—terrestrial, inland waters, and coastal & marine—encompassing 40 protected areas, 13 Ecologically Critical Areas (ECAs), and 25 bio-ecological zones.⁹ Within these, five key ecosystem types are recognised: coastal and marine, inland freshwater, terrestrial forests, hilly landscapes, and man-made homestead ecosystems.¹⁰ Despite this



Riverbank Protection using sandbags



Assisted Natural Regeneration-ANR, for Mangrove

richness, many species have gone extinct or now face severe threats due to multiple human and environmental pressures. Bangladesh's environmental movement has been shaped by global milestones such as the Stockholm Declaration (1972) and the Rio Declaration (1992). Since independence, Bangladesh has gradually developed a comprehensive legal framework comprising over 200 national and special laws for environmental protection.¹¹ Bangladesh has ratified the Convention on Biological Diversity (CBD), depositing its instrument of ratification in 1994 after signing it in 1992.

⁹<https://www.cbd.int/countries/profile?country=bd#:~:text=Status%20and%20trends%20of%20biodiversity,have%20existed%20in%20the%20country>

¹⁰https://www.researchgate.net/publication/357933912_Biodiversity_To_what_extent_do_the_laws_of_Bangladesh_protect_it#:~:text=Bangladesh%20Biological%20Diversity%20Act%202017,punishment%20is%20provided%20under%20sections

¹¹<http://bdlaws.minlaw.gov.bd/act-details-1203.html>

This commitment is upheld by the Bangladesh Biological Diversity Act of 2017,¹² which integrates the CBD's objectives into the country's domestic legal framework to support the conservation and sustainable use of its biodiversity.¹³



Submersible Road Construction in Flash Flood Region

Key National Initiatives (Governmental and non-Governmental)

Recognising the urgency, Bangladesh has worked to fulfil its obligations under the Convention on Biological Diversity (CBD). A major step was the inclusion of Article 18A in the Constitution of the People’s Republic of Bangladesh, which states that ‘the State shall endeavour to protect and improve the environment and to preserve and safeguard the natural resources, biodiversity, wetlands, forests and wildlife for the present and future citizens.’¹⁴ Bangladesh has mainstreamed biodiversity concerns into its sectoral policies, national perspective plans, and five-year development plans. In line with its constitutional obligations, the country has also adopted several specific policy measures to conserve biodiversity.¹⁵ To operationalize biodiversity conservation, Bangladesh has introduced a wide range of policies and legal instruments, as shown in the following table-1.

Table-1: Policy and legal framework of Bangladesh for biodiversity conservation

Relevant Ministries and Department of Government of Bangladesh	
- Ministry for Environment, Forestry and Climate Change (MoEFCC) - Ministry for Fisheries and Livestock (MoFL) - Ministry of Land (MoL) - Ministry of Agriculture (MoA) - Department of Agriculture Extension (DAE)	- Bangladesh Forest Department (BFD) - Department of Environment (DoE) - Department of Fisheries (DoF) - Department of Bangladesh Haor and Wetland Development
Plan and Policies	Act and Rules
- Jalmahal Management Policy 2009 - National Biodiversity and Action Plan (NBSAP) 2016-21 - National Conservation Strategy 2021-36, endorsed in 2021 - National Adaptation Plan (NAP) 2023-50	- Environment Conservation Act (1995, amended 2010) - Wildlife (Conservation and Security) Act 2012 - Bangladesh Water Act 2013 - Ecological Critical Area Management Rules, 2016 - Protected Area Management Rules, 2017 - Bangladesh Biological Diversity Act, 2017 - Marine Fisheries Act, 2010

Local communities are playing a central role in Bangladesh’s conservation efforts through activities such as mangrove restoration, wetland co-management, and sustainable use of natural resources. These initiatives combine ecosystem protection with livelihood opportunities such as agroforestry, sustainable fisheries,

and alternative income generation while also strengthening local monitoring and enforcement. Together with government-led measures such as the designation of protected areas and ECAs, they reflect Bangladesh’s comprehensive commitment to safeguarding its biodiversity and ecosystems.

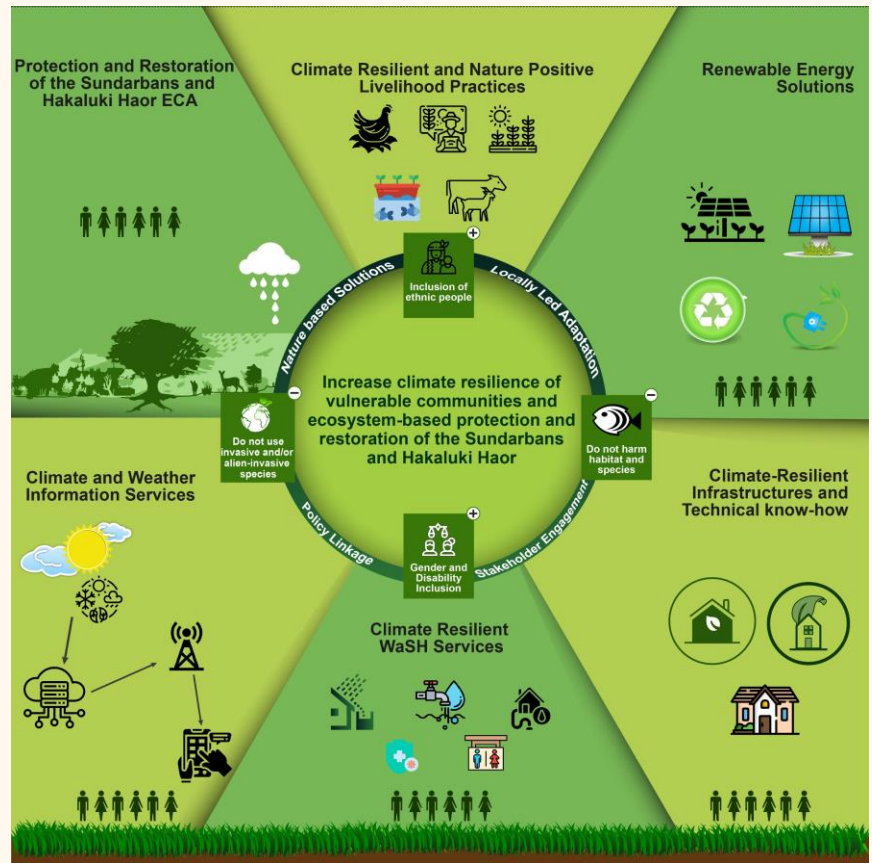
¹²<http://bdlaws.minlaw.gov.bd/act-details-1203.html>
¹³https://www.researchgate.net/profile/Imtiaz-Sajal/publication/328487714_Bangladesh_Biological_Diversity_Act_2017_An_Appraisal/links/5bd084f8299bf14eac81d227/Bangladesh-Biological-Diversity-Act-2017-An-Appraisal.pdf#:~:text=Secondly%2C%20the%20Preamble%20states%20that%2C%20as%20a,resources%2C%20knowledge%20and%20for%20matters%20incidental%20thereto%E2%80%9D.
¹⁴https://doe.portal.gov.bd/sites/default/files/files/doe.portal.gov.bd/page/f49635bc_066f_4d55_936e_9cba165c39b0/2020-01-21-12-13-50408cb45390746e867f5907e284fd9a.pdf
¹⁵https://doe.portal.gov.bd/sites/default/files/files/doe.portal.gov.bd/page/f49635bc_066f_4d55_936e_9cba165c39b0/2020-01-21-12-13-50408cb45390746e867f5907e284fd9a.pdf

NABAPALLAB: A Nature-based Solution for the Sundarbans and Hakaluki Haor

The Humanitarian and Resilient Futures Program of CARE Bangladesh is implementing the Adaptation in Ecologically Critical Areas in Bangladesh (AECAB), of the UK Foreign, Commonwealth and Development Office (FCDO)'s flagship Bangladesh Climate and Environment Programme (BCEP), a key component of the Bangladesh-UK Accord on Climate Change. The project titled 'Nature Based Adaptation towards Prosperous and Adept Lives & Livelihoods in Bangladesh (NABAPALLAB/ নবপল্লব)' aims to engage biodiversity and natural resource-dependent communities to strengthen the climate resilience of the two Ecologically Critical Areas (ECAs), the Sundarbans and Hakaluki Haor. The project is taking several locally led climate actions to conserve biodiversity, and at the same time, diversify and improve people's livelihoods through innovative nature-based solutions (NbS) and locally led adaptation (LLA) measures. The CARE Bangladesh-led consortium consists of the Center for Natural Resource Studies (CNRS), Cordaid, the Centre for Climate Change and Environmental Research (C3ER)-BRAC University, Dushtha Shasthya Kendra (DSK), Friendship, Humanity & Inclusion (HI), International Development Enterprises (iDE), and Practical Action. The project operates in 102 unions across 18 subdistricts in the districts of Bagerhat, Satkhira, and Khulna in the Sundarbans, and in Maulvibazar and Sylhet in the Hakaluki Haor EACs, supporting over 210,000 vulnerable families primarily to reduce climate risk and enhance resilience.

Key On-Ground Interventions and Innovations

The NABAPALLAB project has rolled out a range of integrated on-the-ground interventions across six thematic areas that directly address the environmental and livelihood challenges faced by communities around the Sundarbans and Hakaluki Haor. These include the



Six Pillars of NABAPALLAB

protection and restoration of critical ecosystems through mangrove afforestation, canal re-excavation, and wetland conservation; promotion of climate-resilient and nature-positive livelihoods, such as sustainable agriculture and poultry farming; development of climate-resilient infrastructure, including cyclone shelter renovations and raised access roads; and delivery of safe, climate-resilient water and sanitation services to improve public health in vulnerable areas. In addition, the project has expanded access to renewable energy through solar and biogas systems, while enhancing local preparedness through climate and weather information services delivered via innovative communication channels. All these activities are implemented through a people-centred approach rooted in Locally-Led Adaptation (LLA) and guided by Nature-based Solutions (NbS). These are anchored in continuous stakeholder engagement and policy alignment to ensure long-term sustainability and systemic impact.

Ecosystem and Community Benefits: A Dual Dividend

The NABAPALLAB's interventions have generated huge ecological and social benefits. On the environmental front, reforestation and wetland restoration are contributing to biodiversity conservation, improved water retention, and enhanced carbon sequestration. Canal re-excavation has revitalised natural drainage systems, supported fisheries and agriculture, and reduced flood risks. The project has enhanced community resilience by diversifying income sources, improving sanitation, and fostering climate literacy.



Canal Excavation to regain Fresh Water Flow

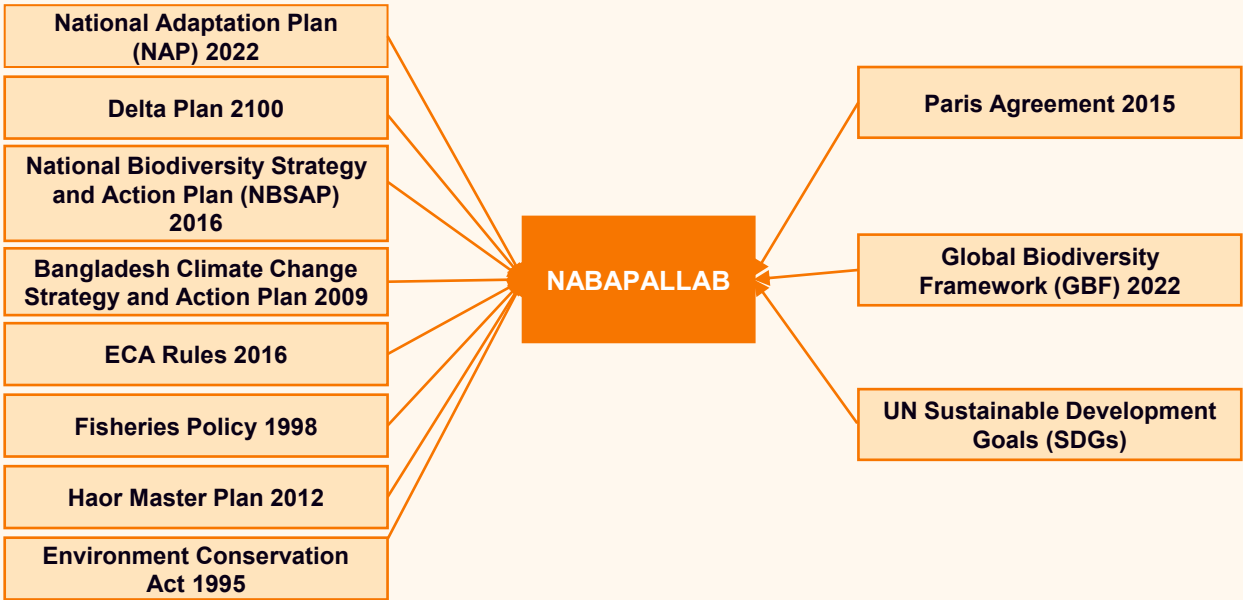
The locally led approach has empowered vulnerable groups, particularly women and youth, to take leadership roles in climate adaptation, ensuring long-term sustainability and equity. These are generating livelihood benefits for vulnerable communities and enhancing society's resilience. The project's commitment to inclusive governance was further strengthened through a Political Economy Analysis (PEA) that mapped stakeholder interests and the policy interventions required for ECA management. This has led to the development of a Policy and Stakeholder Engagement Plan, which is already facilitating dialogue among community members, local authorities, and national policymakers.

Looking Ahead

As NABAPALLAB moves forward, it aims to extend its impact through continued policy advocacy, scaling successful models, and strengthening community institutions. The project's integrated, nature-based and locally led climate action model offers valuable lessons for Bangladesh and other countries seeking to combat climate change while promoting social and ecological well-being. In an era marked by uncertainty and ecological crisis, NABAPALLAB stands as a beacon of hope, proving that nature, when nurtured, can be our strongest ally in building a resilient and equitable future.

Policy Alignment: Local Actions to meet the Global Vision

NABAPALLAB is well aligned with both national and international policy frameworks, such as the Bangladesh Climate Change Strategy and Action Plan (BCCSAP)-2009, the National Adaptation Plan (NAP)-2022, the National Biodiversity Strategy and Action Plan (NBSAP)-2016, the Paris Agreement-2015, the Global Biodiversity Framework (GBF)-2022, etc. The policy alignment from the local to the global level is shown below.



Way Forward: Scaling Collective Action for Nature-based and Ecosystem-based Solutions

Given the urgent need to protect and conserve our planet's fragile biodiversity, world leaders must accelerate action, raise near-term ambition and ensure adequate financing for biodiversity and community-led adaptation. Translating the Paris Agreement and the Kunming–Montreal Global Biodiversity Framework (KM-GBF) targets into national strategies and investment demands, ensuring coherence across NDCs, NAPs, and biodiversity action plans—anchored in nature-based and ecosystem-based solutions. Countries, particularly major emitters, must align their Greenhouse Gas Emission targets with the 1.5°C trajectory while ensuring that biodiversity protection and climate adaptation advance hand in hand.

This transformation must recognise and embed the rights, knowledge systems, and leadership of indigenous peoples and local communities, and at every step reflect the spirit of equity, inclusivity, and environmental justice that underpins both the KM-GBF and the Paris Agreement. To operationalise these global

goals, developed countries must demonstrate genuine solidarity by providing scaled-up, predictable, and easily accessible financing. The New Collective Quantified Goal (NCQG) offers a unique opportunity to weave biodiversity into the core fabric of climate finance—ensuring that a dedicated portion directly supports ecosystem resilience and community-led adaptation.

Strengthening the Global Environment Facility (GEF) and the Global Biodiversity Framework Fund, coupled with mobilisation from the private sector and philanthropy, will be critical to close the financing gap and accelerate the implementation of national biodiversity strategies. We are at the door of this year's Conference of the Parties (COP30), and the world leaders must not only renew commitments but reorient global leadership toward tangible outcomes—where climate ambition and biodiversity action deliver real resilience for those on the frontlines of change, from coastal deltas to small island nations.



Integrated agriculture and Women Empowerment



Sack bag cultivation at Coastal Region

Photo by

NABAPALLAB Consortium Partners

Cover Photo: Sinha Tabassum (Ruhi), Student
Shyamnagar, Satkhira, Bangladesh

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