

LIVING SHORELINE

For climate-resilient communities and businesses
in coastal areas of Cox's Bazar district

A Coastal Protection
initiative



We propose ecological restoration at Cox's Bazar collaboratively led by authorities, communities and businesses and other stakeholders. To build resilience we need to protect our coastal areas of Cox's Bazar from the impact of climate change-induced sea level rise, erosion and unsustainable development. Also to reduce greenhouse gas emissions through the restoration of the dune forest, healthy, beautiful, naturally regenerating dunes extend the coastline. Dunes are adequately covered with sand-binding and stabilizing plants, reduce carbon emissions, help with erosion management, and offer opportunities for local livelihoods and sustainable tourism. The beaches and dunes provide habitats for rich biodiversity including the nesting sea turtles, resident of migratory birds, and the crabs. Everyone can access the beach using walkways, boardwalks and walkover. This is a future where all coastal communities, local businesses, and wildlife thrive harmoniously.

The 'Living Shoreline: Sustainable Restoration of the Bay of Bengal Coastal Forest and Wetlands in Bangladesh' project is implemented by the Alliance for Cooperation and Legal Aid Bangladesh (ACLAB) with technical assistance from Sagar Seba. The U.S. Department of State's Climate Grant funded the project through the U.S. Embassy in Dhaka.

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#Living Shorelines

What does the ‘Living Shoreline’ initiative offer?

In the context of the collapsed dune system and increasing erosion in Cox's Bazar, this initiative aims to work with local right-holder communities, public agencies responsible for water resource management, managing public lands, other natural resources, and the environment, other stakeholder organizations, and private businesses to develop a permanent collaborative program to restore and manage the coastal dunes and associated wetlands.

Based on scientific evidence and the local traditional ecological knowledge, the program will bring together the local communities and organizations to use the Living Shorelines (LSL) techniques to restore and manage critical coastal ecosystems in Cox's Bazar including dunes.

Cross-cutting themes of the initiative: Climate change adaptation and mitigation, reducing carbon emissions through ecosystem restoration; disaster risk reduction; sustainable tourism; and fisheries.

Integrated approach: Traditional knowledge-based and locally led initiatives; gender equity and justice; recognition of customary and community tenure rights; and public-private partnership.

Why Cox's Bazar needs to restore and manage coastal sand dunes?

From the Bakkhali river-mouth in Sadar Upazila of Cox's Bazar district to the southernmost tip of the mainland in Shah Porir Dwip in Teknaf Upazila, the coastal sand dunes have been the characteristic feature of Bangladesh's east coast. The natural processes involving the dunes — locally known as ডেইল (dale) or বািলিয়াড়ি (baliari) — play the most critical role in maintaining the stability of the dynamic coastal systems of Cox's Bazar. This is a nationally unique landscape in Bangladesh.

Between the rainforest of the low hill ranges and the Bay of Bengal's coastal ocean, dunes—both stabilized and mobile ones, have been helping control coastal erosion and maintain Cox's Bazar's dynamic shoreline. Dunes are natural storages of sand and habitats for biodiversity. Dune supplies sand to replenish seasonally eroded beaches. Dunes protect the coast against high tides, waves, and storm surges, thus, mitigating the impact of coastal flooding and erosion and reducing damages to people and properties.

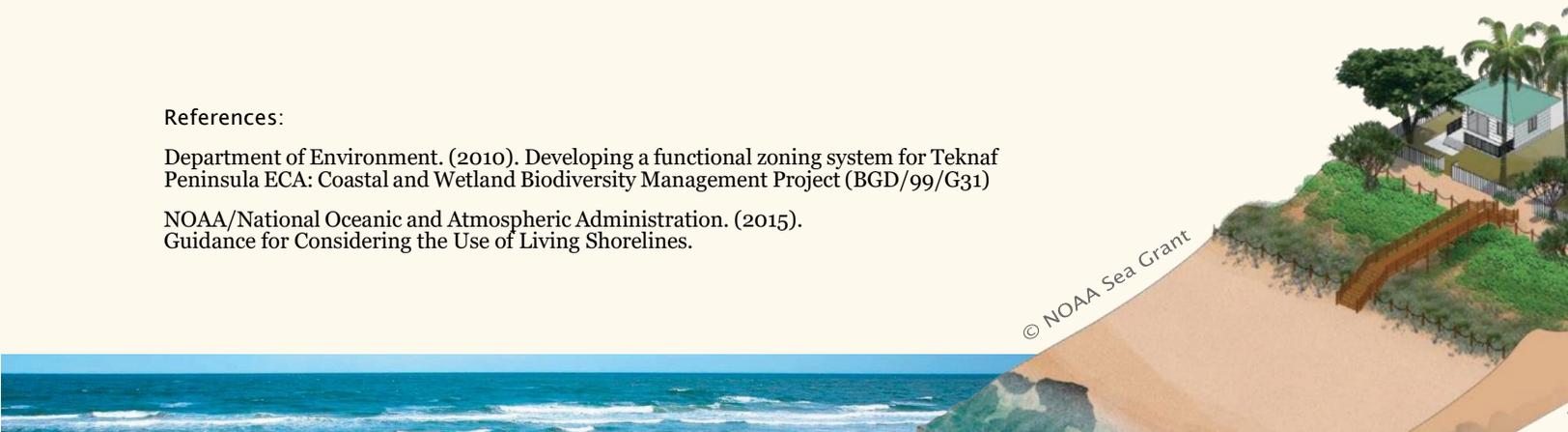
But decades of unsustainable coastal development, shoreline hardening, and plantation of invasive alien species (such as, Australian pine) prevented dune formation and growth. Most of the dunes—the natural coastal protection system of Cox's Bazar, are now either un-stabilized or mostly eroded, leaving the shoreline vulnerable to erosion.

References:

Department of Environment. (2010). Developing a functional zoning system for Teknaf Peninsula ECA: Coastal and Wetland Biodiversity Management Project (BGD/99/G31)

NOAA/National Oceanic and Atmospheric Administration. (2015). Guidance for Considering the Use of Living Shorelines.

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RESTORATION PROCESS

#Living Shorelines

Living Shorelines (LSL) techniques offer low-cost and sustainable methods for erosion management and coastal protection. While shoreline hardening structures (such as concrete seawalls, slopes, bulkheads, tetra pods, and geo-tubes) are expensive and detrimental to dune growth, LSL is a long-term, effective, and sustainable way to stabilize shorelines and protect and enhance natural features. As per the main principle of LSL—using native plants and natural materials—the tools for dune restoration in Cox's Bazar will be (as appropriate for specific sites) reintroducing native plants, placing sand-gathering soft structures, and creating walkways, boardwalks and dune walkovers.



Photo: Md Kutub Uddin

Strategic fencing accelerates sand gathering to grow new incipient dunes.



Photo: NOAA Sea Grant

Sand accumulates over time and buries the fence; and the foredune gets higher.



Photo: Faraah Yeasmin

Native plants come back between the fences, and take over the fenced areas.

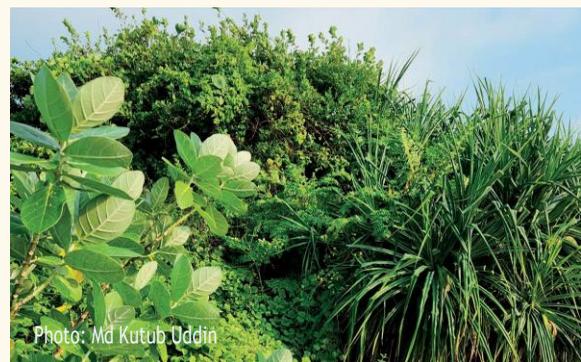


Photo: Md Kutub Uddin

Vegetated dunes reduce erosion, support biodiversity, and control erosion.



Photo: NOAA Sea Grant

People get to the beach using walkways, boardwalks, or dune walkovers.



Photo: NOAA Sea Grant

A protected shoreline helped communities, businesses, and the wildlife to thrive.

PRIMARY ACTIVITIES OF THE INITIATIVE DURING 2022–2023

Local and national-level discussions about coastal ecosystem restoration and developing a Public-Private Partnership (PPP) model for ecosystem restoration.

Support to local communities and fishers to organize to take care of the dune landscapes adjacent to their villages and fish-landing sites.

Support to the district-level and upazila-level administrations and ECA Management Committees in piloting dune restoration sites in Cox's Bazar Sadar, Ramu, Ukhiya, and Teknaf Upazila.

OPPORTUNITIES FOR STAKEHOLDERS, RESEARCH AND EDUCATIONAL INSTITUTIONS

For businesses: Local tourism and hospitality businesses (e.g., hotels, resorts, motels, parasailing, and other recreational operators, tour operators, and restaurants), shrimp hatcheries, and other businesses have the opportunity to take responsibility for the restoration and management of dunes that are adjacent to their business establishment.

For research and educational institutions: Local and national research and educational institutions will have the opportunity to contribute through geomorphological assessments of the shoreline, erosion prediction, long-term ecological monitoring of restoration sites, and volunteering for site maintenance.

ABOUT US

ACLAB

Alliance for Cooperation and Legal Aid Bangladesh (ACLAB) is a non-government organization founded in 1988. The organization implements several programs focused on education, health and nutrition, poverty alleviation, literacy, environment and bio diversity, climate change, coastal protection, Disaster Risk Reduction (DRR), life skill education, vocational education and training, health and WASH, women and child protection, human trafficking, human rights, good governance, legal aid etc.

Contact: Syed Tarikul Islam, Executive Director
Alliance for Cooperation and Legal Aid Bangladesh (ACLAB)
Office: 8/13, Block-C, Tajmahal Road, Mohammadpur, Dhaka 1207
tarikul1964@gmail.com, +880 2223310371, +880 1911349118
www.aclabbd.org

Contact: Md. Moniruzzaman, Project Manager, Coastal Protection Program
Alliance for Cooperation and Legal Aid Bangladesh (ACLAB)
Office: Hachery Zone, Marine Drive Road, Cox's Bazar-4700
moniruzzamanmukto@yahoo.com, +880 1795960255
www.aclabbd.org

Sagar Seba is a social enterprise working with communities and organizations in the Bay of Bengal region to provide conservation services. Sagar Seba creates opportunities for resilient communities and sustainable businesses.

For More Information: Focal Person:
Mr. Md Kutub Uddin, Advisor, Coastal
Protection Program, ACLAB and Director at
Sagar Seba
arju@sagarseba.com
+880 1714076147

