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# CPA News

Premier Maritime Magazine of Bangladesh



Navigating the Waves of  
Sustainable Finance

## **A Comprehensive Roadmap for Developing Bangladesh's Blue Economy**

**Chittagong Port**

A Monumental Growth in Last Decade

**Embracing Nature-based Solutions**

A Smart Approach to Climate Change and  
Natural Disasters in Bangladesh

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### CPA News

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## Editorial

### Bangladesh's Maritime Industry: Advancements, Potential, and Sustainability

Welcome to the 7th Anniversary issue of CPA News, the maritime magazine that publishes once a quarter and offers informative coverage of the most recent developments in the maritime industry of Bangladesh. Three pieces on various facets of Bangladesh's maritime industry are presented in this issue, showcasing the country's amazing development and its potential for long-term expansion.

The Chittagong Port, one of Bangladesh's most significant ports and the country's main entry point for foreign trade, is the subject of our Spotlight piece. The essay looks at the port's 136-year history and charts how, under the current administration, it has evolved into a significant economic force in Bangladesh. Due to its solid international relationships and good geographic location, the port has demonstrated extraordinary endurance in the face of COVID-19 and global economic hardships. We acknowledge the port's contribution to the development and resiliency of Bangladesh's economy as we commemorate the port's enormous growth over the past ten years.

Our lead story explores the potential of sustainable finance to promote the growth of Bangladesh's Blue Economy in the Bay of Bengal. It emphasises Bangladesh's advantageous geographical location inside the Bay of Bengal and its enormous potential for sustainable economic growth through the prudent exploitation of marine resources. Bangladesh must look for funding and assistance for various projects centred on the Blue Economy to realise this potential fully. The article offers a comprehensive roadmap for funding such initiatives via public-private partnerships, global collaboration, and cutting-edge finance systems. The Blue Economy can raise living conditions in Bangladesh by supporting sustainable resource management and new employment opportunities.

Our Perspective piece stresses the value of adopting environment-friendly solutions as a sensible response to Bangladesh's natural disasters and climate change. The essay acknowledges that many lower-income nations, such as Bangladesh, are susceptible to environmental concerns because they have insufficient human, manufactured, and financial resources. Bangladesh is creating National Adaptation Plans and Nationally Appropriate Mitigation Actions as a response that aims to adapt to climate change, lower the risk of disaster, and reduce greenhouse gas emissions while assisting in the achievement of other sustainable development objectives. The essay makes the case that nature-based approaches to climate change adaptation and mitigation offer a practical, scalable, and long-term strategy, offering ecosystem services that promote sustainable development while boosting resilience in the face of environmental problems.

Check out our 'News Bytes' section to ensure you stay current on all significant maritime events and developments starting in the first quarter of 2023. Please share your thoughts with us if you have any, as we are always looking for ways to improve the magazine. We appreciate your support and look forward to sharing our maritime expertise with you in the future.

Thank You.



**Lead Story**

Navigating the Waves of Sustainable Finance:  
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*Bangladesh has a huge opportunity to use marine resources, create new job possibilities, and raise living conditions thanks to the Blue Economy. Our Lead Story explores three potential channels of financing for sustainable finance: public-private partnerships, international cooperation, and novel financial instruments. Read this article to learn how to harness Bangladesh's potential for long-term growth.*

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Chittagong Port - A Monumental Growth in Last Decade



Despite global economic adversities and COVID-19, the port has exhibited remarkable resilience, becoming the primary international trade gateway for Bangladesh. Our Spotlight article highlights the port's strategic importance and potential for sustainable development in the region. Don't miss this insightful piece on one of the most important ports in South Asia.

18 **Perspective**  
Embracing Nature-based Solutions: A Smart Approach to Climate Change and Natural Disasters in Bangladesh



As climate change and natural disasters continue to impact the world, developing countries like Bangladesh are highly vulnerable due to limited resources and adaptation options. Our Perspective article explores the role of nature-based solutions in supporting sustainable development goals and mitigating climate change and disaster risk. This article is a thought-provoking piece on a smart approach to tackling some of the most pressing challenges facing the world today.



**We value your thoughts**

CPA news is open to submissions exclusively from the maritime enthusiast writers. We are looking for strong, authentic and thought-provoking articles on maritime issues.

email your views to [cpanews@gmail.com](mailto:cpanews@gmail.com)

# Chittagong Port

## A Monumental Growth in Last Decade

CPA News desk

*The Chittagong Port boasts a lengthy history that spans over several millennia, with the initial construction of mooring jetties dating back to the British colonial period. The establishment of the Port Trust dates back to 1960, while the Chittagong Port Authority was established in 1976 subsequent to the independence of Bangladesh. The port has undergone significant expansion under the current leadership, resulting in its establishment as the primary international trade gateway for the nation. Notwithstanding the prevailing global economic adversities and the ongoing pandemic, the port's robust global alliances and advantageous geographical positioning have enabled it to exhibit resilience. On the occasion of its 136th anniversary, the port stands as a symbol of the advancement and resilience of Bangladesh.*

### Ten metres draught and 200-metre-long ships

The navigational capacity of Chittagong Port has expanded significantly over the years. In 1975, it could accommodate ships with a length of 160 metres and a draught of 7.5 metres; in 2014, the corresponding dimensions were 190 metres and 9.5 metres. In 2021, the British consulting firm HR Wallingford conducted a comprehensive hydrological and hydraulic survey of the Karnaphuli River to further enhance this capability. On January 15, this year, the port authority reached a new milestone by launching a 200-metre-long ship with a 10-metre draught at the Chittagong Port jetty. These developments demonstrate the port's dedication to expansion, modernisation, and the seamless facilitation of international trade.

### Patenga Container Terminal is ready

Despite the challenges posed by the Covid-19 pandemic, the Port Authority began construction of the Patenga Container Terminal in 2017 as part of its short- and

medium-term expansion plans. The terminal's construction was eventually completed in 2022, after nearly two years of nonstop labour. With an investment of USD115 million from the Authority's own funds, the project increased the port's capacity, allowing for the simultaneous management of three container ships and a dedicated oil discharge jetty. The Public Private Partnership Authority (PPPA) appointed the International Finance Corporation (IFC) as transaction advisor for the selection of an operator to operate the terminal. The inauguration of the terminal is an important milestone for the port and a significant improvement to Bangladesh's infrastructure.

### The impact of the epidemic has been deftly dealt with

The majority of the world's busiest ports experienced berthing delays of up to 50 days due to shutdowns and ship diversions during the pandemic. Despite the risks, more than half of the ships at Chittagong Port received on-arrival berthing due to the port's specialised Corona Unit and the vaccination

of its employees. Additionally, local residents benefited from Bandar Hospital's vaccination campaign, which administered 456,578 vaccine doses.

### Matarbari Deep Sea Terminal

The capacity of Bangladesh's ports, including Chittagong and the forthcoming Matarbari deep sea terminal, will increase dramatically in the near future. Particularly, the Matarbari terminal will be able to accommodate vessels with a draught of up to 16 metres, a significant increase from its previous 10-metre limit. This expansion will allow the terminal to accommodate larger vessels, including those with a container capacity of 10,000 TEU or more, resulting in reduced transportation costs and time savings. After extensive surveying and evaluation, the project is now well on its way to completion.

### Bay Terminal

The Chittagong Port Authority is building a multipurpose terminal and two container terminals with a 12-metre draught capacity at the Bay Terminal location. Kunhwa Engineering



and Consulting Co., Ltd. is preparing the updated master plan and detailed design of the self-funded multipurpose terminal, while Ernst & Young Global Limited is the transaction advisor. The World Bank will finance the construction of the breakwater and navigational access channels, and Sellhorn-WSP-KS-Aqua will develop their detailed design. Additionally, a passenger terminal is being considered for the Karnaphuli estuary.

### Digitalisation

The Chittagong Port Authority is currently engaged in a digitalisation initiative comprising of fifty modules, with the ultimate objective of transforming the port into a globally recognised facility. In order to accomplish this objective, the development of a centralised database, web portal, and IT infrastructure is currently underway. Amidst the pandemic, the programme titled “Re-engineering of one-stop service centre” has successfully transformed all C&F agent processes into a digital format. Additionally, a billing software has been integrated to authenticate bank CP numbers. The port has implemented online payment methods and enhanced financial transparency. The Terminal Operating System (TOS) and Container Terminal Management System (CTMS) have been implemented to manage a throughput of 1 million Twenty-foot Equivalent Unit (TEU) containers annually, with an anticipated annual growth rate of 10%. A digital system for berthing has been implemented to enhance transparency in ship berthing.

### Chattogram-Europe direct shipping

As required by the garment importers, Chittagong Port Authority confronted difficulties in meeting the lead time for exporters to ship products to Europe. In order to address this issue, the port urged shipping agents to initiate direct shipping with European nations. On April 7, 2022, Chittagong Port Authority reached this milestone by sending

952 TEU garment containers to the Italian port of Ravenna. Later, direct shipping began between Chittagong Port and several other European nations. This not only saves exporters an average of USD8,000 per container, but also halves the transportation time, which is of great benefit.

### Eight times bigger outer anchorage

The digital tidal network has expanded the outer anchorage range from 7 nautical miles to 62 nautical miles at Chittagong Port. This expansion has increased the capacity for both anchorage and logistics. In addition, the port fleet has been augmented with four modern tugboats, two mooring launches, two site scan sonars, two echo sounders, and one sea-going low-freeboard harbour tugboat to assure safe and efficient navigation within the expanded area.

### A Safe Port

The ISPS monitoring team inspected the security system of Chittagong Port twice in August of last year and January of this year. A state-of-the-art CCTV control centre now provides 24-hour surveillance of approximately 98% of the port’s protected and congested areas. The port has improved its fire safety system by adding five foam fire fighting tenders, one rescue vehicle, and one recovery vehicle to its existing fire unit. In addition, fire sprinklers have been installed in the P Chemical Shed, and fire hydrants are currently being installed throughout the port area. Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships in Asia (ReCAAP), a Singapore-based organisation that monitors piracy, has deemed the port’s outer anchorage to be secure.

### Continued efforts at capacity building

Chittagong Port has constructed a 580,000-square-metre yard over the past

decade, increasing its container capacity to 55,000 TEU. New mooring overflow container yard, South Container Yard, and a boat mooring service jetty have been added to the port’s infrastructure. In addition, capital dredging has resulted in the construction of lighter jetties at Sadarghat, thereby decreasing the waiting time for lighter vessels. In addition, the port now has 18 modern quay gantry cranes and has added 310 pieces of cargo and container equipment over the past decade.

### In the Lloyd’s List

Chittagong Port’s global ranking has witnessed significant changes over the years. In 2009, the port was placed 98th on Lloyd’s list of the 100 busiest ports in the world. It moved up to 58th place in 2020, but due to the COVID-19 pandemic’s impact on the import-export trade, it slipped to 67th place in 2021. However, the port has bounced back in 2022, climbing to 64th place after successfully overcoming the pandemic’s shock. Despite the setbacks, Chittagong Port’s consistent growth and improvements have allowed it to maintain its position as a significant player in the global port industry.

### Sustainable port development in the coming times

Despite facing challenges from the global economic crisis and the COVID-19 pandemic, Chittagong Port has continued to make progress. The government’s ambitious vision and coordination with the Ministry of Shipping, along with the Chittagong Port Authority’s dedicated efforts, have enabled the construction work of the Matarbari deep sea terminal and bay terminal to begin. These initiatives are expected to take the shipping trade of the country to new heights, reflecting the port’s resilience in the face of challenges. ◀





# Navigating the Waves of Sustainable Finance: A Comprehensive Roadmap for Developing Bangladesh's Blue Economy in the Bay of Bengal

CPA News desk

## Introduction

The strategic geographic positioning of Bangladesh within the Bay of Bengal presents an immense opportunity for the country to capitalise on the Blue Economy, a sustainable approach to utilising marine resources to spur economic growth, elevating living standards, and creating new job opportunities. To fully unlock the potential of the Blue Economy, Bangladesh must actively seek investments and support for various ventures centred around the Bay of Bengal. This article explores three potential avenues of financing for Blue Economy initiatives: public-private partnerships, international cooperation, and innovative financial mechanisms.

## Potential Sectors of the Blue Economy for Bangladesh

Bangladesh's Blue Economy offers tremendous potential for economic development and growth. Some of the potential sectors that can be explored in the Blue Economy of Bangladesh are:

**Fisheries:** Bangladesh is one of the largest fish producers in the world, and the fisheries sector employs over 3 million people. The country can further explore the potential of its fisheries sector by promoting sustainable practices, improving infrastructure, and investing in research and development.

**Aquaculture:** Bangladesh has a long coastline and extensive inland waterways, making it an ideal location for aquaculture. The country has significant potential for increasing the production of shrimp, prawns, and other high-value fish species through sustainable aquaculture practices.

**Maritime Tourism:** Bangladesh has a rich cultural and natural heritage, with numerous historical and ecological sites that can attract tourists. The country can develop its maritime tourism sector by investing in infrastructure, promoting sustainable tourism practices, and ensuring the safety and security of tourists.

**Shipping and Ports:** Bangladesh's strategic location makes it an important transit point for shipping routes in the Bay of Bengal. The

country can further develop its shipping and port infrastructure to support the growing demand for maritime trade.

**Renewable Energy:** Bangladesh has significant potential for developing renewable energy from its marine resources. For example, the country can explore the potential of tidal power, which can provide a reliable renewable energy source.

**Shipbuilding:** The country has a rich history in shipbuilding, and with the increasing demand for shipbuilding and repair services globally, Bangladesh is well-positioned to take advantage of this trend.

**Ship Recycling:** Ship Recycling also presents a significant opportunity for Bangladesh, given the many end-of-life ships that must be scrapped and dismantled yearly. Bangladesh has become one of the world's leading destinations for ship recycling due to its low labour costs and favourable regulatory environment.

Both shipbuilding and ship recycling have the potential to generate significant

economic benefits for Bangladesh, including employment opportunities, technology transfer, and foreign exchange earnings. By focusing on sustainable practices and investing in technology and infrastructure, Bangladesh can further develop these industries and reap their economic benefits while minimising any negative impacts on the environment and public safety.

### Bangladesh Requires Funds and Technology to Develop the Blue Economy

Funding and technology are crucial elements for the growth of any economy, and the Blue Economy is no exception. Bangladesh has a vast coastline that holds enormous potential for Blue Economy development. However, with sufficient financial resources and advanced technologies, it is possible to unlock this potential fully.

Investments in funding and sophisticated technologies could enhance the existing marine infrastructure, expand aquaculture operations, improve port facilities and transportation networks, benefit national economic stability and contribute positively to global trade. Here are some reasons why:

**Investment in Infrastructure:** Developing the Blue Economy requires significant investment in infrastructure such as ports, harbours, energy sources, and fish processing plants. This requires substantial funding, which may need to be more readily available from the government. Private sector investment can help to fill this gap.

**Research and Development:** Technology plays a vital role in the development of the Blue Economy. For example, advanced fishing technologies can improve catch efficiency, while modern aquaculture techniques can increase productivity and reduce environmental impact. However, research and development require significant investment, which can be provided through funding.

**Environmental Sustainability:** Developing the Blue Economy in Bangladesh requires a sustainable approach to resource management. This includes practices such as responsible fishing, sustainable aquaculture, and conservation of marine ecosystems. The adoption of these practices requires investment in technology and innovation.

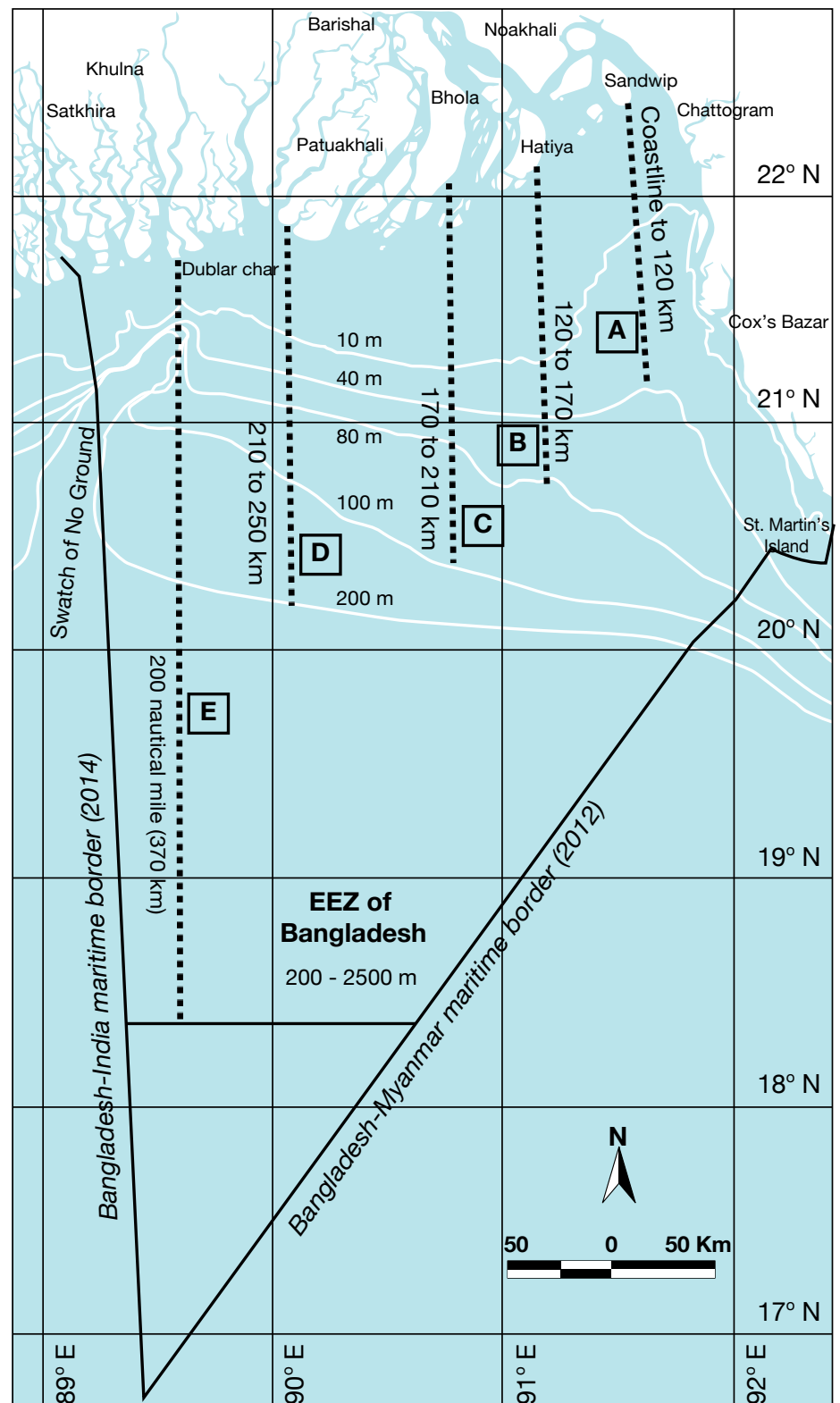
**Job Creation:** The Blue Economy has the potential to create significant employment opportunities in Bangladesh, particularly in sectors such as marine fisheries and aquaculture. However, the development of these sectors requires funding to improve

infrastructure, develop new technologies, and provide training and education.

International Cooperation: Developing the Blue Economy in Bangladesh requires international cooperation and collaboration,

particularly in research and development and technology transfer. Funding can facilitate these partnerships and promote knowledge-sharing.

This map shows the five main marine fishing zones of Bangladesh



## Ways to Get Funds and Technologies to Develop the Blue Economy in Bangladesh

Bangladesh will need significant funding to develop its Blue Economy initiatives. There are several ways in which Bangladesh can secure the necessary funds, including:

### **International Community and Institutions:**

Bangladesh can seek funding from the international community and financial institutions which provide technology and financing for sustainable development projects. Collaboration with multilateral institutions can also help Bangladesh access funding opportunities. The United Nations, World Bank, and Asian Development Bank offer various financing instruments, such as grants, loans, or concessional finance, which can be utilised for marine resource management, climate change adaptation, and disaster risk reduction projects. These institutions can also provide technical assistance, knowledge sharing, and policy advice to help Bangladesh design and implement effective and sustainable marine development strategies.

The UN, for instance, has several programmes and agencies focusing on the sustainable development of oceans, such as the United Nations Development Programme (UNDP) and the Food and Agriculture Organisation (FAO). These organisations can provide technical assistance, capacity building, and financial support for sustainable fisheries, marine conservation, and coastal management projects. Similarly, the World Bank has a portfolio of projects addressing various aspects of the Blue Economy, including ocean health, sustainable fisheries, and coastal resilience. By partnering with these institutions, Bangladesh can leverage their expertise and resources to develop projects tailored to its unique needs and priorities.

The ADB is another important partner for Bangladesh in pursuing a sustainable Blue Economy. The bank has supported various projects in the country, such as the Coastal Towns Environmental Infrastructure Project and the Sustainable Coastal and Marine Fisheries Project. These initiatives focus on improving coastal infrastructure, promoting sustainable fisheries, and enhancing the resilience of coastal communities to climate change and natural disasters. Bangladesh can further strengthen its capacity to manage and develop its marine resources by continuing to engage with the ADB.

Regional cooperation is another essential component of building a sustainable Blue Economy in Bangladesh. By participating

in organisations like the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) and the Indian Ocean Rim Association (IORA), the country can collaborate with its neighbours and other regional stakeholders to address common challenges and share best practices. BIMSTEC, which comprises seven countries bordering the Bay of Bengal, promotes economic growth, social progress, and cultural development through joint endeavours in various sectors, including fisheries, agriculture, and disaster management. IORA, on the other hand, is a regional forum that brings together 22 countries bordering the Indian Ocean to promote sustainable development, maritime security, and economic cooperation.

Working with these regional organisations allows Bangladesh to engage in dialogues and joint initiatives to protect the marine environment, promote sustainable fisheries, and enhance maritime connectivity. For instance, BIMSTEC has established a Fisheries Expert Group to exchange information on sustainable fishing practices, aquaculture, and marine conservation. IORA, meanwhile, has adopted the Blue Economy Declaration, which outlines a shared vision for sustainable ocean-based development and encourages member states to collaborate on research, capacity building, and technology transfer.

In addition to regional cooperation, Bangladesh can benefit from bilateral partnerships with countries with advanced marine sectors and expertise in sustainable ocean management. Countries like Norway, Japan, and Australia have significantly progressed in developing their blue economies and can offer valuable insights, technical assistance, and technology sharing. Partnerships with these countries can help Bangladesh adopt best practices, learn from their experiences, and access cutting-edge technologies to support its marine development goals.

Moreover, Bangladesh can benefit from participating in global initiatives and platforms that promote the Blue Economy and sustainable ocean management. The United Nations Sustainable Development Goal (SDG) 14 aims to conserve and sustainably use the oceans, seas, and marine resources for sustainable development. By aligning its national policies and strategies with the SDG 14 targets, Bangladesh can ensure that its marine development efforts align with global standards and contribute to achieving the worldwide agenda.

Besides, collaborating with other development partners with expertise in

marine engineering, port development, and coastal zone management, such as China, South Korea, and Japan, can benefit Bangladesh's Blue Economy development.

**Public-Private Partnership:** Bangladesh can collaborate with private companies to fund Blue Economy projects. Private companies can bring technical expertise, management skills, and financial resources to help implement and operate projects. At the same time, the government can provide regulatory support and create a conducive environment for private investment. 'Public-private partnerships (PPPs) are collaborative arrangements between public and private entities to pool resources, expertise, and risks to achieve common objectives, such as financing and developing the Blue Economy.

Governments can incentivise private sector investment in the Blue Economy through tax breaks and other financial incentives. For instance, reduced tax rates, tax holidays, or accelerated depreciation can encourage investment in targeted industries like fishing, aquaculture, marine biotechnology, shipping, shipbuilding and ship recycling.

Special Economic Zones (SEZs) and Coastal Economic Zones (CEZs) are designated areas where governments provide a favourable business environment to attract investment. These zones typically offer benefits such as reduced taxes, streamlined regulations, and improved infrastructure. SEZs and CEZs can help stimulate private sector involvement in the Blue Economy by creating competitive advantages for businesses operating within these zones.

### **Impact Investors and Socially**

**Responsible Investment Funds:** Blue bonds are a relatively new type of investment instrument specifically designed to finance projects related to the ocean, such as marine conservation and sustainable fisheries. These bonds are issued by governments, development banks, or other institutions and are typically used to fund initiatives that promote the protection and preservation of the world's oceans.

One of the critical reasons that impact investors and socially responsible investment funds are drawn to blue bonds is their potential to generate positive environmental and social impacts while also providing attractive financial returns. By investing in blue bonds, these investors can support initiatives that help to protect the oceans and the many species that depend on them while also generating a financial return on their investment.

In addition to providing funding for specific projects, blue bonds can also help to raise awareness about the importance of ocean



conservation and sustainable fisheries. By highlighting the positive impact these initiatives can have on the environment and society, blue bonds can help build support for these causes and promote greater public engagement and participation in efforts to protect the oceans.

With its long coastline and rich marine biodiversity, Bangladesh is well positioned to leverage the growing interest in blue bonds among impact investors and socially responsible investment funds. By issuing blue bonds to finance ocean-related projects and initiatives, Bangladesh can tap into a new and growing source of funding dedicated to promoting sustainable and responsible use of the world's oceans.

**The Blue Economy Fund:** The concept of a Blue Economy Fund has gained significant traction in recent years, as countries worldwide have recognised the critical importance of the oceans and the need to invest in sustainable marine practices. The fund could facilitate private sector investment in the Blue Economy, which has traditionally been underfunded due to perceived risks and uncertainties.

The fund could work by pooling resources from different sources, including commercial investors, international organisations, and philanthropic organisations. By bringing together these diverse funding sources, the Blue Economy Fund could leverage more funding for projects related to the Blue Economy. The fund could provide low-interest loans to support businesses and organisations engaged in sustainable marine practices, grants to support research and development in the field, and equity investments to support the growth of businesses and organisations.

In addition to providing funding, the Blue Economy Fund could also serve as a platform for collaboration and knowledge sharing among stakeholders in the Blue Economy. By bringing together experts from different fields and sectors, the fund could facilitate the exchange of ideas and best practices and help to build a more cohesive and coordinated approach to sustainable marine practices.

**Carbon Credits and Payments for Ecosystem Services:** Bangladesh can also use carbon credits and payments for ecosystem services to incentivise the conservation and sustainable management of its marine resources. Carbon credits are tradable certificates representing a reduction in carbon emissions, while payments for ecosystem services are payments made to landowners or communities for protecting and maintaining natural resources.

Bangladesh can create financial incentives for conserving and conserving its marine resources by creating a market for carbon credits and payments for ecosystem services.

**Philanthropic Organisations:** Philanthropic organisations, including non-profit organisations, charitable foundations, and individual donors, play a vital role in supporting Blue Economy projects. These organisations can provide various forms of financial support, such as grants, donations, and other philanthropic funding.

One of the significant advantages of philanthropic funding for Blue Economy projects is that it allows organisations to support initiatives that may not be financially viable through other funding sources. Charitable organisations are often more flexible in their funding criteria and may be willing to take risks on innovative projects needing an established track record.

In addition to providing financial support, philanthropic organisations can also help to raise awareness about the importance of the Blue Economy and the need to invest in sustainable marine practices. By highlighting the positive impact of these initiatives on the environment and society, philanthropic organisations can help build support for these causes and promote greater public engagement and participation in efforts to protect the oceans.

**Payments for Ecosystem Services:** Payments for Ecosystem Services (PES) financing can help Bangladesh protect

and maintain its ocean resources. PES involve the government or private sector paying people or organisations for the services provided by natural ecosystems, such as clean air and water. This type of financing can be used to finance Blue Economy initiatives in Bangladesh, which are sustainable economic activities related to ocean resources. Additionally, PES can help reduce the costs of managing and maintaining ocean resources and provide additional revenue for the government and private sector. By using PES to finance Blue Economy initiatives, Bangladesh can ensure the sustainability of its ocean resources and promote economic growth.

### Benefits of Blue Economy Investments

Investing in the Blue Economy of the Bay of Bengal can have significant economic and social benefits for Bangladesh. Here are some examples of the potential benefits:

**Employment Opportunities:** Bangladesh's Blue Economy presents a significant potential for generating numerous employment opportunities, particularly in fisheries, aquaculture, and marine tourism. According to the World Bank's report titled "Blue Economy and Oceanic Fisheries," the fisheries sector alone employs over 3 million people in Bangladesh.

Investing in sustainable fishing practices and technology provides a pathway for creating more job opportunities that could increase income levels for its citizens. For instance,



A roundtable policy dialogue was held at the Carnival Hall of the Bangabandhu International Conference Centre at the initiative of the General Economics Division of the Bangladesh Planning Commission

introducing fish farming as an alternative to capturing wild fish creates employment opportunities beyond fishing, such as hatcheries operation agents or workers who help with transporting juvenile fish to farms.

Moreover, developing marine tourism can boost demand for skilled workforce in hospitality services like restaurant management, guides jobs such as scuba diving instructors or tour operators that cater towards eco-tourists keen on experiencing natural habitats.

Besides, the direct job creation through the shipbuilding sector includes engineers, designers, welders, painters, and support staff like HR and administration. Consequently, there will also be indirect job creation across trade-related businesses, such as logistics companies creating a whole ecosystem around this industry, thereby improving overall economic condition.

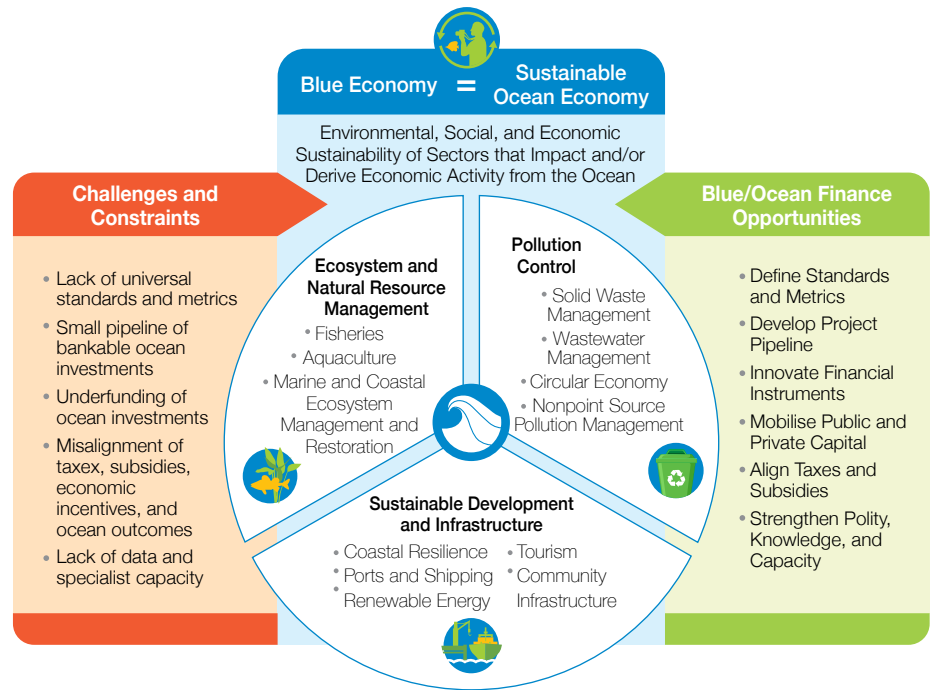
Similarly, Ship recycling is another promising sub-sector that could provide extensive employment opportunities for Bangladeshi citizens. It already employs over 100,000 individuals, according to government data. Shipbreaking yards in Chittagong alone provide jobs for nearly 30,000 workers.

**Food Security:** The Bay of Bengal holds an abundant and diverse range of seafood, which can significantly ensure food security in Bangladesh. According to reports by the Food and Agriculture Organisation (FAO), marine fish landings accounted for over 1 million tons in Bangladesh in 2018, providing livelihoods and essential protein-rich nutrition for millions.

Despite this abundance, there are persistent issues related to sustainable fisheries management and the conservation of marine ecosystems. Overfishing practices have contributed to declines in some species' populations, leading to reduced availability of seafood and social and economic consequences such as job losses.

Investing in sustainable fisheries management practices, such as implementing measures like fishing quotas or establishing protected areas along with development policies that support ecologically friendly aquaculture approaches, can help protect these vital resources while increasing production sustainably. Thus, protecting the resource base, on the one hand, while ensuring will ensure food security needs are met, particularly among communities living near coastal areas where alternative sources of nutrition may be limited. In conclusion, investing in sustainable fisheries and aquaculture practices can contribute significantly to ensuring food security in Bangladesh by

## The Role of Ocean Finance in transitioning to a Blue Economy in Asia and the Pacific



increasing the availability and accessibility of nutritious seafood for coastal communities. However, it is crucial to implement these measures while also prioritising conservation efforts to maintain marine ecosystems' long-term health and productivity.

**Public Health:** Marine environment has a significant impact on public health, both positive and negative. On the one hand, seafood is an excellent source of protein and essential nutrients such as omega-3 fatty acids that are important for maintaining good health outcomes, including reduced risk of cardiovascular disease.

On the other hand, exposure to contaminated water and seafood can harm human health. Polluted waters can contain various contaminants such as heavy metals, polychlorinated biphenyls (PCBs), pesticides and pharmaceutical residues that contaminate the aquatic food chain leading to risks like cancer, neurological damage, developmental issues in children and hormonal imbalances.

Bangladesh has a large coastal population who depend heavily upon fishery products for nutrition security while also having limited access to conventional healthcare systems. Pollutants in marine resources increase the prevalence of foodborne illness throughout Bangladesh's coastal regions, resulting in prolonged illnesses with significant financial implications since most patients cannot work during their conditions.

Bangladesh can improve public health outcomes by investing in sustainable management practices of its marine resources. Sustainable management practices such as reducing water pollution by regulating industrial activities and enforcing proper disposal of waste products can lead to cleaner aquatic food chains that are safe for human consumption. Additionally, monitoring seafood quality and implementing effective distribution channels will help ensure the safe transportation of fishery products without losing nutrient value.

Investing in innovative technologies such as aquaculture that produce nutritious seafood with minimal environmental impact can increase safe seafood production while minimising dependence on wild-capture fisheries. Furthermore, educating the population about the potential risks linked to contaminated seafood and promoting healthier dietary choices through campaigns or public events has successfully achieved better public health outcomes.

In conclusion, ensuring sustainable marine resource management policies should be among the top priorities for countries like Bangladesh, which rely heavily on fisheries both economically and nutritionally; we must safeguard against adverse impacts upon human health brought about by unhealthy commutes leading to protect our oceans' remarkable productivity well into the future.

**Sustainable Economic Growth:** According to a World Bank report, Bangladesh could increase its fish production by 30% over the next decade through better management practices, such as reducing overfishing, investing in coastal infrastructure, and expanding aquaculture. This would provide significant economic benefits to millions of people who depend on fisheries for their livelihoods.

Maritime Tourism is another area with massive potential for growth in Bangladesh. The country's long coastline offers opportunities for beach resorts, recreational activities like scuba diving or snorkelling, nature-based excursion trips etc., potentially generating revenue streams from local communities and helping small business startups by facilitating backward linkage industries creating more jobs. Developing this sector will require improvements in infrastructure like marinas or coast guard station services, plus the establishment of effective governance mechanisms to protect marine ecosystems and ensure sustainable tourism practices.

The Government's Perspective Plan of Vision-2041 aims for a prosperous and smart Bangladesh, so investment in developing the Blue Economy becomes essential. The Blue Economy has tremendous potential as a critical engine for economic growth that can generate sustainable livelihood opportunities while maintaining environmental sustainability. By leveraging its coastal assets effectively, Bangladesh can achieve its socio-economic goals in harmony with nature, transforming into a truly prosperous nation by 2041.

### Conclusion

In conclusion, securing funding for the Blue Economy in Bangladesh necessitates utilising a variety of strategies, as highlighted above - enlisting philanthropic organisations to support local NGOs' work, promoting PPPs that involve equitable benefit sharing and regulations for sustainable growth, and offering technical assistance with low-interest loans from international financial institutions. Impact investors are interested in investing in long-term initiatives that provide economic and social benefits. PES is a novel method of finance whereby participants are rewarded for safeguarding ocean health by lowering overfishing pressure or preserving ecological balance. These strategies can support the development of Bangladesh's Blue Economy while assuring its sustainability, preserving the biodiversity of aquatic environments, and enhancing the well-being of populations that rely on these resources. ◀

# BLUE ECONOMY

The Blue Economy is an emerging concept that encourages better use and protection of the ocean or "blue resources" while improving human wellbeing and social equity.

## Resources of the Blue Economy

### Renewable Energy

This includes hydropower, solar, wind, geothermal and modern biofuel production (including modern forms of waste-to-biomass conversion). Hydropower is approximately one-quarter of the renewable consumption.

### Fisheries and Aquaculture

Global total capture fisheries production	2016	<b>90.9</b>	MILLION TONS
World total marine catch	2016	<b>81.2</b>	MILLION TONS
	2016	<b>79.3</b>	MILLION TONS
Total world fish production expectation	2030	<b>201</b>	MILLION TONS

Promoting, regulating and monitoring of responsible fishing practices through the fisheries management is crucial for the sustainability of resources in both coastal areas and high seas.

### Maritime Transport

2017 global maritime trade

	<b>10.7</b>	BILLION TONS
	<b>4%</b>	ANNUAL GROWTH

Maritime transport is essential for sustainable trade and development which has a great future in promoting economic growth and improving people's lives.

### Waste Management

The fastest growing environmental problem worldwide

**8 million tons** of plastic end up in the ocean

Different strategies to prevent further plastic pollution in the ocean are being adopted, as well as a strengthening of proper waste management globally.

### Climate Change

Impacts oceans through rising sea levels, ocean acidification and elevated temperatures that affect biological diversity,

Establishing climate change mitigation and adaptation strategies could build coastal resilience and improve ecosystem service and natural capital values.

### Tourism

In 2017, UNWTO reported that more than **1.3 billion people** travelled as tourists internationally.

Tourism is an important contributor to sustainable development, as it supports job and wealth creation, environmental protection, cultural preservation and poverty mitigation

## ▶ Prime Minister wants to establish a commercial forum between Bangladesh and Qatar



The development of a combined business forum, according to Prime Minister Sheikh Hasina, would unite the private sectors of the two nations and provide a platform for a mutually advantageous economic partnership. Sheikh Hasina called for the formation of a joint trade and investment committee by the governments of Bangladesh and Qatar on 6 March 2023.

She stated at the Doha Investment Summit, headlined “The Rise of Bengal

Tiger: Potentials of Trade and Investment in Bangladesh,” held at the St. Regis Doha hotel in Doha, Qatar, that “our two nations need to reposition our ties based on a mutually beneficial economic partnership.”

The Prime Minister also requested the cooperation of the non-resident Bangladeshis in Qatar in Bangladesh’s efforts to build its nation by inviting a delegation of Qatari businesspeople to visit Bangladesh shortly.

As her government continues to be open to investment proposals in the infrastructure and logistics sectors, she advised businesses from Qatar to consider doing business in a few key industries in Bangladesh.

Sheikh Hasina made special note of the potential for Qatari investment in the energy sector, including in renewable energy, and claimed that Bangladesh could profit from Qatar’s experience in offshore gas exploration and energy distribution systems.

She cited Bangladesh’s agricultural expansion and said it opens up opportunities for collaboration in the agro-processing sector, including buy-back agreements with Qatar.

The Prime Minister reaffirmed her commitments to fulfil the Father of the Nation, Bangabandhu Sheikh Mujibur Rahman’s dream of building a “Sonar Bangla” expressing confidence that the Qatari leadership and people will continue to stand by Bangladesh in this regard.

The Chairman of Bangladesh Securities and Exchange Commission (BSEC) Professor Shibli Rubayat Ul Islam and executive chairman of Bangladesh Investment Development Authority (BIDA) Lokman Hosaain Miah made two separate presentations focusing on potentials of trade and investment in Bangladesh. BSEC and BIDA in partnership with the foreign ministry arranged the event.

## ▶ The historic 7 March was commemorated in Chittagong Port



Chittagong Port Authority observed history of 7 March with great enthusiasm. On this occasion, a discussion session, a photo display, and a contest were conducted. Rear Admiral M Shahjahan, the Chairman of Chittagong Port Authority, attended the discussion meeting that was held at the Shaheed Fazlur Rahman Munsif Auditorium on 7 March morning. The port’s board members, department heads, educational institution heads, CBA leaders, and students were present at that time.

The port chairman awarded prizes to the competition winners after the discussion session, which included students from several educational institutions as participants. Later, photos documenting Bangabandhu’s life and career were shown.

## ▶ New Bangladesh-Middle East service from CMA CGM



Bangladesh India Gulf Express (BIGEX), a new direct service, has been announced by CMA CGM Group. According to the shipping firm, this is the quickest and only direct route connecting Bangladesh to the Gulf countries of Jebel Ali, Abu Dhabi, Nhava Sheva, and Mundra in India.

Starting on 5 April 2023, the BIGEX service will depart from Chittagong Port on the m/v HONG AN. On a weekly basis, three 1,700-TEU ships will be sent out on the westbound cycle. The cities in which the services are provided are as follows: Chattogram, Colombo, Mangalore, Nhava Sheva, Mundra, Jebel Ali and Abu Dhabi.

By establishing the Bangladesh-India-Sri Lanka-Gulf corridor, BIGEX’s presence reportedly changed Bangladesh’s marine access to the Gulf and India. By adding Gulf and Indian ports in addition to the important Asian ports, BIGEX is anticipated to improve Chittagong Port’s access to transshipment hubs. The carrier claims that this expands market accessibility and shortens transit times, as evidenced, for instance, by the shipment of goods from Bangladesh to the US via Colombo.

The full year of 2022 was marked by strong financial performance from CMA CGM, with sales up 33% from the previous year.

## ▶▶ Celebration of Bangabandhu's birthday at Chittagong Port

National Children's Day and the 103rd birthday of the Father of the Nation, Bangabandhu Sheikh Mujibur Rahman, were celebrated by the Chittagong Port Authority. On 17 March 2023, the Chairman of the Chittagong Port Authority, Rear Admiral M. Shahjahan, and board members placed wreaths at the image of the Father of the Nation that is situated on the grounds of the Port Building. Senior port officials, Freedom Fighters Command, and CBA leaders were present during the occasion. The birthday cake was later cut.

On this particular day, at Shaheed Fazlur Rahman Munsif Auditorium, the port hosted a discussion on Bangabandhu's distinguished life and contributions. The winners of the essay and painting competition with the theme "Bangabandhu and Bangladesh," in which students from the port's educational institutions participated, were later awarded by the port chairman. Later, a documentary on Bangabandhu's life and the independence struggle was screened.



## ▶▶ BSC receives USD22.48 million in compensation for ship hit by missile in Ukraine

BSC have been compensated USD22.48 million from a foreign insurance company for the damages from the missile attack on Banglar Samriddhi in Ukraine. The funds have been transferred to the Sadharan Bima Corporation and will soon be passed on to the Bangladesh Shipping Corporation (BSC).

The Beazley Group, which operates within the British market Lloyd's of London, is one of two insurers of the vessel alongside SBC. The BSC had rented out Banglar Samriddhi to Danish company Delta Corporation back when it arrived in Ukraine on Feb 22, 2022.

Unfortunately, only two days later, amid the war in Ukraine, it was destroyed with a projectile killing one of its crew members. The rest of them were evacuated at Olvia port soon after. Apart from damage to its navigation bridge, fire also affected other parts of the vessel.

The BSC had bought the ship for USD26.3 million around four and a half years ago, and after depreciation, it was valued at USD22.5 million.

## ▶▶ Chittagong Port can accommodate ships with a length of 200 metres and a draught of 10 metres

The CPA said that starting on 19 March 2023, ships with a 200-metre length and 10-metre draft will be permitted to moor at the jetties.

Chittagong Port Authority stated in the circular that "...vessels having LOA (length overall) up to maximum 200-metre length and 10-metre draft may be allowed to take a berth in jetties depending on prevailing real-time hydrological condition."

Before, ships up to 190 metres long and with a maximum draft of 9.5 metres could berth at the port jetties, which can hold up to 2,200 TEUs. A bulk carrier vessel can carry fewer than 30,000 tons of cargo with the same length and water draft.

With the expanded length and water draft permitted, bulk carriers will be able to dock with 40,000 tons of cargo and over 3,000 TEU boats would be able to access the jetties at the Chittagong Port.

The port authority commissioned HR Wallingford, a London-based consultancy firm, to investigate the port's navigation capacity in November 2020 in response to persistent requests from shippers and international ship liners to handle larger boats. The port authority dredged various sections of the Karnaphuli River based on a hydrological and hydraulic research that the company carried out.

The CPA board then decided to authorise the berthing of 200-metre-long and 10-metre-draft vessels in a resolution on 27 December 2022, but the decision was rendered unenforceable because no circular was published.

The Marshall Islands flag carrier ship "MV Common Atlas" was berthed at a port jetty on 16 January as part of a port authority trial run for accommodating larger vessels.

Additionally, on 26 February 2023, a second sizable ship of 200 metres in length anchored at the newly constructed Patenga Container Terminal, demonstrating the suitability of the berthing area and navigation channel for docking larger ships.



## ▶▶ Chittagong Port observed the great Independence Day

The Chittagong Port Authority (CPA) held a number of events to honour the Great Independence Day in the proper manner. On 26 March 2023, the Chairman of the Chittagong Port Authority, Rear Admiral M Shahjahan, saluted at the memorial on the grounds of the Bandar Republic Club at the start of the day. Later, he and the entire board presented wreaths in remembrance of the martyrs. At that moment, the department heads, the president-general secretary of the Chittagong Port Employees Parishad, retired freedom fighters, officers and employees, as well as other leaders, were present.

The national flag is flown on Independence Day atop port structures, workshops, residential buildings, educational facilities, clubs, ships, and other places at the port.

The CPA hosted the leadership and discussion gathering, documentary showing, and award ceremony for Father of the Nation Bangabandhu Sheikh Mujibur Rahman on Independence Day at Shaheed Md. Fazlur Rahman Munshi Auditorium.



## ▶▶ Largest ship in the country's history to anchor at Payra Port



State Minister for Shipping Khalid Mahmud Chowdhury said Payra Port will welcome the largest ship in the

country's history in April.

This information was disclosed at a review meeting on the implementation progress of some development projects at the Ministry of Shipping on 22 March 2023.

The first terminal of Payra port will be inaugurated in the first week of May, said State Minister for Shipping Khalid Mahmud Chowdhury.

The 10.5-metre draught and 215-metre-long ship will anchor at Payra seaport in the first week of April, he said.

Before the inauguration, the capital dredging work of Payra port will be completed on 26 March, the state minister said, adding that the dredging will make the port more viable and allow bigger ships to berth in the port.

State Minister for Shipping presided over the meeting while Shipping Secretary Md Mostafa Kamal, Chairman of Payra Port Authority Rear Admiral M Sohel, and others concerned were present at the meeting.

## ▶▶ India and Bangladesh to settle trade in Rupee-Taka

India and Bangladesh are soon expected to do away with dollar as the official currency and carry out bilateral trade in Rupee and Taka. Officials from both the neighbouring nations held talks on the issue on the sidelines of the recently held G20 Finance Ministers and Central Bank Governors meeting in Bengaluru.

It is reported that India's central bank – Reserve Bank of India's (RBI) – Governor, Shaktikanta Das, held a discussion with Bangladesh Bank Governor Abdur Rouf Talukder on the possibility of having an arrangement where transactions would not be pegged to the dollar.

The RBI Governor is said to be on board with the idea of dual currency and the central bank of both the countries would be working on modalities.

Trade in Indian Rupee and Taka will bring down the cost of settlement and lower conversion rate, making it beneficial for traders of both the countries.

Currently, transactions between both these nations are carried out in US dollar, which is then converted to Rupee or Taka. This leaves both the sides with some conversion losses.

In Bangladesh Prime Minister Sheikh Hasina chaired National Economic Council meeting, the Bangladesh Bank governor, Mr. Abdur Rouf Talukder, said trade settlement in Rupee-Taka would reduce the pressure on foreign currency given the large volume of payments to India.

Bangladesh government also presented a report in which it stated that as per its estimate, around USD2 billion is spend by Bangladeshi nationals on treatment, tourism and education in India. Also, India is among the top three import destinations for Bangladesh.

Talukdar further said there would be a dual currency card for Bangladeshis visiting India. Citizens can load the card with Indian rupee before travelling and vice versa. The exchange rate would be derived from the two currencies and not be worked backwards from the exchange rate of the dollar.

## ▶ International Mother Language Day observed at Chittagong Port



Through a variety of events throughout the day, the Chittagong Port Authority commemorated Martyrs' Day and International Mother Language Day on 21 February

2023. The Chairman of the Chittagong Port Authority, Rear Admiral M Shahjahan, and the board members laid wreaths at the Shaheed Minar (Monument of Martyrs) of the High School in remembrance of the language martyrs. Following that, wreaths were laid by the Chittagong Port Officers Association, CBA, Muktiyoddha Command, and educational institutes run by the port.

At the Shaheed Fazlur Rahman Munshi Auditorium, a discussion programme on the significance of International Mother Language Day was held, and prizes were awarded to the essay and beautiful handwriting competition winners. The main guest during the event was the Chairman of the Chittagong Port Authority, Rear Admiral M Shahjahan.

## ▶ Maritime sector still faces shortage of skilled manpower: State Minister for Shipping

The country's maritime sector is facing a shortage of skilled manpower despite its potential for attracting investments, said State Minister for Shipping Khalid Mahmud Chowdhury.

"The sector will be in a good position soon by overcoming the challenges," the minister remarked while speaking at a seminar organised by the Bangladesh Maritime Law Society at the International Conference Center of CIRDAP in the capital on 6 February 2023.

"Due to the government's efforts, shipyards have now become a potential sector. Bangladesh is now exporting ships as well," he added.

"Shipyards of Khulna and Narayanganj used to be quite vibrant. In 1996, Prime Minister Sheikh Hasina took the initiative to make various improvements.

"Besides, the premier helped the private sector in many ways. As a result, many people are now interested in investing the maritime sector," he added.

Referring to the establishment of multiple marine academies by the present government, he said, "There was only one marine academy for education in this sector. The prime minister then established four marine academies and announced the establishment of three more."

"We are still not getting adequate skilled manpower. So, workers have to be brought from abroad," the minister added. "We want the maritime sector of the country to reach a significant position," he remarked.

## ▶ The first meeting of the National Logistic Development and Coordination Committee held

The first meeting of the newly formed National Logistic Development and Coordination Committee was held on 2 February when a decision was made to work on formulating a National Logistic Development Policy within a year.

Prime Minister's Principal Secretary and National Logistic Development and Coordination Committee Chairman M Tofazzel Hossain Miah presided over the meeting at the Prime Minister's Office (PMO).

He said that National Logistic Development Policy will be formulated to facilitate and ease business and trade and increase investment with a view to achieving the national growth targets.

He said that five sub-committees will also be formed to this end.

The committee decided to work on ensuring efficient transportation of goods and services and upgrading the country's logistic sector into international standard.

It will provide legal support to attract investment in the logistics sector and simplify the existing policy frameworks.

It will also provide overall guidance in formulating logistics sub-sector-based policies and development strategies.

The committee will monitor, review and evaluate the overall progress of the implementation of the logistics development strategy.

The committee decided to build an advanced and efficient logistic management system to reduce these negative effects.

On 22 January 2023, the 29-member National Logistic Development and Coordination Committee was formed.

Top officials of different government and private offices and export and import sectors joined the meeting.

Director General of the Executive Cell of the Prime Minister's Office was made the member secretary of the committee while Bangladesh Bank governor, secretaries of different ministries, heads of different government bodies were made members of the committee.



## ➤ MGI adds four new oceangoing vessels to fleet



Leading industrial conglomerate Meghna Group of Industries (MGI) has added four brand new ultramax bulk carriers to its fleet of oceangoing vessels.

Each of the four vessels—MV Meghna Victory, MV Meghna Prestige, MV Meghna Hope and MV Meghna Progress—has 66,000 tonnes capacity and they were delivered on 21 November 2022.

State Minister for Shipping Khalid Mahmud Chowdhury inaugurated the four vessels at a programme held on 27 February 2023 afternoon on the deck of Meghna Victory anchored at the newly built Patenga Container Terminal (PCT) of Chittagong Port.

This is the second 10-metre draught vessel berthed by the Chittagong Port Authority (CPA) having 200-metre length in its jetties and the first such vessel in Patenga terminal.

In December of 2020, Meghna Group signed a deal with Jiangsu Yangzi-Mitsui Shipbuilding Co Ltd, a China-Japan joint venture company, to build the four ultramax vessels at a cost of USD104 million under a project financed by the HSBC.

Out of the four, Meghna Victory carrying 62,000 tons of wheat from Vancouver of Canada arrived at the outer anchorage of the port on 17 February and later berthed at PCT.

Another ship Meghna Prestige is now in Mongla port while Meghna Hope and Meghna Progress are currently waiting for sail off the coast of China.

With these four vessels, the number of oceangoing vessels owned by MGI has risen to 22.

With the 22 vessels the total cargo carrying capacity of MGI reached at 12.20 lakh tonnes enabling the MGI securing the top position in operating oceangoing vessels in the country exceeding the long-time topper KSRM Group.

KSRM now has a total of 23 oceangoing vessels in its fleet but their total cargo carrying capacity is 11.77 lakh tons.

With MGI's new four, Bangladesh now has 95 flagged vessels.

Chittagong Port Authority (CPA) Chairman Rear Admiral Mohammad Shahjahan, Department of Shipping Director General Commodore Nizamul Haque, HSBC Bangladesh CEO Md Mahubur Ur Rahman and Chittagong Chamber of Commerce of Industry President Mahubul Alam and NRB Bank Chairman Mohammed Mahtabur Rahman spoke at the programme chaired by MGI Chairman and Managing Director Mostafa Kamal.

## ➤ NYK sends first ship for green recycling in Bangladesh

Bangladesh-based ship recycling company, PHP Ship Recycling, has achieved a significant milestone by purchasing a ship directly from a shipping company for the first time. The ship, called KAMO, was sold by NYK, and was beached at the company's facility in Chattogram on 9 March 2023. The sale is seen as a positive development for the industry, which has come under fire in recent years due to concerns over working conditions, lack of protection for workers, and pollution.

PHP Ship Recycling has been working hard to change this, following the Hong Kong Convention adopted by the International Maritime Organisation (IMO) in 2009. The company was awarded a Statement of Compliance by ClassNK in 2020, making it the first green ship recycling company in Bangladesh. It also obtained an ISO certificate for Energy Management, becoming the first ship recycling company in the world to have such a certification.

According to PHP's Managing Director, Mohammed Zahirul Islam, achieving these certifications required an investment of over USD11 million and 12 years of intensive hard work. The ship recycling facility has 500,000 square feet of space at the edge of the Bay of Bengal, and has a capacity of 160,000 metric tons of Light Displacement Tonnage (LDT).

NYK sent its own inspection team to PHP and evaluated the facility to stricter standards than those set out in the Hong Kong Convention. PHP became the first yard to be certified by NYK in Bangladesh.

More than 80% of shipbreaking yards in Bangladesh have been suffering in the past three years due to industry pressure stemming from environmental concerns, low prices, and inherent financial challenges due to Bangladesh's struggling economy. However, the certification obtained by PHP and other shipbreaking yards in the country could help to attract more business to the industry, especially as environmental standards become increasingly stringent.





## ▶ ACI launches Mitsubishi Marine Engine



ACI Limited, one of the biggest conglomerates in the country has launched world-renowned Mitsubishi Marine Engines in Bangladesh.

A grand event was organised on the occasion of the launching of those engines in Bangladesh on 11 March 2023 at InterContinental Dhaka in the capital.

By understanding the potentiality of the marine sector of riverine Bangladesh, ACI Marine and Riverine Technologies Limited started its journey in 2019 with a vision to 'Improve the quality of life through responsible application of technology and services in Marine and Riverine operations.'

ACI is currently operating marine business by trading marine machineries and equipment's with collaboration of world's leading technology products. ACI is also planning to expand its marine business in dredging, transportation, water management and high-tech navigational equipment's businesses in future.

ACI will market Mitsubishi Marine Engine with the range from 378 kW to 2000 kW which can be used in inland and ocean going vessels, dredgers, deep sea fishing vessels, electric power plant, construction, industrial machinery, pump station etc in the country.

Japanese Ambassador to Bangladesh Kiminori Iwama was present as the chief guest in the event. Rear Admiral Mohammad Sohail, Chairman of Payra Port Authority and Dr AKM Matiur Rahman, Joint Secretary & member (engineering) of BIWTA were present as the special guests.

Dr FH Ansarey, Managing Director of ACI Marine and Riverine Technologies has given the opening speech. Dr Arif Dowla, Managing Director of ACI Limited, Subrata Ranjan Das, Executive Director of ACI Motors Limited gave their speech respectively.

## ▶ Bangladesh expands cargo carrying capacity by sea

Bangladesh's entrepreneurs, encouraged by prospects, tax and VAT benefits, expanded their capacity in oceangoing shipping sector, with the total number of vessels rising to 91, the highest so far, at the end of 2022 from 80 ships a year ago.

With the increase, oceangoing ships now have a carrying capacity of nearly 30 lakh tons.

Tax exemption on income earned by oceangoing vessels carrying the Bangladeshi flag until 2030 and value added tax (VAT) exemption on the import of vessels of up to 25 years old attracted investment in the sector over the last couple of years.

"This sector has really done well. We have become competitive after reduction of taxes by the National Board of Revenue (NBR)," said Azam J Chowdhury, Chairman of Bangladesh Ocean Going Ship Owners' Association (BOGSOA).

He said the oceangoing shipping sector would continue to do well as there was a global shortage of vessels capable of carrying cargo, containers and liquids.

Private and public firms had around 80 oceangoing ships nearly a decade ago.

The owners started selling off most of them in the face of declining freight rates, higher operating costs and removal of the VAT exemption on the imports and manufacturing of ships from fiscal year 2014-15.

Private investors showed renewed interest in buying ships after the NBR reinstated the VAT exemption in 2018 to accelerate the shipping industry's growth.

Entrepreneurs earlier said Bangladesh spends USD7 billion to USD8 billion as freight charges every year to carry goods for its imports. But the country can retain a portion of freight charges by encouraging investment in the sector.

Since then, the number of locally owned ships has started increasing as the volume of imports and exports for the growing economy has increased.

## ▶ Two more ocean-going vessels added to HR Line



Bangladesh-grown container carrier HR Line is all set to add two more ocean-going vessels – HR Turag and HR Balu – to its fleet, according to officials of HR Lines Limited, the operator of the shipping line. With the new addition, the number of Karnaphuli vessels will increase to eight. The six other vessels of the shipping lines are HR Sahare, HR Sarera, HR Rhea, HR Hera, HR Farha, and HR Aarai. Of them, four move on the Chattogram-Colombo route, and the rest two on the Chattogram-Singapore route. Some 350 Bangladeshi citizens are serving the ships.

The 1,100TEUs-capacity HR Turag is expected to reach the Chittagong Port on 27 January and it will move on the Bangladesh-Singapore route, while the 1,700TUEs-capacity HR Balu will move on the Bangladesh-Colombo route, HR Lines officials said.

# Embracing Nature-based Solutions

## A Smart Approach to Climate Change and Natural Disasters in Bangladesh

CPA News desk

### Introduction

Many lower-income countries are highly vulnerable to natural disasters and climate change. As well as being in geologically and hydrodynamically unstable areas and subject to extreme weather, their adaptation options are often limited by low financial, manufactured, and human capital, the latter due to low levels of education and healthcare. In response, many are developing National Adaptation Plans and Nationally Appropriate Mitigation Actions that seek to adapt to climate change, reduce disaster risk and cut greenhouse gas (GHG) emissions while supporting the delivery of other sustainable development goals (SDGs).

Bangladesh, a low-lying deltaic country, is highly vulnerable to the impacts of climate change and natural disasters. The country faces various challenges, including sea-level rise, floods, cyclones, and erosion. Nature-based Solutions (NbS) have emerged as a cost-effective and sustainable approach to address these challenges. This article explores the benefits of NbS in Bangladesh and offers a comprehensive understanding of its potential to mitigate climate change and natural disasters.



## Other Solutions

Before diving deep into the NbS, consider other solutions, such as Adaptation and Mitigation Energy.

### Solution Through Adaptation:

Adaptation refers to efforts to adjust to actual or expected climate change and its effects. Bangladesh is one of the most vulnerable countries to climate change and has been recognised as a global leader in adaptation and disaster preparedness.

Bangladesh has led the way in adaptation and disaster risk management. Over the past 50 years, it has reduced cyclone-related deaths 100-fold. The country has implemented proactive policies and investments that strengthen resilience against climate-related disasters, leveraging community-led action. This has led to the developing coastal embankment systems that protect over 6,000 km of vulnerable coastline and an early warning system for cyclones with more than 76,000 volunteers.

However, the country continues to face severe and increasing climate risks. Climate change will undermine Bangladesh's strong development trajectory without decisive action, and the poorest will be hardest hit. Further adaptation efforts are vital, and a low-carbon development path is critical to a resilient future for Bangladesh.

### Mitigation Energy:

Mitigation energy refers to efforts to reduce greenhouse gas emissions and enhance sinks to address climate change. Bangladesh is one of the most vulnerable countries in the world to natural hazards and climate change due to its geographical location and high poverty levels. Despite significant gains in reducing the human toll from climate disasters, Bangladesh faces severe and increasing climate risks. The country's 2021 Nationally Determined Contributions (NDCs) commit to reducing emissions by 21.8% by 2030. Actions focused on improved agriculture productivity, energy, and transport efficiency can lower future emissions while improving air, soil, and water quality. The World Bank's 'Country and Climate Development Report for Bangladesh' estimates that Bangladesh could raise USD12.5 billion in additional financing in the medium term for climate action. Financing options include budget prioritisation, carbon taxation, external funding, and private investment.

## Nature-based Solutions: A Definition

NbS refers to actions that protect, sustainably manage and restore natural or modified ecosystems to address societal challenges while providing human well-being and biodiversity benefits. These solutions are grounded in the belief that nature can offer the best defence against climate change and natural disasters.

Commonly adopted adaptation and development approaches, such as complex flood defences and intensive agriculture, can be expensive and unsustainable. These interventions are static, so they can become obsolete as climate threats intensify. They often tackle one problem whilst making others worse, for example, by increasing GHG emissions and polluting water supplies. NbS offer a more holistic approach to societal challenges by working with and enhancing the natural, human, and social capital that underpins long-term human well-being. NbS, either alone or combined with other approaches, could thus contribute to cost-effective options for addressing climate change, natural hazards and development challenges while also reversing biodiversity loss. However, integration of NbS into national policies is limited, partly because policymakers lack accessible information on their effectiveness for delivering this benefit.

### NbS in Other Countries

The Quito Water Fund (FONAG) in Ecuador is one instance of a South American NbS initiative that has been successful. This initiative was started to conserve watersheds and safeguard Quito's water sources. Around USD10 million has been invested by the fund in conservation initiatives like reforestation, sustainable farming methods, and community involvement. These improvements have improved the water quality, reduced soil erosion, and generated income prospects for the neighbourhood communities.

One example of a successful NbS project in the Caribbean is the Ridge to Reef project in Grenada. This project aims to improve the health and resilience of ecosystems by implementing integrated watershed management techniques. Various initiatives, including soil protection, agroforestry, reforestation, and community involvement, have been implemented as part of the project. These enhancements have improved water quality, reduced soil erosion,

and create income opportunities for the surrounding communities.

Kenya's Tana River Basin project illustrates a practical NbS project in Africa. This initiative seeks to increase water security for humans and the environment by employing integrated water resources management techniques. The project has put into practice several industries, including soil protection, agroforestry, reforestation, and community involvement. These improvements have improved the water quality, reduced soil erosion, and generated income prospects for the neighbourhood communities.

### Why NbS Are Beneficial for Bangladesh

1. **Cost-effectiveness:** NbS are generally more cost-effective than hard infrastructure solutions. For instance, mangrove restoration and afforestation can provide coastal protection at a fraction of the cost of constructing seawalls and embankments. According to a World Bank study, every dollar invested in mangrove restoration in Bangladesh can yield benefits worth over USD7.
2. **Adaptability:** NbS can easily adjust to local conditions and evolve with the changing climate. This flexibility allows for continuous improvement and adaptation to new challenges, ensuring long-term resilience.
3. **Biodiversity Conservation:** NbS contribute to biodiversity conservation by preserving and restoring ecosystems. Bangladesh is home to the Sundarbans, the world's largest mangrove forest, which hosts diverse flora and fauna. By implementing NbS, Bangladesh can safeguard this unique ecosystem and the species it supports.
4. **Livelihood Support:** NbS can enhance the livelihoods of local communities by providing resources and ecosystem services, such as food, water, and income from sustainable practices like agroforestry and ecotourism. This, in turn, can contribute to poverty alleviation and sustainable development in Bangladesh.
5. **Carbon Sequestration:** NbS, such as afforestation and wetland restoration, can act as carbon sinks, absorbing and storing atmospheric CO<sub>2</sub>. This helps to mitigate climate change by reducing greenhouse gas emissions.

### Main Features of NbS in Bangladesh

1. **Mangrove Restoration:** The Sundarbans mangrove forest is a natural barrier against

## Projects are done with nature-based solution interventions in Bangladesh

Ecosystem	Type of intervention	No	Description
Coastal	Mangrove protection and restoration	15	Protection of existing or restored mangroves or replanting of mangrove seedlings for coastal protection, livelihoods and biodiversity. Most (9) studies are in the Sundarbans reserve, an area of over 600,000 ha which has been protected as a Ramsar site since 1992, but some (6) assess restoration initiatives in the Chattogram region or along the south coast
	Oyster reef creation	1	One experimental site on the south coast, to assess the benefits for coastal protection
	Shoreline conservation	1	Mixed conservation measures in Cox's Bazar - Teknaf Peninsula and Sonadia Island Ecologically Critical Areas (ECAs) including protecting mudflats and the rocky intertidal zone and conservation of sea turtles, to benefit fisheries
	Sand dune revegetation	2	Replanting native vegetation in Cox's Bazar - Teknaf Peninsula and Sonadia Island ECAS for erosion protection
	Coastal shelterbelt	2	Planting of strips of coastal trees to protect from storm surges, cyclones and coastal erosion
Inland wetlands	Swamp forest protection and restoration	4	Planting native swamp forest trees in the Haor wetlands for flood and erosion protection, livelihoods and biodiversity
	Wetland protection and restoration	8	Protecting and restoring the Haor wetlands, e.g. re-excavating silted up areas that dry out in summer, to protect fisheries
	Fishery management	4	Regulating fishing and preventing 'poison fishing' to avoid over-exploitation, in the Haors
	Floating gardens	2	Growing vegetables on mats of floating wetland vegetation (mainly water hyacinth) when farmland is inundated
	Bioremediation	4	Use of water hyacinth to remediate water pollution in the Haors; and experiments with constructed wetlands or soil fungi to remove arsenic from water and soils
Terrestrial forests, shrub and grass	Terrestrial forest protection and restoration	9	Protection and restoration of the Chattogram Hill Tracts forests, to protect from erosion and sustain livelihoods. Also planting trees to stabilise embankments in the Haors
	Community forestry	4	Vulnerable local people co-manage plantations or native forests and in return are allowed to harvest them sustainably
	Forest plantation	1	Experiment to assess carbon storage and sequestration
	Grass and shrub cover	2	Use of native grasses and shrubs on embankments and around homesteads to protect against erosion
Agroforestry and homegardens	Agroforestry	6	Planting rows of fruit, timber or fuelwood trees amongst other crops; helps to stabilise soil on steep slopes
	Homegardens	7	Small areas around homesteads, growing a diverse mix of trees, shrubs, vegetables and other plants for food, timber, fuel, ornamental and medicinal use
Cropland	Conservation agriculture	15	Experiments or large scale field trials of conservation agriculture techniques including reduced tillage, retaining crop residue, adding organic matter (e.g., manure, compost) to soils, cultivating rice without flooding the field, increasing crop diversity, and integrated pest management. Aimed at increasing resilience to climate change (especially droughts) and reducing the use (and cost) of agro-chemicals
	Rainwater harvesting	1	Excavating ponds to store water for use during the dry season
Urban	Urban green space	1	Production of food and other goods in rooftop gardens and other open spaces in Dhaka

cyclones and storm surges. By investing in mangrove restoration and afforestation, Bangladesh can strengthen this natural defence system and reduce the impacts of coastal hazards.

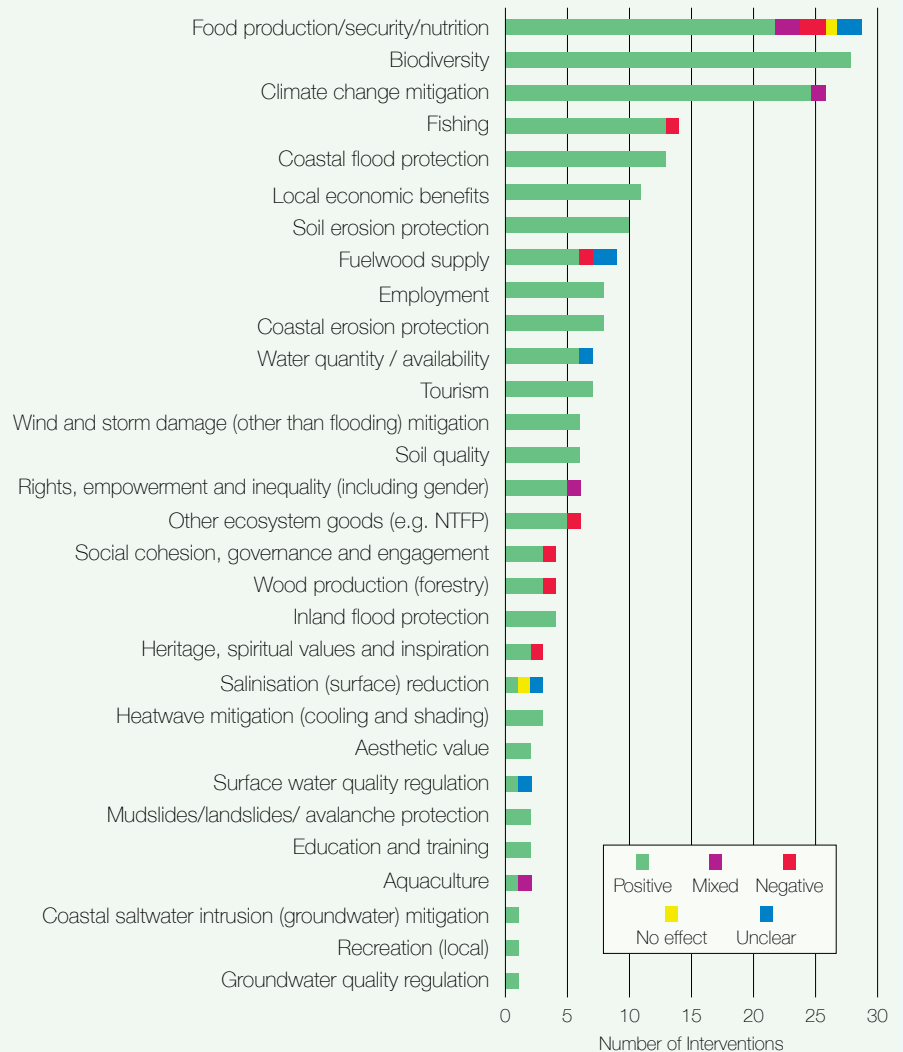
2. Flood-resilient Agriculture: Climate-resilient agricultural practices, such as floating gardens and alternative wetting and drying (AWD) in rice cultivation, can help farmers adapt to changing weather patterns and reduce the risk of crop failure.

3. Ecosystem-based River Management: Integrating NbS in river management, such as promoting natural riverbank stabilisation and sediment retention, can mitigate erosion and improve water quality. This approach can also enhance the river's capacity to absorb excess water during floods, reducing the risk of inundation and damage to infrastructure.

4. Community-based early warning systems: Bangladesh can improve its preparedness and response capacity by involving local communities in developing and implementing early warning systems for natural disasters. This approach can also help build local knowledge and resilience to climate change impacts.

5. Urban green infrastructure: Incorporating green spaces, such as parks, green roofs, and urban forests, in city planning can help reduce urban heat island effects, manage stormwater runoff, and improve air quality. This can contribute to the overall resilience and well-being of urban populations.

### Outcomes of Nbs interventions



Outcomes	NbS	Selected example of outcome evidence
GHQ reduction	Protecting and restoring mangroves	Carbon storage: 219 tC/ha Carbon storage: 257 tC/ha, of which 63% below ground in the soil and roots Carbon storage (global averages): 400 tC/ha for oceanic mangroves; 2000 t/ha for estuaries. Average for Indo-Pacific region: 1,023 tC/ha. Conversion to aquaculture by excavating >2 m of sediment can release 70 tC/ha. Sequestration: 1.5 to 6 tC/ha/y (global range) Sequestration: 1.7 tC/ha/y, four times more than mature land-based forests. Offset 1.5% of Bangladesh's fossil fuel CO <sub>2</sub> emissions in 2014 Sequestration: Sundarbans sequestered 4.8 Mt CO <sub>2</sub> /year from 1997 to 2010. Offset 10% of Bangladesh's CO <sub>2</sub> emissions
	Plantations	Carbon storage: Roadside social forestry plantations in south-western Bangladesh store almost 200 t/ha although this is less than native woodlands
	Agroforestry	Sequestration: 115-135 tCO <sub>2</sub> /ha/y (equivalent to 31-37 tC/ha/y) 7 years after planting for three typical fast-growing species
	Homegardens	Carbon storage: average 118 tC/ha in above-ground biomass, much higher than homegardens in India, thought to be due to higher tree density Carbon storage: Soil organic carbon 0.12-1.65%; positively correlated with tree species diversity and density, probably because more diverse systems are more productive due to niche complementarity

Outcomes	NbS	Selected example of outcome evidence
Coastal floods, erosion and salinisation	Protecting and restoring mangroves	<p>820 km<sup>2</sup> and 1.1 million people protected from coastal flooding during tropical cyclones and other storms by mangroves in Bangladesh, avoiding damage worth USD1.56 billion per year on average</p> <p>3.5 million people protected by mangroves in Sundarbans</p> <p>Villages protected by mangroves had about half of the monetary loss from flood and wind damage to houses, property, crops, livestock and aquaculture stock associated with cyclone Sidr (TK 69,726, USD1,025 per household), compared to villages not protected by mangroves</p> <p>Even a 100 m deep strip of healthy mangroves can reduce storm surge velocity for a storm of the same magnitude as cyclone Sidr by up to 92%, providing significant savings in maintenance costs by protecting embankments from damage</p> <p>Char land areas in the Barishal and Chattogram regions planted with mangroves experienced 37.2 times more accretion than erosion between 1973 and 1989 and 4.7 times more from 1989 to 2010, compared to only 1.6 and 1.3 times more accretion than erosion in areas that were not planted. For lands that were newly accreted in 1989, 31% of non-plantation land had eroded by 2010 compared to only 10% of plantation land</p> <p>The CBA-ECA project planted 361 ha of mangrove and 62 ha of sand dune vegetation to protect the flora and fauna of the Cox's Bazar-Teknaf Peninsula and Sonadia Island ECAS. Community-based organisations worked with local and national government and law enforcement agencies to revert illegal shrimp farms into mangrove forest</p> <p>The CREL project supported planting of 565,000 mangrove seedlings on 512 ha, estimated to deliver USD485 million of storm protection services as well as co-benefits totaling USD 684 million annually. and planted 20 ha of sand dunes with 562,000 seedlings of <i>Nishinda</i> and <i>Dholkolmi</i> (<i>pomoea camea</i>) to reduce erosion and storm surge impacts, helping to maintain the integrity of the island, and creating habitats to support indigenous species</p>
	Coastal shelterbelts	<p>Double coastal shelterbelts of mangrove and <i>Casuarina</i> trees, 200-300 m in depth, can reduce storm surge height by up to 22% (1.4 m) and surge velocity by up to 49% (1.2 m/s) for an event like Cyclone Sidr. Mangroves have a higher drag due to their aerial root structure, but densely planted <i>Casuarina</i> can be more effective for very high surges Das et al. (2010)</p>
Inland flooding and erosion	Agroforestry	<p>Cultivation of cash crops such as ginger causes soil erosion that costs about 11% of the total production costs, but agroforestry can turn this loss into a gain of about USD26 ha/year, as the soil-formation rate exceeds the erosion rate</p> <p>In the MACH project (Table S5), switching from planting pineapples along contours rather than in rows up and down slopes also allowed denser planting and resulted in increased fruit size, thus increasing the farmers' income and food security. The contour plots increased profits by 140% over 3 years, to Tk 128,600 per acre, which is Tk 74,990 per acre more than the traditional cultivation system</p>
	Protecting and restoring terrestrial forests	<p>Catchments with regenerating or planted trees and other vegetation had 3-4 times less soil erosion, 4-35 times less nutrient loss, 16% less annual runoff and the peak flow was seven times lower than a catchment that had been cleared for agriculture</p> <p>Local tree species with deep tap roots could successfully stabilise steep slopes at risk of landslides although this is only suitable for slopes of less than 70°</p> <p>In the Haor basin, Government agencies, donors, NGOs and local communities collaborate to plant locally raised seedlings of flood-tolerant plants, particularly <i>Hijal</i> (<i>Barringtonia acutangula</i>) and <i>Koroch</i> (<i>Pongamia pinnata</i>). 125,000 seedlings were planted onto kanda (raised land) under the Tanguar Haor Project (2006-2016), 18,450 seedlings were planted in 17 ha at six sites at Hakaluki Haor under the CBA-ECA project (2011-2015), and 112 ha were restored under the CREL project In Hakaluki Haor, 11 submersible embankments with 'green belts' of indigenous tree species were established</p>
	Growing herbaceous plants	<p>Villagers in Chanda Beel are growing low plants such as <i>Sesbania</i> (<i>doincha</i>), grass and "<i>dholkolmi</i> (<i>Ipomea carnea</i>, morning glory) and heaping piles of rotten water hyacinth around homesteads to prevent soil erosion during floods, as well as planting more trees in fields</p>
Wind damage	Protecting and restoring mangroves	<p>The cost of repairing and reconstructing houses due to combined wind and flood damage Cyclone Sidr was lowest (TK 27,043) for a site protected by mangroves compared to TK 82,246 for a site with no mangroves, and damage to trees was also lower, with 36% of trees damaged compared to 56% for the site with no mangroves</p>
	Coastal shelterbelt	<p>A 19 year old 50 m <i>Casuarina</i> shelterbelt was thought to have reduced wind speed (from 4.16 to 2.88 on a scale of 1-5) and increased the size of sand dunes (from 1.86 to 2.74)</p>

Outcomes	NbS	Selected example of outcome evidence
Wind damage	Homegardens	Taller trees are grown at the boundary where they provide protection against wind but do not shade the other plants, and will not fall on the house if blown over. On the beach and hillside, owners preferred coconuts (chosen by 53% of owners), supari (45%), mango (42%) and jackfruit (25%), due to their high survival rate, strong root systems, strong stems, and low weight/light canopy which reduces the wind load on trees and prevents damage if they are blown over. However, on the mudflat island of Shahparir dwip owners preferred Acacia (50%), raintree (Samanea saman, 40%), jhau (Casuarina equisetifolia, 33%) and mahogany (28%) because of their strong and spreading root systems or deep taproots
Water Security	Conservation agriculture	Strip planting into un-tilled ground increased the water productivity of wheat by 60% compared to conventional tillage, from 1.25 to 2.06 g of grain per kg of water. Minimum soil disturbance and retention of crop residue slow evaporation, aided by the cooler temperatures under retained residue Conservation agriculture techniques increased irrigation water productivity by 25% in rice-wheat and rice-maize systems, increasing the resilience of farmers to unpredictable rainfall patterns
Food security	Conservation agriculture	A 10-year programme involving over 6,000 farmers in four districts found that strip planting increased yields by up to 28% for lentil ( <i>Lens culinaris</i> ) and 6% for wheat ( <i>Triticum aestivum</i> ). Strip planting cut cultivation costs by 75%, labor requirements by 50%, irrigation water requirements by 11-33% and fuel costs by up to 85%, and increased profits by between 47% for lentil and 560% for mustard ( <i>Brassica juncea</i> ). Researchers on this programme worked with farmers and equipment suppliers to develop a lightweight reduced tillage planting machine; they estimated that if this was used by 2.5% of farmers in Bangladesh it would generate USD21-38 million per year from increased yield and reduced production costs increased yields for wheat and maize but not nice, lentil ( <i>Lens culinaris</i> ) and mung bean
	Fishery management and wetland restoration	The MACH project supported local resource management organisations in re-stocking nearly 1.2 million fish (mostly juveniles) of 15 native species, which enriched fish production and biodiversity. Restoration of critical habitats can have a significant impact on catches across a much larger area, for example by excavating silted-up wetland pools in the dry season which can then be used in irrigation and to support breeding habitat for fish, and thus to contribute to food and water security. Restoration of wetland habitats and sanctuaries more than doubled fish catches, from 144 kg/ha in 1999 to an overall average of 327 kg/ha by 2007. Fish consumption of the village households around these wetlands increased by about 45% on average throughout the project period, and the landless benefited as much as larger landowners Five fish sanctuaries were created in different beels (perennial water bodies) of Tanguar Haor, 12 under the CBA-ECA Project and 63 under the MACH project. These helped to increase fish supply and other aquatic resources, and enrich biodiversity, employment and tourism. Fish catches in sample areas increased from 171 kg/ha in 2013-14-277 kg/ha in 2015-16
	River restoration & management	The River Halda in Chattogram is the only freshwater tidal river in the world with the right ecological conditions for the spawning of major Indian carp species, such as Catla, Labeo rohita, Cirrhinus mrigala and Labeo calbasu. Fish eggs and fry are gathered and sold to underpin aquaculture across the whole country. However the river is under threat from over-fishing, pollution, saline intrusion, excessive sand quarrying and unregulated construction of sluice gates for irrigation. Local people recognised the river's value and were willing to contribute their time and money to help conserve the services it provides, although there was a substantial gap between their willingness-to-conserve (BDT 54 million) and the value of the services provided by the river. This led the authors to recommend that community-based management, perhaps supported by a Payment for Ecosystem Services approach, should be applied to the Halda and to other rivers throughout Bangladesh

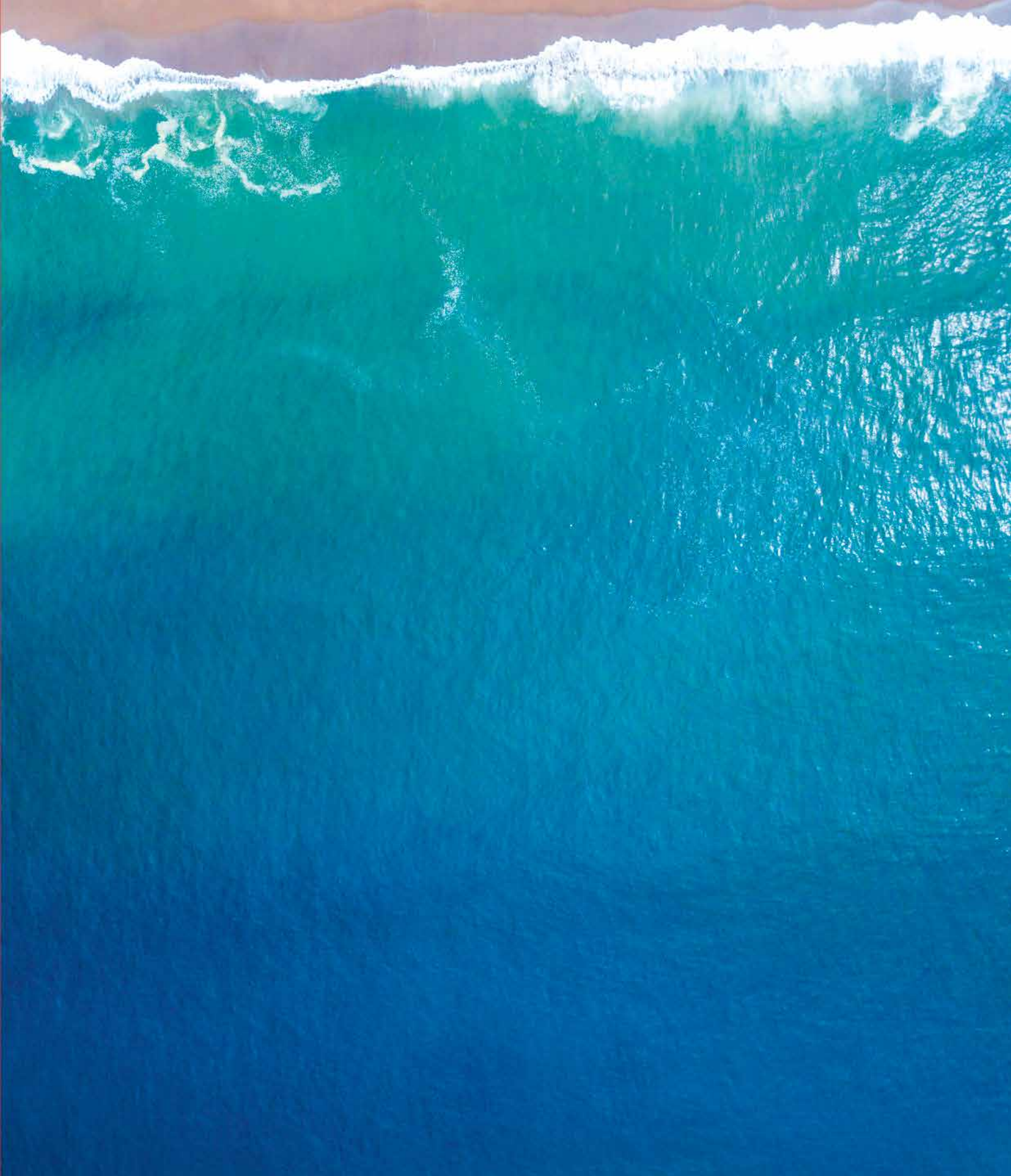
Source of these data: An article published in *Frontiers* titled 'Nature-based Solutions in Bangladesh: Evidence of Effectiveness for Addressing Climate Change and Other Sustainable Development Goals'

## Conclusion

In summary, Bangladesh can address climate change and natural disasters by taking a multi-pronged approach that includes investing in 'disaster risk mitigation infrastructure' projects; implementing nature-based solutions; developing people-centric spatial development; strengthening governmental institutions; improving urbanisation; diversifying exports

beyond ready-made garments (RMG); deepening financial sector development; making urbanisation more sustainable; strengthening public institutions; including fiscal reforms to generate domestic revenue for development. Addressing infrastructure gaps would accelerate growth. Addressing vulnerability to climate change and natural disasters will help Bangladesh build resilience to future shocks.

By embracing NbS, Bangladesh can protect its valuable ecosystems and biodiversity and enhance its people's well-being and resilience. To realise the full potential of NbS, the government, private sector, and local communities must work together in implementing and scaling up these solutions. This collaborative effort can ensure a more resilient, sustainable, and prosperous future for Bangladesh in the face of climate change and natural disasters. ◀



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