ISSN 2708-1338
JANUARY 2022, VOL 05, ISSUE 01

MARITIME CAMPUS

A QUARTERLY MAGAZINE OF
BANGABANDHU SHEIKH MUJIBUR RAHMAN
MARITIME UNIVERSITY, BANGLADESH

Bangabandhu Always Wanted to Preserve Natural Beauty of Bangladesh

MSc in Coastal and River Engineering: Ushering New Opportunities

Indian Ocean Rim Association for Enhancing Economic Cooperation

BSMRMU: A Leading University for Maritime Law

INFOGRAPHICS

On the Bay of Bengal...

BLUE ECONOMY

Blue Economy industries like **TOURISM, OFFSHORE HYDROCARBONS, AND SHIPPING HAVE BECOME RENEWED FOCUS** of economic development.

However, limited port capacity, low levels of intra-regional economic integration, the need for infrastructure investment, and environmental damage pose challenges to realising the region's blue-economic potential.

COASTAL WELFARE

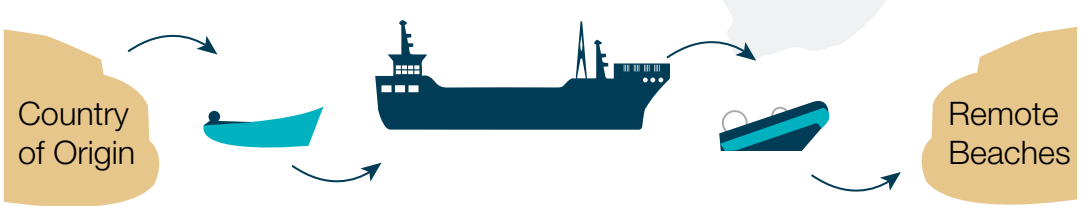
Rapid improvements in economic security for coastal communities in the Bay of Bengal have resulted in a steady increase in coastal welfare.

To build on the positive trend, countries need to **ENSURE GROWTH IS INCLUSIVE ACROSS REGIONS** and resolve insecurity resulting from outbreaks of political violence.

ILLICIT TRADES

The Bay of Bengal contains **SEVERAL TRANSIT POINTS** for illicit goods, including contraband and drugs.

The abundance of small vessels, the difficulty in monitoring the movement of such vessels, port corruption, and threats to the welfare of local fishing communities create an enabling environment for illicit trades.



RULE OF LAW

Corruption, particularly in regional ports, hampers shipping and trade efficiency, which are key to the development of the Blue Economy.

The region also exhibits pockets of **INEQUITABLE SERVICE PROVISION AND SOCIOECONOMIC EXCLUSION** which threaten to isolate certain coastal communities. Weak rule of law can drive communities towards illicit maritime activity for survival.

MARITIME MIXED MIGRATION

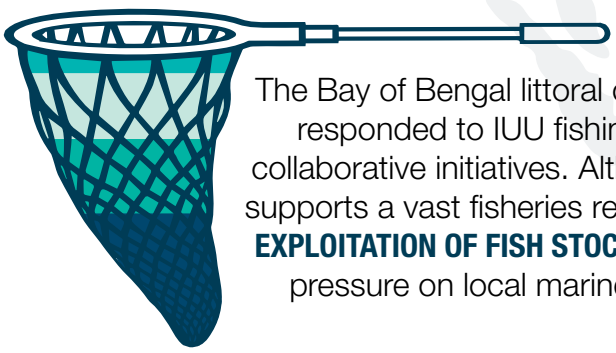
INCREASED REGIONAL COOPERATION IS NECESSARY to crack down on regional human smuggling and trafficking networks and ensure the protection of maritime migrants.

Coastal conflict and pockets of coastal economic insecurity generate a market for maritime mixed migration. Migrants **REMAIN VULNERABLE TO EXPLOITATION** by traffickers and smugglers.

MARITIME ENFORCEMENT

BALANCING RESOURCE DISTRIBUTION BETWEEN LAND AND SEA-BASED SECURITY concerns will allow nations to develop maritime enforcement capabilities to more comprehensively address threats in the maritime domain.

Multilateral and bilateral initiatives are proactively addressing limitations in the maritime domain awareness and coordination.

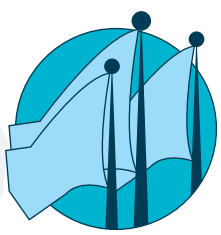


FISHERIES

The Bay of Bengal littoral countries have responded to IUU fishing with several collaborative initiatives. Although the bay supports a vast fisheries resource, **HEAVY EXPLOITATION OF FISH STOCKS** has placed pressure on local marine ecosystems.

Addressing marine pollution and **DEVELOPING COORDINATED FISHERIES MANAGEMENT** will be vital to the long-term sustainability of regional fisheries.

INTERNATIONAL COOPERATION



Multilateral initiatives like **BIMSTEC AND IORA WORK TO IMPROVE REGIONAL COOPERATION** on maritime issues.

However, these frameworks suffer from a **LACK OF HUMAN AND FINANCIAL RESOURCES** needed to develop and implement coordinated maritime policy in the region.

PIRACY & ARMED ROBBERY

Overall piracy, armed robbery and kidnapping for ransom have declined.

Poverty, resource scarcity, population density, and limited law enforcement all have the potential to create an environment conducive to these forms of maritime crime.

ISSN 2708-1338

January 2022, Volume 05, Issue 01

Maritime Campus

A Quarterly Publication of Bangabandhu Sheikh Mujibur Rahman Maritime University, Bangladesh

Content Development, Writing, Editing, Design & Publication:

Enlighten | **Vibes**

House 06, Road 3, Sector 05
Uttara, Dhaka-1230, Bangladesh.
Tel: +02 48956748
Email: enlightenvibes@gmail.com

Editorial Communique

Plot# 14/06-14/23, Pallabi Mirpur-12, Dhaka-1216
Tel: +880 9666776868, +88 02 58051010,
+8801769721010
Fax: +02 58051010
Email: info@bsmrmu.edu.bd
Web: www.bsmrmu.edu.bd

Editorial

MSc in Coastal and River Engineering graduates to advance riverine development and uphold maritime Bangladesh

New Year's greetings from Maritime Campus magazine. In this New Year, the publication pledges to sensitise maritime sector among the youth and potential maritime students by informing them with showcasing all domestic and international best practices.

The first-ever maritime specialised university, Bangabandhu Sheikh Mujibur Rahman Maritime University (BSMRMU) has opened a master programme in coastal and river engineering. It is a two-year full-time postgraduate degree. After completing this programme, graduates will be qualified to work as River Engineers, Coastal Engineers, Structural Engineers, and Project Managers in the relevant field. And this issue of the magazine presents a lead story to detail this exclusive programme for potential students.

To commemorate and celebrate the Birth Centenary of the Father of the Nation Bangabandhu Sheikh Mujibur Rahman, Maritime Campus has been publishing dedicated articles in its Focus section. In this regard, this issue of the magazine sheds light on the initiatives and thoughts of Bangabandhu to preserve the natural ecosystem for an environment-friendly Bangladesh.

In the Academia section, the Indian Ocean Rim Organisation (IORA) is discussed in detail to learn about its inception, its present scenario and future economic cooperation in the maritime sector. IORA is built on the ideals of free regional integration for improving economic cooperation, particularly in trade facilitation and investment promotion, as well as in the social development of the region, and Bangladesh may benefit greatly from it.

In our Panorama section, the author paid homage to the legendary and country's pioneer shipping personality, Mr Sanaullah Chowdhury. According to the author, the spirit of Mr Chowdhury will live on in the thoughts of people who work in the maritime industry of Bangladesh.

Additionally, the 'Campus Canvas', 'Maritime Bangladesh' and 'Around the World' sections will inform you about all the important maritime events and developments happened during the last quarter of 2021.

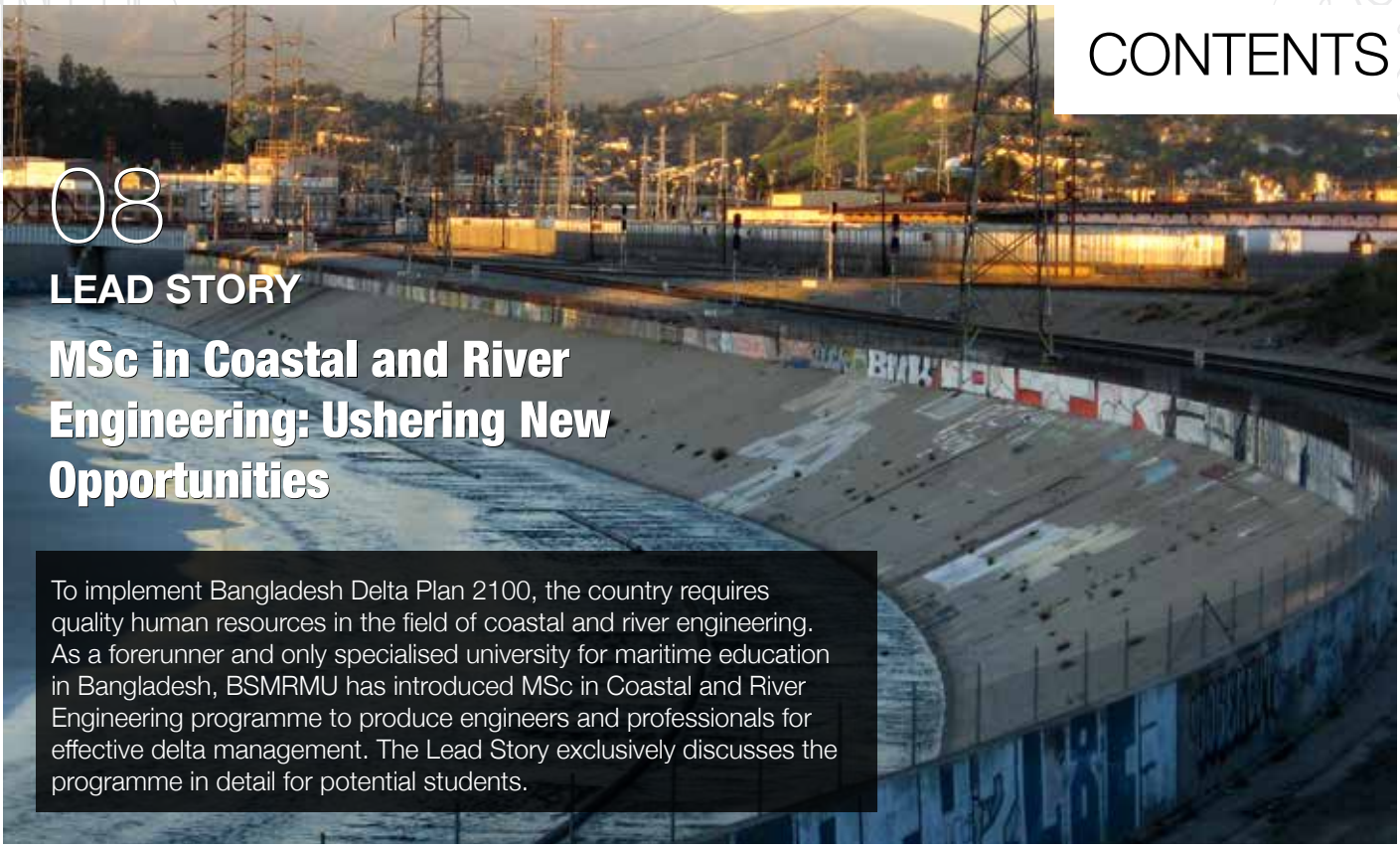
Finally, I would like to express my gratitude to the Chief Patron and Honourable Vice-Chancellor for his valuable guidance to bring this issue to light. I would also like to thank all the departments for the support they have rendered by providing information about the activities of their respective departments.

Finally, I appreciate the members of the Editorial Board for their relentless effort to publish this magazine.

Thanking you

Captain A T G M Sarker, (TAS), psc, BN (retd)
Editor and Controller of Examinations
Email: editor.mc@bsmrmu.edu.bd

CONTENTS



Bangabandhu
Always Wanted to Preserve the Natural Beauty of Bangladesh

Maritime Campus desk

The Father of the Nation Bangabandhu Sheikh Mujibur Rahman was always very fond of nature. Not only that, he understood the importance of preserving nature and biodiversity. And throughout his life, he took many steps toward accomplishing this. He was very far-sighted when it comes to the essential role played by nature. That is why, long before climate change was recognised as a serious threat, he took steps to safeguard and conserve the Sundarbans, St. Martin's Island's coral reefs and other climate-vulnerable areas of Bangladesh.

The father of the nation first visited Cox's Bazar in 1958 and his last visit was on 10 January 1975

Biodiversity of Bangladesh: past and present

Plants are essential for the survival of animals. This reliance stems from a desire for food, the aspiration to create a favourable environment, or the need to survive. The ecosystem is the technical term for this chain. And preserving the ecosystem's balance is very important to human survival.

Bangladesh is rich in biodiversity due to its fertile soil and warm, humid climate. The Asiatic Society's Encyclopaedia of Flora and Fauna has compiled a complete list of Bangladesh's biodiversity. There are between 3 million and 30 million species (living), according to various scientific estimates, with around 1.4 million of them classified. Invertebrates, fungus, algae, and microbes make up the rest of the list, which includes around 250,000 plants, 750,000 insects, and 41,000 vertebrates. Bangladesh used to be lush with vegetation and fauna. Under the weight of an ever-increasing population, it is becoming a desolate wasteland. Once it is completely destroyed, it will be impossible to restore.

Bangabandhu's love for nature

The Father of the Nation Bangabandhu Sheikh Mujibur Rahman was a passionate nature lover and environmentalist. A look at his biography reveals that he has a strong affinity for nature. Bangabandhu travelled to Geneva, Switzerland in 1972 to improve his health. He was impressed by the natural beauty of Switzerland at the time. As a result, he decided to utilise Switzerland as a model country for Bangladesh, and he devised a plan to turn Cox's Bazar into the 'Geneva of Asia.' On the occasion of the tree-plantation campaign in 1974, he made several calls to the public to plant more trees.

St. Maritin's is regarded as an infinite source of tourism and Bangabandhu recognised the importance of coral reef preservation. Coral reefs offer more than just a beautiful underwater sight. These different ecosystems impact far more than we believe, ranging from researching cancer therapies to protecting coastlines from tsunamis. Bangabandhu correctly recognised its significance and it is believed that his passion for nature is comparable to that of Australian philosopher John Passmore. Men, according to Passmore, cannot continue to exist as predators on the planet as they did in the past. Bangabandhu understood his obligation to nature, that is why we witness his efforts to preserve the natural beauty of St. Martin's Island, Sundarban, Teknaf, Tetulia, Jaflong and other beautiful places in his 'Sonar Bangla.'

Bangabandhu's laws to protect the environment

Bangabandhu enacted a variety of initiatives to ensure the sustainable use of a newly independent country's limited natural resources, with a focus on pollution control, environmental conservation and biodiversity protection.

The Father of the Nation Bangabandhu Sheikh Mujibur Rahman enacted the Bangladesh Wildlife (Preservation) Order 1973 Ordinance in acknowledgement of the need to reconstruct the war-torn country and change the fate of the people while simultaneously conserving forests, wildlife, and biodiversity. In 1974, he passed the Wildlife Conservation Act to protect the country's biodiversity. In 1972, he established the Joint River Commission and began water diplomacy. He devised a multi-faceted action plan after realising the importance of waterway development. In 1975, the country's National Herbarium was founded under his patronage. With the implementation of the Water Pollution Control Ordinance 1973, Bangabandhu Sheikh Mujibur Rahman began environmental pollution control measures in Bangladesh. Bangabandhu Sheikh Mujibur Rahman made the famous statement that Bangladesh cannot be saved unless the Sundarbans is conserved. The Sundarbans, according to Bangabandhu, is the principal barricade against natural disasters. On 16 July 1972, in Suhrawardy Udyan in Dhaka, he said this while launching the Bangabandhu Tree Plantation Week.

We, on the other hand, have been unable to follow Bangabandhu's lead. Salinity has increased in the Sundarbans area as a result of the Farakka Dam, posing a threat to biodiversity.

Following in her father's footsteps

The Honourable Prime Minister Sheikh Hasina, Bangabandhu's able daughter, earned the United Nations' Champions of the Earth award in 2015 for her significant contribution to environmental protection and climate change mitigation. The Prime Minister instructed the relevant authorities to prepare development plans that prioritise the

The Honourable Prime Minister Sheikh Hasina earned the United Nations' Champions of the Earth award in 2015

preservation of agricultural land. From January 2018 to December 2021, the project was implemented in 281 municipalities around the country under the Prime Minister's direction. Road, bridge, culvert and drain construction, land acquisition and rehabilitation, biodiversity conservation, canal digging, embankment, pond renovation, beautification and tree plantation were among the projects. Besides, environmental development is carried out at the district and Upazila levels by improving the municipalities' infrastructure and civic services, lowering poverty by increasing jobs and creating necessary infrastructure.

Besides, the Honourable Prime Minister devised the Bangladesh Delta Plan 2100. It is a comprehensive development plan that focuses on economic growth, environmental protection, and better climate resilience. The plan lays out the comprehensive and cross-sectoral actions that will be required to boost productivity and reduce disaster risks. Bangladesh is on its path to becoming a global leader in delta and water management thanks to its strong commitment to BDP 2100.

The future in the context of global warming

In terms of global warming and climate change, two years are crucial for humanity: 2030 and 2050. By 2050, humans must stop generating more greenhouse gases into the atmosphere than the Earth's ecosystems can naturally absorb, a goal known as "net zero emission." 'Our intentional direction must move us beyond defeatism to optimism, beyond extraction to regeneration, beyond linear to circular economies, beyond the individual benefit to the common good, beyond short term thinking to long term thinking and acting,' says Christiana Figueres, former UN Executive Secretary for Climate Change. These were some of the environmental ideas that Bangabandhu was considering nearly 50 years ago. As a result, we saw his efforts to promote the tourism business while maintaining Bangladesh's natural beauty for the sustainable development of the country. Prioritising progress in Bangladesh based on its contribution to the Sustainable Development Goals (SDGs) will be a good plan, with Bangabandhu's perspective on nature serving as the best focal point.

MSc in Coastal and River Engineering:
Ushering New Opportunities

Editorial desk

Introduction

Coastal and River Engineering is a branch of engineering that explores human involvement in the course, characteristics, or flow of coastal waters and rivers in order to achieve certain goals. Since before recorded history, people have intervened in the natural course and behaviour of coastal waters and rivers to manage water resources, safeguard against flooding, and make travel along or across oceans and rivers safer. Coastal waters and rivers have been exploited as a source of hydropower since the Yuan Dynasty and Ancient Roman times. Coastal and River Engineering has had environmental concerns beyond immediate human benefit. Since the late twentieth century, and some Coastal and River Engineering projects have been solely concerned with the restoration or protection of natural features and ecosystems.

Coastal and River Engineering has been more focused on fixing hydromodified degradations and accounting for possible systematic reaction to planned alterations by considering fluvial geomorphology since the late twentieth century. Understanding fluvial geomorphology, implementing a physical alteration, and maintaining public safety are all goals of Coastal and River Engineering.

Coastal and River Engineering at BSMRMU

Maritime boundary delimitation with neighbouring countries has created a fresh window in Bangladesh's maritime arena. The huge sea area and a lack of land-based resources have given importance to strengthen the economy through comprehensive maritime resource development. In light of this, the Honourable Prime Minister Sheikh Hasina introduced the concept of the Blue Economy as well as

Bangladesh Delta Plan 2100 and emphasised the significance of effective manpower in these sectors.

The first-ever specialised university, Bangabandhu Sheikh Mujibur Rahman Maritime University (BSMRMU), was established in 2013 to develop competent human resources. The university's goal is to bring all maritime professionals together on a single platform to share information and conduct research in order to grow the maritime sector and generate quality human resources. As a coastal and riverine country, Coastal and River Engineering is becoming increasingly important in implementing the Government's Delta Plan 2100. Bangladesh, on the other hand, lacks any institutional education in this field.

The sole specialised public maritime university, BSMRMU, has established the Department of Coastal and River Engineering to fill this void. By providing specialised expertise, the department aims to assist the nation in meeting the engineering needs of the maritime and coastal industries. In this regard, the department has introduced Master of Science in Coastal and River Engineering (CRE) programme.

The Master of Science in Coastal and River Engineering (CRE) programme is a two-year full-time postgraduate degree in coastal and river engineering. Graduates of this programme will be qualified to work as River Engineers, Coastal Engineers, Structural Engineers, and Project Managers in the relevant field. They will need to design, plan, and oversee the construction, installation, operation, and maintenance of coastal and river infrastructures and systems during their challenging career.

Programme Outcome

In general, graduates of the Master of Science in Coastal and River Engineering programme will be able to design and build various sorts of river related structures as well as engineer shallow water coastal structures. On completion of the programme, graduates will be able to:

a. Apply knowledge of science and engineering mathematics in the field of Coastal and River Engineering

b. Formulate engineering problems and develop practical solutions

c. Interpret the results of engineering experiments appropriate for Coastal and River Engineering

d. Design and analyze products and processes applicable to Coastal and River Engineering

e. Work effectively in teams and provide leadership

f. Understand the impact of engineering decisions in a global/societal/environmental context

g. Understand the managerial, professional, and ethical responsibility

h. Recognise the need to engage in lifelong learning

i. Acquire a broad education necessary to contribute effectively beyond their professional careers

j. Effectively communicate orally, graphically, and in writing.

k. Use the techniques, skills, and modern engineering tools necessary for engineering practices

Curriculum Structure

Types of Courses

The courses included in MSc in Coastal and River Engineering Programme are divided into several groups as follows:

Compulsory Theory Courses

In each discipline a number of courses will be identified as compulsory courses which form the nucleus of the respective Master's degree program. A student has to complete all of the designated compulsory courses for his/her discipline.

Skill Development Courses

Some of the core courses are identified as skill development courses. A skill development course is one which is required to be completed before Degree Certificate can be given. Any such course may lead to certifications and industry-recognized credentials. Developing Course is comprised of two items. One is fieldwork and the other one is student concluding seminar and fieldwork presentation.

Optional Theory Courses

Apart from the compulsory courses, students will have to complete a course which is optional in nature in that students will have some choice to choose the required number of course from a specified group/number of courses.

MSc in Coastal and River Engineering Programme consists of a total of 9 theory courses excluding skill development course and divided into the following categories:

Category No. of Skill	No. of Theory Courses	No. of Lab/Practical Courses	Development Courses	Credit Hours
Compulsory Theory Courses (CRE)	8	0	0	24
Optional Theory Course (CRE)	1	0	0	03
Thesis	0	1	0	18
Skill Development Course	0	0	1	03
Total	9	1	1	48

Course Schedule

Year 1, Semester 1

In their first year's semester 1, Students of the Coastal and River Engineering postgraduate programme will study the following courses:

1. Tides, Waves, and Coastal Processes

The objective of this course is to introduce the students to the key concepts of coasts and their classifications, tides, waves, and nearshore coastal processes.

Students should be able to do the following after completing this course:

• Explain the key concepts of wave generation, wave propagation, and wave breaking (deep and shallow waters) from linear theory, observations and models, and describe the concept of radiation stress and its importance in forcing currents and shallow water level gradients at the coast.

• Generate wave statistics, showing an understanding of wave spectra and bulk parameters.

• Identify the basics of wave climate (from global to regional/local scales), and Understand the wave energy balance concept.

• Understand the governing processes in coastal and nearshore hydrodynamics and morphology.

2. Hydrodynamics and Morphodynamics of Rivers

The objective of this course is to teach students about the governing processes of river and delta hydrodynamics. Besides, the impact of climate change and the effect of human activities as well as consequences are discussed in this course.

Students who successfully complete this course should be able to:

• Understand the river hydrology and hydraulics.

• Explain the governing processes in river and delta hydrodynamics and morphology.

• Assess the long-term and short-term impacts of human interventions and climate change.

• Apply hydrodynamic and morphological processes in real field problems of river.

3. Integrated Coastal Zone Management (ICZM)

This course facilitates the students to understand the coastal zones of Bangladesh and their impact on coastal management. Also, the mapping of a sustainable and integrated coastal zone management and the challenges related to these concepts are taught.

On successful completion of this course, students should be able to:

• Explain the need for sustainable development in coastal zones.

• Diagnose multi-sectoral problems and conflict of interest in coastal zones.

• Map the interactions between disciplines and sectors (Stake Holders).

• Participate/Organize multi-stakeholder meetings.

• Develop scenarios and alternatives for ICZM strategies.

• Perform Multi-Criteria Analyses.

• Explain the need for Land Reclamation in Bangladesh.

4. Research Methodology

This course is designed to let the students plan, develop, and carry out qualitative research methods used most frequently by scholars, particularly within the domains of innovation and engineering studies.

Students should be able to use the knowledge for doing the following tasks after completing this course:

• Plan and design research work.

• Know how to compile, process, and present various types of observational/experimental data from coastal and delta areas.

• Write proposals and academic report.

• Identify common mistakes in research writing and avoid plagiarism in report writing.

Year 1, Semester 2

Students of the Coastal and River Engineering postgraduate programme will take the following courses in their first year's semester 2:

1. Design of Coastal Structures

This course will introduce the students to the basic design consideration of the different types of coastal structures along with their risk assessment. The theories learned will be utilised in designing dikes and revetments.

On successful completion of this course, students should be able to:

• Determine the governing factors and design conditions for the design of breakwaters;

• Design breakwaters from conceptual to detailed and prepare the detailed cross-sections;

• Design a physical scale model to test the design of breakwaters;

• Determine the main (Risk-based) forcing acting on a dike or revetment;

• Check for different possible failure mechanisms in a dike or revetment;

• Carry out a basic design of dikes and revetments.

• Learn to work in a small team.

2. Port Planning and Inland Water Transport

This course aims at introducing the students to the vast world of maritime trade and maritime vessels along with the requirement, types, mathematical models, and designing of the ports necessary for maintaining the maritime trade of a country like Bangladesh.

Students should be able to use the knowledge and do the following tasks after completing this course:

• List different types of sea and river going vessels and identify the main characteristics of the ship;

• Explain the international functions of a port and different aspects of port management;

• Implement various steps in port master-planning;

• Determine the main dimensions of different terminals in the port;

• Determine the alignment and dimensions of the approach channel and the main dimensions of the wet infrastructure of the port;

• Determine the main dimensions of inland navigation rout for safe IWT (Inland Water Transport).

• Include uncertainty in port planning and management by adaptive planning.

3. Climate Change Impacts and Adaptation in Deltas

The impact of climate change on the rivers and coastal zones are discussed in this course followed by the planning as well as modelling of integrated delta basins and the coordinated management required to mitigate these effects.

As learning outcomes, students should be able to do the followings after successfully completing this course:

• Explain and evaluate the concepts and approaches for sustainable delta basin development in a given context.

• Describe the principles, approaches, and practices of environmental impact assessment.

• Apply a range of tools and models (e.g. problem tree, water allocation modelling, EIA, cost-benefit analysis, multi-criteria analysis) to develop scientifically sound delta basin development strategies.

• Explain integrated delta basin planning and management frameworks and appraise basin development and management plans.

4 Fieldwork and Data Processing

This skill development course is designed to let the students plan, develop, and carry out real-life experimental works individually or in groups and learn about the various coastal and delta systems. The practical approach of this course is also designed to encourage the students to gather data from the fieldwork for their thesis work.

On successful completion of this course, students should be able to:

• Plan and carry out an experimental campaign for data acquisition, knowing how to use instrumentation and technologies suitable for the study and observation of coastal and delta systems.

• Understand the use of different discrete and continuous random variables, performing parameter estimation calculations with coastal and delta data sets.

• Handle the different time scales of analysis (seasonality, inter-annual variability, secular trends, etc.) of different environmental variables, being able to analyze data and its graphic manipulation: interpolation, adjustment and regression.

Year 2, Semester 1

1. Design of River Training and Bank Protection Works

This course teaches students the basic mathematical theories for designing river training and bank protection works.

As learning outcomes, students should be able to do the followings after successfully completing this course:

• Explain the concept of river training works.

• Describe the design consideration of standard bank protection structures – revetment, groyne.

• Differentiate the different types of geosystems and geotechnical aspects and correlate the theories for application from Bangladesh's point of view.

• Learn the design of river training and bank protection structures.

2. River and Coastal Water Modelling

This optional theory course will introduce different numerical analysis required for modelling the rivers, coasts, and deltas. The lessons learned in the previous courses may be applied in this course to design mathematical models of the theoretical concepts.

On successful completion of this course, students should be able to:

• Apply commonly used numerical methods in the river and coast water modelling

• Choose the appropriate model for a given problem

• Apply commonly used hydrodynamic and morphodynamic model systems in a practical situation

• Apply input reduction and schematisation techniques.

• Translate the outputs of complex models into practical outcomes.

3. Applied Statistics to Coastal and River Engineering

The probabilistic and statistical approach to coastal and river engineering will be taught in this optional theory course. The computations and concepts of probability and statistics in the field of coastal and river engineering will be applied to the data sets.

By the end of the course, students will be able to:

• Explain clearly concepts from probability and statistics and how they can be applied to coastal and river engineering environment.

• Evaluate the various quantities for probability distributions and random variables.

• Perform statistical computations using coastal and river data sets.

• Develop simple probabilistic and statistical models for some applications, and apply statistical methods to a range of problems in coastal and river engineering environment.

Year 2, Semester 2

1. Thesis

This course intends to involve the students in carrying out specific research work related to the coastal and river engineering discipline. It will help them to learn how to carry out engineering research work, present and defend the research work and write a thesis paper.

On successful completion of this unit, students should be able to:

• Carry out a literature search, then write a literature review, research proposal and project plan.

• Write the final report in the form of a thesis paper.

• Defend research work.

A site of river engineering for bank protection close to Padma Multipurpose Bridge

The Delta Plan 2100 and Coastal and River Engineering programme

The Bangladesh has the world's largest river delta, which is formed by the confluence of three major rivers: The Ganges, Brahmaputra, and Meghna. This delta is home to two out of every three Bangladeshis (about 110 million people), who rely on it for their survival and livelihood. The delta's effective planning and management is essential to the country's economic growth and development, especially as the threat of climate change and rising sea levels looms large. In view of the special long-term challenges for development, the Government of Bangladesh has adopted a long-term integrated techno-economic plan 'Bangladesh Delta Plan 2100' (BDP2100) which was approved at the National Economic Council (NEC) meeting, presided over by the Honourable Prime Minister and Chairperson of the NEC, on 4 September 2018.

Bangladesh Delta Plan (BDP 2100) is a comprehensive development plan that focuses on economic growth, environmental protection, and better climate resilience. The plan lays out the comprehensive and cross-sectoral actions that will be required to boost productivity and reduce disaster risks.

To implement Bangladesh Delta Plan 2100, the country requires quality human resources in the field of coastal and river engineering. As a forerunner and only specialised university for maritime education in Bangladesh, BSMRMU has introduced MSc in Coastal and River Engineering programme to produce engineers and professionals for effective delta management. Graduates from this discipline, if they are employed, will surely put their best effort to implement the holistic delta plan management and ensure theoretical and technical safety from floods and climate change related disasters.

Admission Criteria

Eligibility for admission in the Coastal and River Engineering programme are as follows:

a. Applicants who have passed BSc. Engg. or equivalent examination with a minimum CGPA of 2.5 out of 4.0 or its equivalent in four years BSc. Engg. (or at least 50% marks) in Civil Engineering/ Water Resources Engineering/ Environmental Engineering/ Naval Architecture/ Ocean and Offshore Engineering/ Mechanical Engineering.

b. Applicants must have passed the HSC/equivalent examination and SSC/equivalent examination from the science group with a minimum GPA of 4.00 out of 5.00.

c. In HSC/equivalent examination, applicants must have obtained minimum 'A' grade in any two subjects from Mathematics, Physics, Chemistry and English with minimum 'B' grade in rest of the subjects.

d. Applicants with GCE must have passed minimum five subjects in O-Level including Mathematics, Physics and Chemistry and minimum two subjects in A-Level including Mathematics and Physics.

However, an applicant having more than two 'C' grades in O-Level and/ or more than one 'C' grade in A-Level will be ineligible for admission.

End Words

Bangladesh is transforming from a 'basket case' to a developed nation. According to the Government's farsighted activities in the area of development and future safety from natural disasters as well climate change, the country is implementing 'Vision 2041' to become a prosperous nation by 2041. In this regard, BSMRMU is facilitating those Government activities by producing experts in the field of maritime and development sectors. It is believed that the graduates from different disciplines including Master's in Coastal and River Engineering of BSMRMU will contribute cordially to implement visionary steps of the Honourable Prime Minister Sheikh Hasina to build a Sonar Bangla as anticipated by the Father of the Nation Bangabandhu Sheikh Mujibur Rahman.

BSMRMU: A Leading University for Maritime Law

Jenifar Nesa Popi and Cdre Kutubuddin (retd)

The oceans cover over 70% of the surface of the earth. Humans depend on the oceans for life, work, food, travel, and health. The ocean is the world's greatest reservoir of natural resources. Moreover, about 90% of international trade depends on the transportation of goods by sea. The world's oceans determine the destiny of the countries. The countries with resource-based economies focus on utilising natural resources sustainably, which secures a strong contribution to their national economies. Realising the importance of the ocean, for exploring our oceans sustainably, The Government of Bangladesh focused on the Blue Economy where maritime law and the law of the sea play a vital role. Maritime law is a body of private law that governs navigation and shipping in each country, on the other hand, the law of the sea is a body of public international law for governing the geographic jurisdictions of coastal states and the rights and duties among states in the use and conservation of the ocean environment and its natural resources. Law of the sea is mostly associated with United Nations Conventions on the Law of the Sea (UNCLOS). Many obligations under UNCLOS are reflected in our maritime law. Bangladesh claimed its maritime zones under UNCLOS, and with the landmark verdict on the maritime boundary delimitation with India and Myanmar, Bangladesh now possesses a vast sea area. Hence, these laws not only focus on maritime safety, navigation security, commercial spirit and preventing contamination, and pollution, but also on jurisdictional issues, conservation and sustainable use of biological resources and protection of biodiversity as well as the environment. Implementation of these laws can only mitigate the challenges of Blue Economy and maintain good order at sea. To implement these laws, Bangladesh needs skilled and knowledgeable manpower.

Unfortunately, no public university in Bangladesh offers specialised maritime law courses; for example, the University of Dhaka, University of Chattogram, Jahangirnagar University, Jagannath University, Bangladesh University of Professionals, Khulna University, and others do not offer maritime law courses, though some do offer law of the sea courses. Law of the sea mostly deals with UNCLOS which is a framework convention. Member parties of UNCLOS must incorporate its obligations in national laws. As a result, without learning national law, our lawyers will be unable to cope with maritime issues, let alone understand how international obligations are reflected in national laws. That is why, one of the noteworthy initiatives taken by the Government of Bangladesh to ensure sustainable Blue Economy is the establishment of a specialised university, named, Bangabandhu

Faculty members and students visiting fishing trawler at Chattogram for collecting data in February 2021

Law students are learning practically in moot court

Sheikh Mujibur Rahman Maritime University or BSMRMU which offers International Law of the Sea, Marine Environmental Law, Marine Security Law, Shipping Law, and other related to maritime law. These courses give students a deeper understanding of a specific topic of maritime law, allowing lawyers and marine industry professionals to advance their careers. It improves students' research and independent study skills as well as the ability to develop substantiated critical arguments.

This university not only provides students with academic information about these areas but also ensures that they have practical understanding through research. Along with continuing online classes, faculty members with students conducted research amid the COVID-19 pandemic with proper precautions.

Through these researches, our students not only know the practical aspects of maritime law but also learn to generate new knowledge. Apart from that, they are also taught teaching materials online to prepare the report of the research.

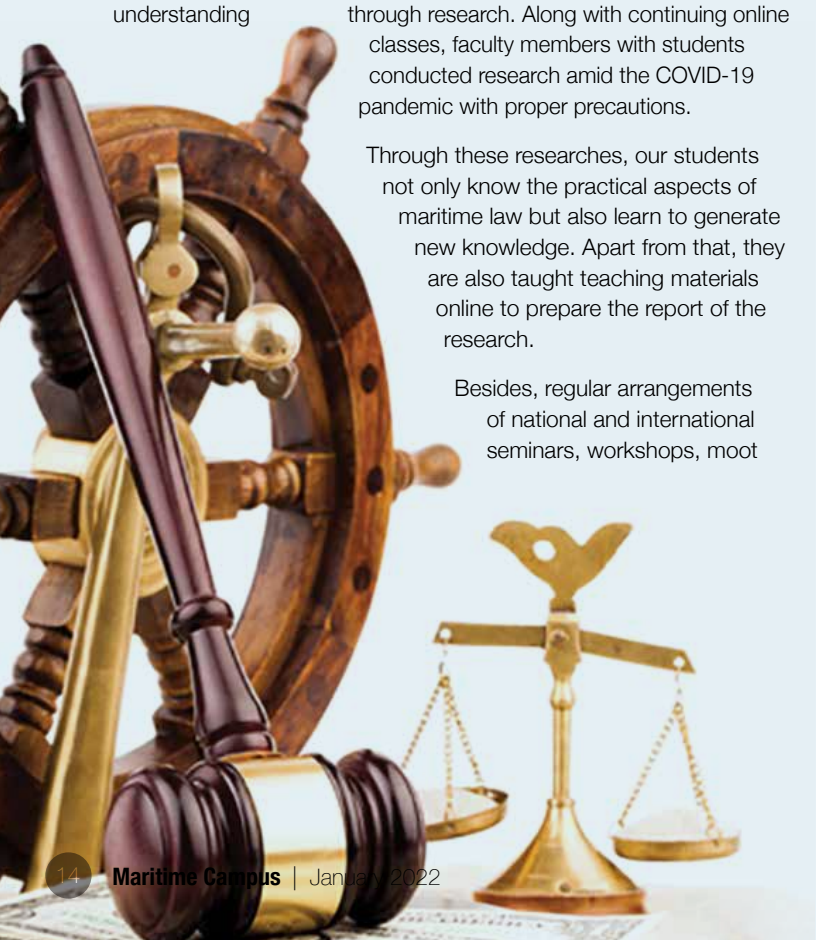
Besides, regular arrangements of national and international seminars, moot courts have branded the faculty vibrant.

Furthermore, this university took the effort to create a maritime law compendium, which will greatly benefit students because maritime law is fragmented, making the task of all parties harder. The maritime sector has become the centre of attraction for the last few decades. Due to its rapid growth, proper management, conservation, coordination and governance are crucial to our country. So, laws governing this sector are enacted from time to time which needs to be compiled, easily accessible and best understood by all concerned stakeholders. To ensure the contribution of all stakeholders and understanding the burning concern, BSMRMU takes the opportunity to compile relevant domestic and international laws.

Being a maritime nation, we need maritime professionals and skilled manpower. In this regard, BSMRMU is working to create human recourses to fulfil the requirements of the planned

Blue Economy. In addition to that, as one of the world's premier international institutions in the maritime sector, this university should build more awareness among people regarding the compliance of maritime law and law of the sea which will help mass people and attract prospective students as well.

The university should have a research vessel for student training and faculty research to better understand our sea area. Once the university would be transferred to the port city Chattogram it would be possible to help academicians and students to explore the maritime sector in a better manner. Hopefully, with the government patronisation, BSMRMU will be a leading university in South Asia by 2030, especially for maritime law.



Jenifar Nesa Popi

Lecturer
Department of Maritime Law and Policy
BSMRMU

Cdre Kutubuddin (retd)

Director
Institute of Bay of Bengal and Bangladesh Studies
BSMRMU

Indian Ocean Rim Association (IORA) for Enhancing Economic Cooperation

Maritime Campus desk

Prologue

The vision for IORA was born during late President Nelson Mandela of the Republic of South Africa's visit to India in 1995, when he said: "The natural urge of the facts of history and geography... should broaden itself to include the concept of an Indian Ocean Rim for socio-economic co-operation and other peaceful endeavours. Recent changes in the international system necessitate the formation of a single platform for the Indian Ocean countries." This sentiment and rationale underpinned the Indian Ocean Rim Initiative (IORI) in March 1995, and the creation in March 1997 of the Indian Ocean Rim Association for Regional Co-operation (IOR-ARC), as IORA was then called.

Today, IORA is the apex regional organisation, with 23 Member States and 10 Dialogue Partners spanning from South Africa in the west to Australia in the east, and covering the eastern coast of Africa, the Gulf, and South and Southeast Asia. On 17 November 2021, Bangladesh assumed chairmanship of Indian Ocean Rim Association (IORA) at its 21st Council of Ministers' meeting.

A Historical Review

Officials, businesspeople, and academics from seven nations convened in March 1995 to examine how to improve economic cooperation in the Indian Ocean Rim region. Those seven countries were Australia, India, Kenya, Mauritius, the Sultanate of Oman, Singapore, and South Africa. The core group states, or M-7, issued a joint statement saying that they had agreed on "principles of open regionalism and inclusivity of membership, with the objectives of trade liberalisation and promoting trade cooperation."

In September 1996, the IORA Charter was finalised, and the membership was widened to include Indonesia, Malaysia, Sri Lanka, Yemen, Tanzania, Madagascar, and Mozambique, also known as the M-14.

The Charter instituting the Indian Ocean Rim Association for Regional Cooperation was accepted by Resolution at the first Ministerial Meeting in Port Louis, Mauritius on 7 March 1997; assessed at the tenth Meeting of the Council of Ministers in Sana'a, Yemen in 2010; revised at the fourteenth Meeting of the Council of Ministers in Perth in 2014 following the Association's new name of 'Indian Ocean Rim Association' (IORA); and updated at the eighteenth Meeting of the Council of Ministers in Durban in 2018.

Objectives of IORA

The objectives of the IORA are:

- To promote sustainable growth and balanced development of the region and Member States;
- To focus on those areas of economic co-operation which provide maximum opportunities for development, shared interest and mutual benefits; and,
- To promote liberalisation, remove impediments and lower barriers towards a freer and enhanced flow of goods, services, investment, and technology within the Indian Ocean rim.

The notion of open regionalism serves as a foundation for these objectives.

The Framework for Deals

According to the Charter, IORA aims to increase mutual understanding and collaboration through a consensus-based, evolutionary, and non-intrusive approach. There are no laws or contracts that are legally binding. Consensus is used to make all choices.

The ideals of sovereignty, equality, territorial integrity, political independence, non-interference in Member States' internal affairs, peaceful coexistence, and mutual benefit underpin cooperation.

Bilateral and other topics that are likely to cause controversy and create obstacles or impediments to regional cooperation are excluded from the IORA Charter. The Member States' rights and obligations under other economic and trade cooperation agreements are unaffected by their collaboration within the Association. It does not strive to replace, but rather to augment, supplement, and harmonise with, Member States' bilateral, plurilateral, and multilateral rights and obligations, in accordance with an open regionalism approach.

IORA Membership

All sovereign states of the Indian Ocean Rim willing to subscribe to the Charter's principles and objectives are eligible to join the association.

Australia, Bangladesh, Comoros, France/Reunion, India, Indonesia, Iran, Kenya, Madagascar, Malaysia, Maldives, Mauritius, Mozambique, Oman, Seychelles, Singapore, Somalia, South Africa, Sri Lanka, Tanzania, Thailand, United Arab Emirates, and Yemen are the current members of IORA.

China, Egypt, Germany, Italy, Japan, Republic of Korea, Russia, Turkey, the United Kingdom, and the United States of America are among IORA's ten Dialogue Partners.

The Association has two Specialised Agencies, the Regional Centre for Science and Technology Transfer (RCSTT) in Tehran, Iran, and the Fisheries Support Unit (FSU) in Muscat, Oman, as well as two Observers, the Indian Ocean Research Group (IORG) and the Western Indian Ocean Marine Science Association (WIOMSA).

Leading the IORA

The Chair of the Association is elected by the Council of Ministers for a two-year term. This is based on Member States' voluntarily offering to be the Chair, or if no voluntary offer is made, the Chair will be elected based on geographical considerations.

Chair Year:

- Republic of Mauritius 1997 – 1998
- Republic of Mozambique 1999 - 2000
- Sultanate of Oman 2001 - 2002
- Democratic Socialist Republic of Sri Lanka 2003 – 2005
- Islamic Republic of Iran 2006 – 2008
- Republic of Yemen 2009 – 2010
- Republic of India 2011 – 2012
- Commonwealth of Australia 2013 – 2014
- Republic of Indonesia 2015 – 2017
- Republic of South Africa 2017 – 2019
- United Arab Emirates (Past) 2019 – 2021
- People's Republic of Bangladesh (Current) 2021 – 2023
- Democratic Socialist Republic of Sri Lanka (Upcoming) 2023 – 2025

IORA Structure

The Council of (Foreign) Ministers (COM), which meets once a year, is the top body of IORA. IORA's activities are reviewed and prioritised bi-annually by a Committee of Senior Officials (CSO). The Association has functional bodies that help to improve and develop the organisation's activities. These bodies are controlled by Terms of Reference (TOR) that are recommended by the CSO and approved by the COM. The following are the current functional bodies:

a) Indian Ocean Rim Academic Group (IORAG)

b) Indian Ocean Rim Business Forum (IORBF)

c) Working Group on Trade and Investment (WGTI)

d) Working Group on Women's Economic Empowerment (WGWEE)

The Honourable Prime Minister Sheikh Hasina graced the occasion as the Chief Guest of 3rd IORA Blue Economy Ministerial Conference 2019

e) Working Group on Maritime Safety and Security (WGMSS)

f) Working Group on Disaster Risk Management (WGDRM)

g) Working Group on the Blue Economy (WGBE)

h) Working Group on Science Technology and Innovation (WGSTI)

i) Core Group on Tourism (CGT)

j) Core Group on Fisheries Management (CGFM)

IORA Special Fund

The Council of Ministers established the IORA Special Fund at its meeting in Colombo, Sri Lanka, in August 2004. The Special Fund is a financial framework for supporting and complementing the funding of initiatives and programmes authorized by the Association, in accordance with the Charter's principles and objectives, as well as the aims and goals set forth by the Association's relevant organs.

The Special Fund's primary objectives are as follows:

- to aid in the provision of finances required for project and programme implementation;
- to assist with the preparation of projects;
- to assist with project preparation and/or implementation by providing technical expertise;
- to help with project feasibility and pre-feasibility studies.

Consolidation of IORA

Since 2011, there has been a growing direction and determination to strengthen institutions and capacities within IORA. Six Priority Areas were identified during India's period as Chair (2011-2013):

- Maritime Safety and Security;
- Fisheries Management;
- Academic, Science and Technology Co-operation;
- Trade and Investment Facilitation;
- Disaster Risk Management;
- Tourism and Cultural Exchanges.

During its tenure as Chair (2013–2015), Australia maintained momentum by strengthening IORA's strategic emphasis through the adoption of two cross-cutting issues: the Blue Economy and Women's Economic Empowerment. Recommendations were made to improve IORA's ability to work on these key areas. The proposals included, among other things, reorganising the agenda items based on the six Priority Areas and changing the format of reports. The Indian Ocean Rim Association for Regional Cooperation (IOR-ARC) was renamed the Indian Ocean Rim Association (IORA) to reflect the Association's newfound enthusiasm in its operations.

Indonesia's leadership (2015–2017) coincided with the Association's 20th anniversary and the first IORA Leaders' Summit, which was held in Jakarta on 7 March 2017. The approval and signature of "The Jakarta Concord" by the Summit raised the Association's reputation and stature greatly and established the Association's future course. The Jakarta Concord demonstrated the highest levels of commitment to making the Indian Ocean a region of peace, stability, and development through greater cooperation, including, but not limited to, the six priority areas and cross-cutting issues. The Jakarta Concord was supplemented by the five-year IORA Action Plan (2017-2021), which provides the IORA Council of Ministers with a concrete

IORA is a dynamic organisation of 23 Member States

set of realistic and measurable commitments to execute the Jakarta Concord and move IORA ahead in a more outcome-oriented manner. In addition, an IORA Action Plan was created, which included short-, medium-, and long-term objectives in each of IORA's Priority Areas.

The IORA Business Summit in March 2017, sponsored by Indonesia, also sought to highlight IORA's immense economic potential, particularly through a Joint Declaration to Build Partnerships for Sustainable and Equitable Economic Growth.

As Chair, South Africa believed that the Indian Ocean Region should be characterised as a region of peace, stability, and development within which to pursue the goal of encouraging (economic) cooperation for the wellbeing and development of the Indian Ocean Rim's countries and peoples. As Chair from 2017 to 2019, South Africa adopted the following theme: "IORA – uniting the peoples of Africa, Asia, Australasia, and the Middle East via improved cooperation for peace, stability, and sustainable development." South Africa also started the Internship Programme "Be the Legacy of Nelson Mandela" (NMIP).

During the United Arab Emirates' (UAE) Chairship, the UAE prioritised the upgrading of IORA's governance structures and procedures in order to reach the standards befitting the Indian Ocean region's prominent international organisation. It should be noted that the UAE's Chairship coincided with the COVID-19 pandemic and IORA Member States were confronted with unprecedented health and economic concerns. To keep the momentum going on its cooperative agenda, the Chair moved IORA meetings online, bringing Member States together to discuss and execute steps to alleviate suffering across the region.

The Present Chair of IORA

Bangladesh was selected Chair of IORA at the 21st Meeting of the Council of Ministers (COM) on 17 November 2021, in a hybrid format (in-person in Dhaka and virtually). Sri Lanka took over as Vice Chair. HE Dr AK Abdul Momen, MP, Bangladesh's Foreign Minister and Chair of the COM, declared that Bangladesh's theme for its two-year term as Chair of IORA will be "Harnessing the Opportunities of the Indian Ocean Sustainably for Inclusive Development."

Bangladesh believes that the possibility of a renewed and revitalised architecture of regional economic cooperation for development, resulting in a paradigm change in involvement among Indian Ocean states, is a reality.

IORA's High-level Events/ Declarations

1. Sectoral Ministerial Events

a) Third Ministerial Blue Economy Conference (BEC-III), 4-5 September 2019, Dhaka, Bangladesh

b) Second IORA Tourism Ministerial Meeting, 21-23 October 2018, Nelson Mandela Bay, Eastern Cape, South Africa

c) Second IORA Renewable Energy Ministerial Meeting, 2-4 October 2018, Delhi NCR, India

d) First IORA Ministerial Conference on Women's Economic Empowerment – A Pre-requisite for Sustainable Development, 28-29 August 2018, Balaclava, Mauritius

e) Second Ministerial Blue Economy Conference (BEC-II), 8-10 May 2017, Indonesia

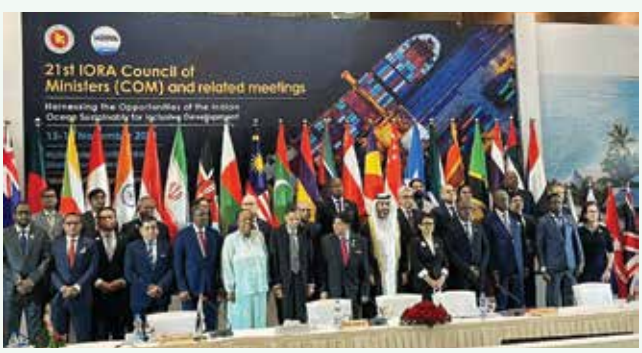
f) Second Economic and Business Conference (EBC-II), 11-13 April 2016, Dubai

g) First IORA Ministerial Blue Economy Conference (BEC-I), 2-3 September 2015, Mauritius

h) First IORA Tourism Ministerial Meeting, 20-21 November 2014, Seychelles

i) First Meeting of the Renewable Energy Ministerial Forum of IORA, 21 January 2014, UAE

j) First Ministerial Economic and Business Conference (EBC-I), 4-5 July 2013, Mauritius



Bangladesh hosted 21st IORA Council of Ministers' (COM) meeting

2. IORA Ministerial Declarations

a) Dhaka Declaration on the Blue Economy, 5 September 2019, Dhaka, Bangladesh

b) Special Declaration on the Commemoration of the Centenary of the Birth of Nelson Mandela, Durban, South Africa, 2 November 2018

c) Declaration on Guidelines for Enhancing Interaction with Dialogue Partners in IORA, Durban, South Africa, 2 November 2018

d) Nelson Mandela Bay Tourism Declaration for the Establishment of the IORA Tourism Core Group, Eastern Cape, South Africa, 23 October 2018

e) Delhi Declaration on Renewable Energy in the Indian Ocean Region, New Delhi, India, 4 October 2018

f) Balaclava Declaration on Women's Economic Empowerment and Gender Equality as a Pre-Requisite for Sustainable Development, Balaclava, Mauritius, 29 August 2018

g) Declaration on Preventing and Countering Terrorism and Violent Extremism, Jakarta, Indonesia, 7 March 2017

h) Declaration on Gender Equality and Women's Economic Empowerment, Bali, Indonesia, 27 October 2016

i) IORA Maritime Co-operation Declaration, Padang, Indonesia, 23 October 2015

j) Mauritius Declaration on the Blue Economy, Mauritius, 3 September 2015

k) Seychelles Tourism Declaration, Seychelles, 21 November 2014

l) IORA Economic Declaration, Perth, Australia, 9 October 2014

m) Abu Dhabi Declaration of the First Indian Ocean Renewable Energy Ministerial Forum, Abu Dhabi, 21 January 2014

n) Declaration of the Indian Ocean Rim Association on the Principles for Peaceful, Productive and Sustainable Use of the Indian Ocean and its Resources, Perth, Australia, 1 November 2013.

Special Programmes of IORA

1. IORA Sustainable Development Programme (ISDP)

At the CSO meeting in Perth in 2014, IORA introduced the IORA Sustainable Development Programme (ISDP) as a development instrument to strengthen the capacities of the less developed IORA countries, foster regional cooperation, and forge new partnerships with IORA Member States, with a focus on job creation and poverty alleviation. The ISDP provides access to the IORA Special Fund through a special arrangement for less developed Member States, with the Secretariat managing much of the event's organisation and logistics in conjunction with the hosting Member State. The ISDP was established in 2015 with the first event held in April in Bangladesh.

2. Somalia and Yemen Development Programme (SYDP)

The Secretariat also launched a new capacity-building programme for Somalia and Yemen, which was supported during the CSO's 18th conference in Bali on 25-26 October 2016. The United Arab Emirates hosted the first SYDP, concentrating on Banking and Artisanal Fisheries, on 13-14 August 2017 in Abu Dhabi. India sponsored the Second SYDP Workshop on Improving the Quality and Value of Fisheries Products for Food Security and Coastal Livelihoods on

The Honourable Prime minister Sheikh Hasina together with a delegation of 12 IORA member countries poses for a photo as the delegation called on her at her office in Dhaka on 17 November 2021

28-29 November 2019. Italy held the Third SYDP on Development and Management of Somalia's and Yemen's Marine Fisheries in Rome from 27 September to 1 October 2021.

3. IORA Strategic Planning Workshop

On the 9-10 April 2019, the first IORA Strategic Planning Workshop was held in Mauritius. The Workshop resulted in the formulation of tangible suggestions from Member States and Dialogue Partners in guiding the Association's future approach. Among the themes discussed were the IORA Action Plan, boosting regional collaborations, expanding beyond borders, the concept of Indo-Pacific, creating international relationships, and deepening interaction with Dialogue Partners.

4. IORA Nelson Mandela Internship Programme (NMIP)

Nelson Mandela, the visionary leader, was born a century ago. To mark his birth centenary and strengthen the historical link IORA has with the global icon, South Africa has suggested a special initiative called 'The IORA-Nelson Mandela Be the Legacy Programme,' which will contribute to another of his visions: changing the world for the better. The Programme's long-term goal is to build a strong and expanding base of young people in the Indian Ocean region who understand and support the need to protect an Indian Ocean that is safe, secure, and develops sustainably.

5. Observation of IORA Day

Every year on 7 March, IORA Day is observed. The yearly event, which marks the official day, aims to raise the Association's exposure and achievements. On 7 March 2022, IORA will celebrate its Silver Jubilee.

Observership of IORA

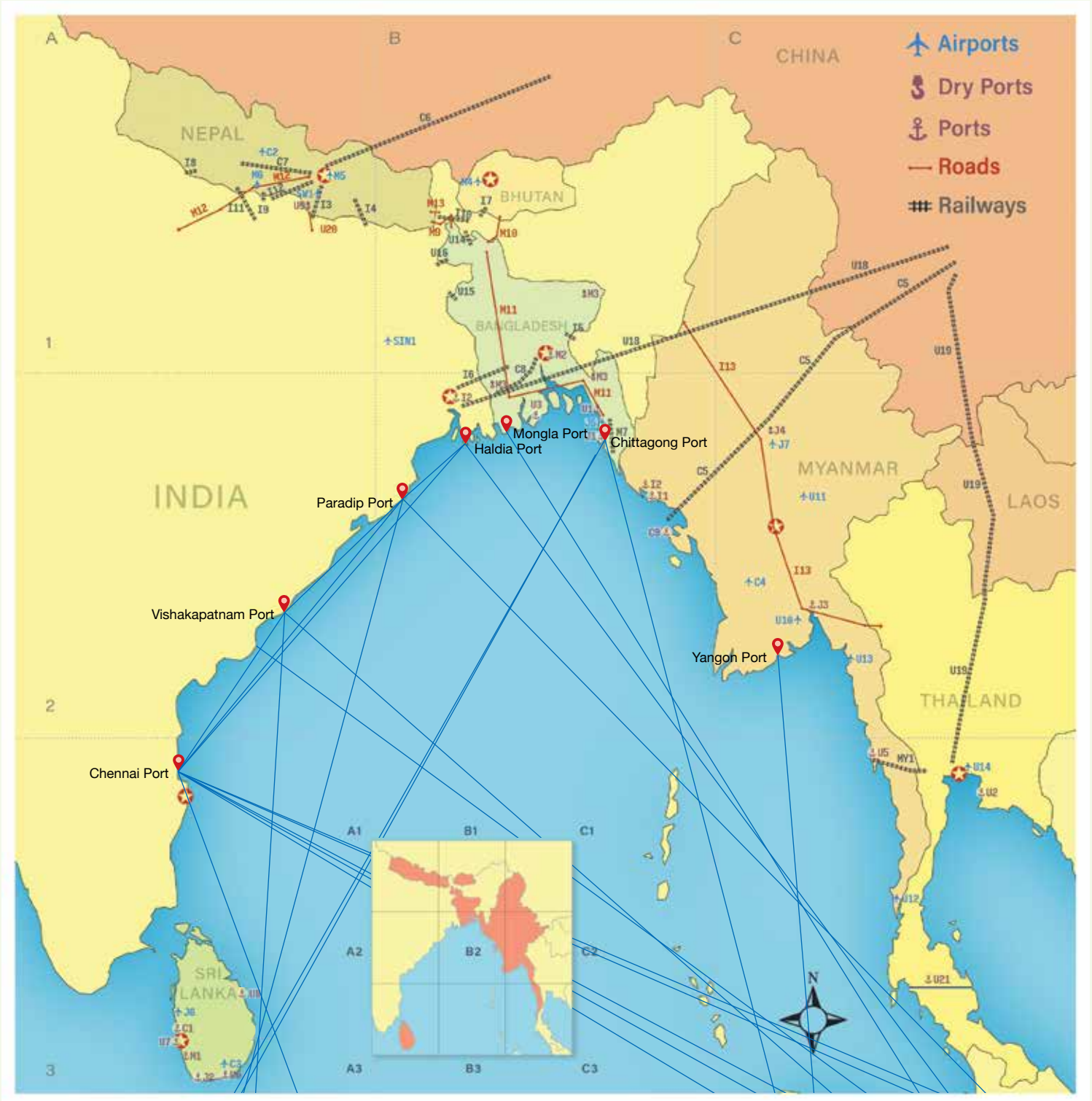
In December 2015, IORA was granted Observer status at the United Nations General Assembly (UNGA) by Resolution A/RES/70/123.

On 9 November 2015, the previous IORA Secretary General, Ambassador K. V. Bhagirath, delivered his Letter of Credentials to the former African Union Commission Chairperson, HE Dr Nkosazana Dlamini Zuma, formally establishing IORA's observer status with the African Union (AU). A Memorandum of Understanding (MOU) between IORA and the AU was proposed, and it is now being finalised for signature. Furthermore, at its 61st session on 26 September 26 2014, the Trade and Development Board approved IORA's application for observer status with the United Nations Conference on Trade and Development (UNCTAD) under rule 76 of the Board's rules of procedure. A proposal for a Memorandum of Understanding (MOU) between IORA and the Indian Ocean Commission (IOC) was made on 2 November 2012, and it is currently being finalised for signature.

End Thoughts

IORA, as a regional forum, brings together representatives from government, business, and academia to promote collaboration and closer engagement. Bangladesh may benefit much from it because it is built on the concepts of Open regionalism for increasing economic cooperation, notably in trade facilitation and investment, promotion, and social development of the region. As IORA Chair, Bangladesh should seize the opportunity to promote its Blue Economy potential to countries bordering the Indian Ocean and beyond in order to ensure its long-term development.

Physical Connectivity in the Bay of Bengal Region



Project Code Key

I	India	U	Uncertain	SIN	Singapore
C	China	J	Japan	MY	Myanmar
M	Multilateral	SW	Switzerland		

Transport Projects in the Bay of Bengal Region

Airports

Code	Name	Coord.	Code	Name	Coord.
C2	Pokhara International Airport	A1	SIN1	Kazi Nazrul Islam Airport	B1
C3	Mattala Hambantota International Airport	A3	SW1	Nijgadh International Airport	A1
C4	Shwe Kokko International Airport	C2	U10	Hanthawaddy International Airport	C2
J6	Bandaranaike International Airport (Phase II)	A3	U11	Heho Airport Upgrading Project	C2
J7	Mandalay/ Tada-U International Airport	C2	U12	Kawthoung Airport Development Project	C3
M4	Paro International Airport	B1	U13	Mawlamyine Airport Upgrading Project	C2
M5	Tribhuvan International Airport (Infrastructure)	A1	U14	Phase II Expansion of Suvarnabhumi Airport	C3
M6	Gautam Buddha International Airport/ Bhairahawa Airport	A1			

Ports

Code	Name	Coord.	Code	Name	Coord.
C1	Colombo International Container Terminals (CICT)	A3	M3	Regional Connectivity Project I	B1/2
C9	Kyaukpyu Special Economic Zone Deep-water Port Project 82	B2	U1	Chittagong Port Enhancement, Phase I	B2
I1	Sittwe Port	B2	U2	Laem Chabang Port, Phase III	C3
I2	Kaladan Multi Modal Transit Transport Project	B2	U3	Payra Port	B2
J1	Matarbari Port	B2	U5	Dawei Deep Sea port & SEZ	C3
J2	Galle Port (Phase 1)	A3	U6	Hambantota Port	A3
J3	Yangon Port Rehabilitation and Main Inland Water Transport	C2	U7	East Container Terminal (Colombo Port)	A3
J4	Mandalay Port	C2	U8	Oluvil Port Development Project	A3
M1	Colombo Port Expansion Project	A3	U9	Nepal Birgunj Dry Port	A1
M2	Regional Waterway Transport Project 1	B1	U21	Kra Canal	C3

Roads

Code	Name	Coord.
I13	Trilateral Highway	B1/C2
M9	Kakarvitta (Nepal) - Panitanki (India) - Fulbari (India) - Banglabandha (Bangladesh)	B1
M10	Phuentsholing (Bhutan) - Jaigaon (India) - Hasimara (India) - Changrabandha (India) - Burimari (India)	B1
M11	Thimphu (Bhutan)-Phuentsholing (Bhutan)-Jaigaon (India)- Changrabandha (India)-Burimari (Bangladesh)-Mongla and Chittagong (Bangladesh) [SAARC Corridor 8]	B1/B2
M12	Kathmandu (Nepal)-Bhairahawa (Nepal)-Sunauli (India)-Lucknow (India)	A1
M13	Mechi River Bridge	B1
U20	Piprakothi-Raxaul Bridge:	A1

Railways

Code	Name	Coord.	Code	Name	Coord.
C5	Kunming-Muse Mandelay-Kyaukphyu Railway Line	B2/C2/C1	I9	Nautanwa-Bhairahawa (15km)	A1
C6	Lhasa-Kathmandu Railway Line	A1/B1	I10	Jalpaiguri-Panitanki/ Kakkarvitta (70 km)	B1
C7	Kerung-Kathmandu	A1	I11	Khushinagar- Kapilavastu	A1
C8	Padma Bridge Rail Link Project (PBRLP)	B1/B2	I12	Barhini-Kathmandu	A1
I3	Raxaul-Birgunj-Kathmandu	A1	M7	Dohazari-Gundum	B2
I4	Jaynagar-Janakpur-Bijayalpura-Bardibas	A1	MY1	Ban Kao-Ban Phu Nam Ron-Dawei	C3
I5	Agartala-Akhaura	B1	U14	Haldibari-Chilahati	B1
I6	Khulna-Kolkata Railway Service	B1/B2	U15	Singhabad-Rohanpur	B1
I7	Mujnai-Nyoenpaling	B1	U16	Radhikapur-Birol	B1
I8	Nepalgunj Road (India)-Nepalgunj (Nepal)	A1	U18	Kunming-Kolkata	B2/B1/C1
			U19	China-Thailand Railway Project	C1/C2/C3

7th Senate Meeting held

On 13 October 2021, the first and only maritime specialised public university in the country 'Bangabandhu Sheikh Mujibur Rahman Maritime University (BSMRMU)' holds its 7th Annual Senate Meeting in the conference room of the temporary campus in Pallabi, Mirpur. The meeting is considered a milestone in the progress of the university. The meeting was presided over by Rear Admiral M Khaled Iqbal (retd), the university's Vice-Chancellor. Discussions and decisions on various important university topics were made in the meeting. The Senate started with a welcome speech from the Vice-Chancellor of the University. BSMRMU Treasurer proposed revised budgets for Fiscal Years 2020-2021 and 2021-2022, which were approved unanimously. At this meeting, the university's 7th Annual Report (July 2020 - June 2021) was also presented. The Senate members expressed their satisfaction at the university's rapid growth in such a short period of time. The Vice-Chancellor expressed his confidence in the university's focus on strengthening the nation's maritime human resources sector in order to explore and exploit untapped maritime resources, and in the university's ability to contribute to the country's progress by implementing the government's "Blue Economy" initiatives through technological innovations and expert manpower support.

Martyred Intellectuals Day observed

A delegation of BSMRMU paid homage by placing floral wreaths at the Memorial of Martyred Intellectuals at Rayerbazar in Dhaka to observe Martyred Intellectuals Day. Following the placement of the wreath, the team stood in mournful silence for some time to express their utmost respect for the martyred intellectuals. Later, a discussion session was organised at the university auditorium maintaining proper social distancing. The Vice-Chancellor of the university Rear Admiral M Khaled Iqbal (retd) delivered a speech gracing the occasion as the chief guest.

In addition, a photo and a book exhibition were organised in the memory of the martyred intellectuals. The event was attended by university faculty, students, officers, and employees. The event was live-streamed on BSMRMU's official Facebook page. Afterwards, a special prayer was offered for the martyred intellectuals' eternal peace.

BSMRMU organised an international seminar on 'Blue Governance for Bangladesh's Sustainable Development'

BSMRMU organised an international seminar titled "Blue Governance for Sustainable Development of Bangladesh" on 26 October 2021 at the International Mother Language Institute in Dhaka. The Honourable Education Minister Dr Dipu Moni, MP graced the occasion as the chief guest through video teleconferencing. Also present during the seminar through video teleconferencing were HE Mr Robert Chatterton Dickson, British High Commissioner to Bangladesh as the special guest of the seminar and Professor Graham Galbraith, Vice-Chancellor of the University of Portsmouth. The Vice-Chancellor of BSMRMU Rear Admiral M Khaled Iqbal (retd) delivered the welcome speech while the keynote speech was given by Rear Admiral Md. Khurshed Alam (retd), Secretary of the Ministry of Foreign Affairs (MoFA) Maritime Affairs Unit.

The chief guest, in her statement, emphasised the importance of maritime education and research in implementing the Honourable Prime Minister's Blue Economy initiatives to ensure Bangladesh's long-term prosperity and expressed her hope that BSMRMU would play a key role in this process. The British High Commissioner, in his speech, pledged to continue the support of the British Government in various areas of Bangladesh including the maritime sector. The chief guest announced the introduction of a Special Maritime Journal and a free web-based online programme co-sponsored by BSMRMU and the University of Portsmouth. Professor Dr Pierre Failler from the University of Portsmouth, Professor Chris Hauton from the University of Southampton and Professor Dr Kawser Ahmed from the University of Dhaka also presented their valuable papers. The seminar was attended in person or online by representatives from several Ministries, UGC representatives, high-ranking military and civilian officials, delegates from various universities, maritime organisations, teachers, students, and officials from BSMRMU.

Undergraduate admission test conducted in four divisions

The undergraduate (Honours) admission test for the Academic Session 2020-21 of Bangabandhu Sheikh Mujibur Rahman Maritime University (BSMRMU) was held in two shifts each day on November 19 and 20. This year 28,257 candidates applied for a total of 200 seats in 5 undergraduate programmes across 4 faculties. By maintaining proper social distancing and COVID-19 prevention guidelines, the admission test was held at 6 centres in Dhaka, Chattogram, Khulna and Rangpur divisions.

BSMRMU celebrated the Golden Jubilee of Independence and Victory Day

On 16 December 2021, BSMRMU marked the Golden Jubilee of Independence and Victory Day on its campus maintaining proper social distancing. Those celebrations were held side by side with several yearlong programmes scheduled for the commemoration of the Birth Centenary of the Father of the Nation Bangabandhu Sheikh Mujibur Rahman. The ceremony began with hoisting the national flag at the dawn. The Vice-Chancellor of the university, Rear Admiral M Khaled Iqbal (retd), was the chief guest at the daylong celebration, which began with the opening of the Golden Jubilee of Independence Corner at the university and the unveiling of the Liberation War Corner on the university's website. Besides, a documentary film on Victory Day was screened and a special magazine was unveiled to mark the celebration. Following that, the BSMRMU Cultural Club organised a cultural event in the spirit of Victory Day, and prizes were handed among the winners of all the competitions held on the occasion. Professor Dr Md. Wahiduzzaman of the Institute of Educational Research (IER), University of Dhaka graced the occasion as the keynote speaker. The ceremony, which was live-streamed on BSMRMU's official Facebook page, was also attended by the BSMRMU Treasurer, Registrar, Deans, teachers, students, officials and staff.

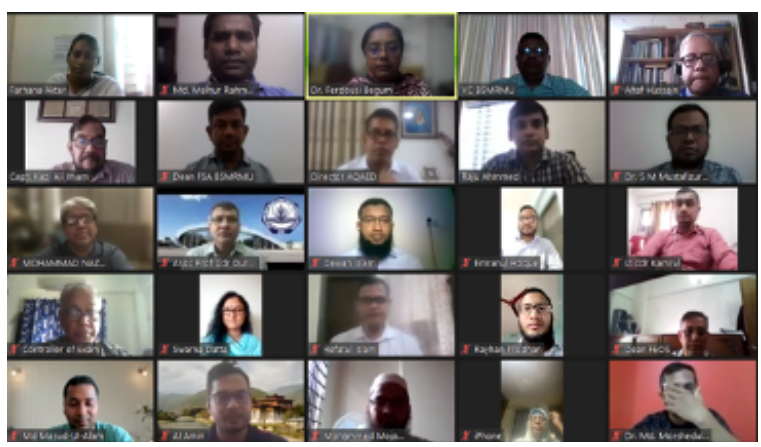
Conducting a short course on 'Port & Shipping Studies'

To promote higher education and research focusing on transportation as well as fair, safe and uninterrupted supply and management of goods in the maritime sector, BSMRMU conducted a short course titled "Port & Shipping Studies" on 17-23 December 2021 under the Institute of Bay of Bengal & Bangladesh Studies (IBBBS). Renowned resource persons led the 20-session course, which included one assessment session. The training was attended by 32 trainees from several reputed institutes, and many have indicated an interest in it. As the closing ceremony's chief guest, Rear Admiral M Khaled Iqbal (retd), the university's Vice-Chancellor, handed certificates to the successful trainees. He said that trainees who complete the course will be able to play a significant part in the overall development of the country's prospective shipping sector as well as sophisticated port management. It should be noted that the Port & Shipping Studies short course will be offered at least once a year.

A workshop titled ' Outcome Based Education (OBE)' organised

The University Grants Commission (UGC) of Bangladesh organised a two-day long workshop titled 'How to Implement the Outcome Based Education (OBE)' on 22 & 23 September 2021 at the UGC building. The workshop was attended by the Director of AQAED Captain A K M Aminul Azim, Assistant Professor of Department of Chemistry Dr Ferdousi Begum, Assistant Professor of Department of English Dr Kh Atikur Rahman, and Assistant Professor of Oceanography & Hydrography Dr S.M Mustafizur Rahman on behalf of BSMRMU.

Internal Faculty Seminar held

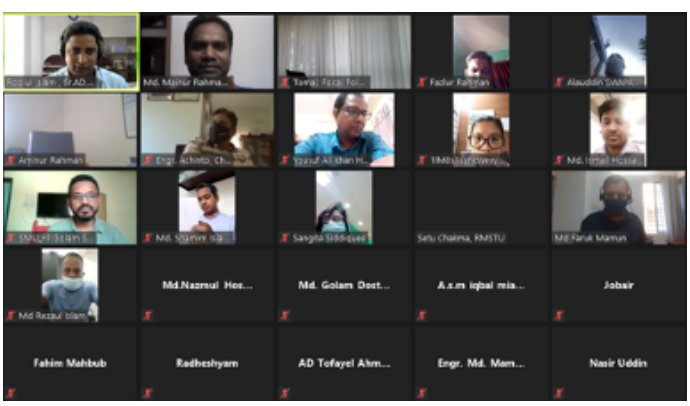


A fortnightly Internal Faculty Seminar has being organised by the Academic Quality Assurance and Evaluation Department (AQAED) of BSMRMU since 2017. The fourth phase of the seminar was completed successfully on 20 January 2020, and the fifth phase is presently ongoing. The current session began on 2 March 2020 and will end on 29 May 2023. Faculty members are nominated to present their ongoing/completed research works or other topics related to their departments. It should be noted that the Internal Faculty Seminar contributes immensely to the professional development of the faculty as a unique platform for scholarly discussion.

Conducting Foundation Training Course

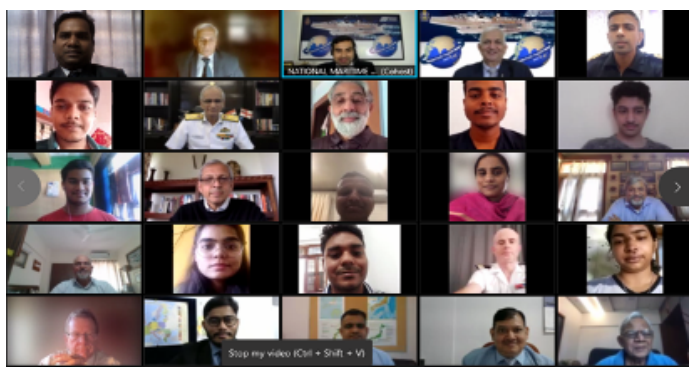
BSMRMU routinely organises seminars, workshops, training workshops, and various courses led by notable scholars from home and abroad to help faculty members and officials improve their teaching and professional skills. In addition to those normal routines, BSMRMU held the first-ever Foundation Training Course for faculty members and officers of the university from 9 December 2021 to 13 January 2022 under the Academic Quality Assurance & Evaluation Department, in which 11 faculty members and 13 officers participated. Invited Secretaries of different ministries of the Government, Vice-Chancellors of various universities, Emeritus Professors and BSMRMU faculty & officers conducted lecture sessions as resource persons. The modules of the course included Outcome Based Education (OBE), Accreditation, Questioning, Classroom Environment, Examinations & Assessments, Research Activities, Leadership, Ethics and Morality. The course also covered topics like the functioning of the Government machinery, Warrant of Precedence, different Government as well as University Rules & Regulations, Procurement, Budget, Pension, Gratuity, VAT, Tax calculations, DPP Preparation, Language Skills, ICTs, History of Bangladesh and Bangabandhu etc. Visits to the Ministry of Education, the University Grants Commission, BPATC, BUP, NSU, Bangladesh Naval Academy, School of Maritime Warfare and Tactics, Chittagong Port Authority, BORI, and Cox's Bazar were also included in the course. On 18 January 2022, the course's certificate ceremony was held, with Rear Admiral A S M Abdul Baten (retd), the former Vice-Chancellor of BSMRMU, as the chief guest and Rear Admiral M Khaled Iqbal (retd), the Vice-Chancellor of BSMRMU, as the special guest.

On participation of Indo-Pacific Regional Dialogue- 2021



The Indian Navy and National Maritime Foundation organised a 3-day long international conference dialogue titled "The Indo-Pacific Regional Dialogue (Online), 2021" on 27, 28, 29 October 2021. The theme of the conference was "Evaluation in Maritime Strategy During the 21st Century: Imperatives, Challenges and Way Ahead." Representatives from AQAED of BSMRMU participated in the conference.

AQAED participated in a training workshop on BNQF and Accreditation Rules and Standards



Bangladesh Accreditation Council (BAC) organised a two-day long training workshop on "Bangladesh National Qualification Framework (BNQF) for Quality Assurance in Higher Education" and "Training on Accreditation Rules and Standards" on 14 and 15 November 2021. The workshop was attended by representatives from the Academic Quality Assurance and Evaluation Department (AQAED) of BSMRMU, and Md. Mainur Rahman, Assistant Director of AQAED.

From France for Liberation

Md. Sami-Ul-Haque

Operation Jackpot is called the first victory of our great Liberation War. About 300 soldiers of sector 10 participated in this suicidal mission and made this an exemplary one. Through this operation, the freedom fighters informed the world about their strong resistance. The operation was very much successful because of some Bengali submariners who left France to liberate their country. Some of them were the main leaders of that operation.

On 25 March 1971, the Pakistani army ruthlessly killed a huge number of people in Dhaka and around Dhaka in the name of heinous 'Operation Searchlight'. This crackdown stunned many people not only in Bangladesh but also around the world. This massacre urged some of the Bengali crewmen who worked in a submarine in Toulon (a coastal city of southern France) named PNS MANGRO (First commissioned on 5th August 1970). There were 45 crew members on board, with 13 of them being Bengalis. After the massacre, Submariner Abdul Wahed Chowdhury (Later Commodore Abdul Wahed Chowdhury, BU BB s/m (G) psc (retd)) decided to join the Liberation War and tried to convince all 13 of them to join too. 8 crewmen responded to join, but as per the Pakistan ministry of defence, there were 9 crewmen, one was killed by Pakistan Naval Intelligence, but the others managed to escape. A.W. Chowdhury oversaw the security of the box containing the passports and confidential documents. He took all the 45 passports with him. If he took out only the 13 passports belonging to the Bengali submariners, the authority would raise a red flag immediately. They were unable to remain in France since Pakistan had purchased a submarine from them, they were anticipating French support for Pakistan in the war. Primarily they planned to cross the border of France to reach Geneva (Switzerland). One of their South African submariner friends advised them to travel to Switzerland and request political asylum (because Switzerland was a neutral country); from there, they planned to travel to India and join the heroic Freedom Fighters.

They left France, but they couldn't enter Switzerland as they had no visas. They didn't want to appear suspect. So, they talked to the immigration officer in France and told that they would go back to Paris and come back with visas. They entered again in France and found out that they could enter Spain without visas. The next morning, they entered Barcelona. They contacted the Indian consulate in Barcelona immediately. They were sent to Madrid, where they received approval for political asylum relatively quickly. Then they went to Rome to catch a flight to India in an Indian Airliner that was coming from New York. But the flight got delayed in New York due to a labour strike. In Rome, they saw a lot of journalists and cameramen waiting for them at the airport as the news got spread from the embassy about their escape. The Pakistan embassy officials got the news and rushed to capture them. But the crewmen said, "Look, on 26 March, we were reborn, and we will fight for our country". Instead of waiting for 10 hours in Rome, they went to Geneva as Italy had a good relationship with Pakistan. They took a flight to Bombay (Mumbai) from there, and after arriving in Bombay, they were transported to Delhi and placed in various safe locations. Later, they joined the Freedom Fighters of the Liberation War and played a vital role in Operation Jackpot.

Here is the list of names of eight naval personnel who returned and risked their lives to defend their country from Pakistani oppressors.

- Abdul Wahed Chowdhury (Bir Uttam)
- Mohammad Rahmatullah (Bir Protik)
- Abdur Rahman (Bir Uttam)
- Sheikh Md. Amin Ullah (Bir Uttam)
- Mohammad Ahsanullah (Bir Protik)
- Abdur Rakib Mia (Bir Bikram)
- Badiul Alam (Bir Uttam)
- Syed Mosharaf Hossain

Md. Sami-Ul-Haque

Student
Department of Oceanography and Hydrography
Bangabandhu Sheikh Mujibur Rahman Maritime University (BSMRMU)

Maritime Robotics for the Future of the Blue Economy

Rajib Mallick

The world has entered into a new decade of digitalisation & automation. It's a technological revolution of the 21st century. Seaports are upgrading from 4th to 5th generation ports. Even the 6th generation port's conceptual framework has been proposed. The key themes include robotics, information technology and autonomous digital machines. The 4th Industrial Revolution (4IR) is the trend toward technologies in fields such as robotics, nanotechnology, biotechnology, quantum computing artificial intelligence (AI), the internet of things (IoT), the Industrial Internet of Things (IIoT), decentralised consensus, 3D printing, 6th generation wireless technologies, fully autonomous vehicles and so on. These advanced technologies are now blending with people's physical existence.

Blue Economy of Bangladesh

It is already known that in near future, the Blue Economy will greatly influence the growth of Bangladesh. Despite the fact that the Bangladeshi government, led by Bangabandhu Sheikh Mujibur Rahman, enacted the "Territorial Waters and Maritime Zones Act-1974" in 1974, the law's implementation, as well as the exploration and exploitation of untapped maritime resources, were impeded by the maritime dispute with India and Myanmar. After resolving those maritime disputes with neighbouring countries, Bangladesh established its sovereign authority over 118, 813 square kilometres of sea area. As a result, Bangladesh gained control over a sea area nearly equal to the country's total land area. Until now, the government has identified 26 different initiatives for developing the Blue Economy sector which include shipping, coastal shipping, seaport, internal river transportation, shipbuilding, ship recycling industry, oil and gas, sea salt production, blue energy, mineral resources, marine genetic resources, coastal tourism, artificial island, marine security, surveillance and many more.

Technology for the Blue Economy Exploration and Exploitation

According to maritime experts, Bangladesh's newly acquired sea area has precious sand, uranium, thorium, and other mineral resources that, if effectively exploited, will transform the country's economy. In this regard, maritime robotics may be able to contribute significantly to this job of proper exploration. Underwater drones, also known as Autonomous Underwater Vehicles (AUVs), can be used to locate lucrative sea resources that are beyond the reach of humans. Underwater drones can explore previously unknown risky places, and then produce Augmented Reality (AR) or underwater maps of the area for later use. Some underwater drones equipped with ultra-high-definition cameras can be used for live streaming, documentation, or smart filming of sea life and the surroundings, as well as identifying spying intruders or assisting in rescue operations.

WAM-V Technology for Flourishing the Blue Economy

A specific technology of maritime robotics, the Wave Adaptive Modular Vessel (WAM-V) technology, is an innovative class of watercraft using unique suspension technology that will be ideal for marine

surveys, defence and maritime security, coast view and so on. Unlike conventional boats, the WAM-V's flexible structure adapts and conforms to the water's surface for an exceptionally smooth and level platform. The existing latest WAM-V has a range of over 400 nautical miles, can carry up to 600 lbs of payload, has a top speed of 15+ knots, and has passed rigorous open-ocean testing to ensure it is a stable platform for sensor deployment. The applications of WAM-Vs are:

- Remote Observation
- Systems Delivery
- Dredging
- Habitat Study
- Oceanography
- Marine Salvage
- Disaster Response
- Hydrography

Navigation Surveys

The Wave Adaptive Modular Vessel-Autonomous Surface Vessel (WAM-V ASV) stability produces excellent sonar data quality in all sea conditions. WAM-V ASVs can be used as force multipliers to existing manned assets or as the sole MBES (multibeam echosounder) deployment tool. WAM-V ASVs have been used to collect MBES data in mining pits, harbour channels, shipping channels and coastal fibre optic cable surveys.

Marine Infrastructure Surveys

WAM-V ASVs can be outfitted with various sonar solutions depending on requirements. Sensors can rigidly mount on a retractable pole or a winch system can be utilised for towed arrays.

Dredging Survey

WAM-V ASVs are ideal platforms for pre, post or in process dredging surveys. WAM-V ASV can be launched from the dredger or a nearby point on land. This can be especially beneficial when a survey is required quickly.

Berth Clearance Surveys

WAM-V ASVs can be used to conduct berth clearance surveys to identify any underwater obstacles or hazards. WAM-V ASVs can be quickly and easily launched from land at the site.

Mining Pit Survey

WAM-V ASV is perfectly suited for mining pit surveys. WAM-V ASV has the capacity to carry the sensor one needs for the job, the endurance to get the job done and the portability to get into the job site even when there isn't a "suitable" launch site.

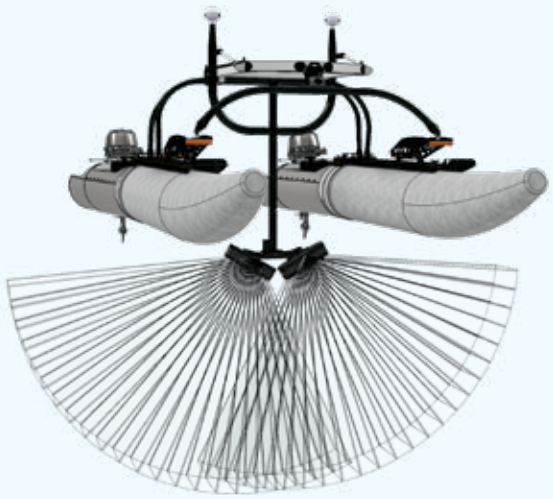
There are other surveys like Ship Channel Survey, Harbour Survey, Cable Survey, Bathymetric Survey etc. that can be conducted by WAM-V ASV.

WAM-V for Defence and Security

The WAM-V ASV is also a platform to address the defence and security issues of the maritime domain.

Multi-domain Autonomous Marine System

The WAM-V ASV is the ideal platform for multi-domain (air, sea and subsea) marine autonomy. The inherent stability of the WAM-V platform increases operational efficiency by allowing the entire system to operate on high seas. The portability of the WAM-V provides quick relocation of the entire system by air, sea or ground. Because the WAM-V technology is scalable, it can be used across the organisation for numerous missions with varying requirements on a single platform.



A computer generated model of WAM-V ASV security system

Multi-vehicle WAM-V ASV Security System

Multiple WAM-V ASVs can autonomously work together to provide a security perimeter around high-value assets. WAM-V ASVs can coordinate to intercept suspicious vessels and provide valuable information before the threat gets anywhere near the protected asset.

Other areas of operation are Maritime Domain Awareness (MDA), border security, security perimeter, high-value asset protection, Anti-Submarine Warfare (ASW), Mine Counter Measures (MCM) etc.

End Thoughts

The Blue Economy is primarily concerned with a country's development and proper utilisation of its maritime resources. Therefore, maritime robotics may become the key component of the future Blue Economy. As a result, WAM-V technology seems to be in high demand for various maritime industries, particularly in Bangladesh's EEZ, for a better future Blue Economy outcome.

Rajib Mallick

Student
Master in Port and Shipping Management
Department of Port and Shipping Management
Bangabandhu Sheikh Mujibur Rahman Maritime University, BSMRMU

Renewable Energy for Maritime Transport

Ayon Paul

The recent global energy crisis caused by the COVID-19 pandemic has made us realise our dependency on fossil-based energy. The constant threat of global warming and climate change are also frightening us from behind. The only solution to this horrifying situation is to replace fossil fuels with renewable and sustainable energy in every aspect of our life. Of course, the shipping industry is no exception.

Renewable energy is important for shipping industries not only for reducing environmental pollution, but also to reduce the fuel cost drastically. On average, a large modern container vessel consumes 217 tons of fuel per day with a cost of USD 552 per ton which represents as much as 50-60% of the total ship operating cost. In addition, just one of the largest container ships can emit about as much pollution as 50 million cars. Therefore, replacing current sources of energy with renewable energy in shipping industries is the best decision under these circumstances.

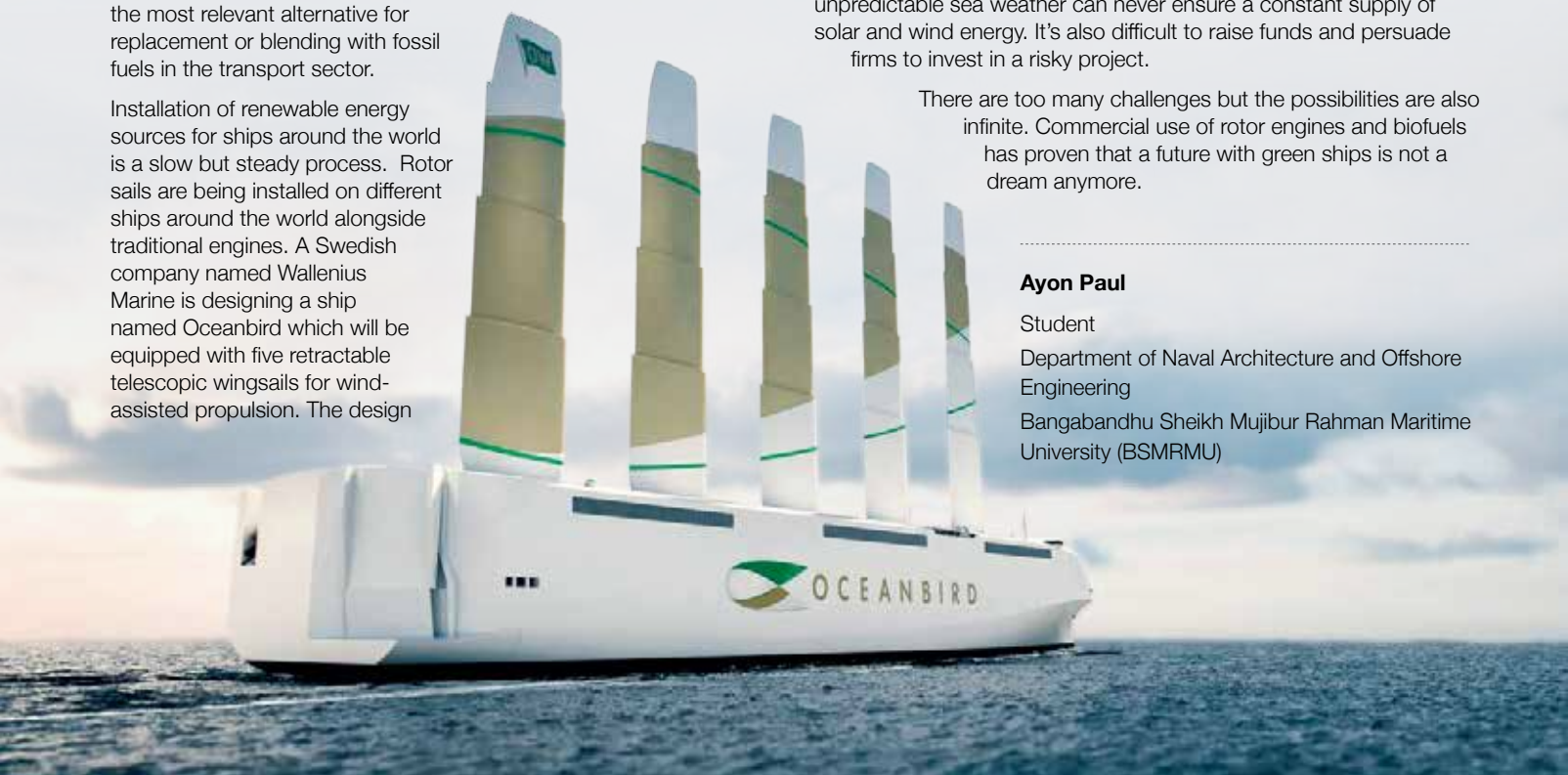
Wind energy, wave energy, solar photovoltaics and biofuels are the potential forms of renewable energy that can be used to operate a ship. Sails had been used throughout the world traditionally from ancient times for maritime transport. Different types of sails like soft sails, fixed sails, rotors, kite sails and wind turbines can be used to propel modern vessels. Current wave powerplants can be great alternatives for regular engines as they use wave current from the sea to generate power. Another great source of renewable energy is solar photovoltaics which uses solar power to produce electricity using photovoltaic cells. It has great potential because all advances in this fast-evolving technology are available for use in maritime transport. Bioenergy like liquid biofuel, biogas, bioethanol, biodiesel, biomethane, dimethyl ether and pyrolysis oil can be great replacements for traditional petrol and diesel. Biofuels are currently the most relevant alternative for replacement or blending with fossil fuels in the transport sector.

Installation of renewable energy sources for ships around the world is a slow but steady process. Rotor sails are being installed on different ships around the world alongside traditional engines. A Swedish company named Wallenius Marine is designing a ship named Oceanbird which will be equipped with five retractable telescopic wingsails for wind-assisted propulsion. The design aims to lower carbon emissions by up to 90%. Eco Marine Power is a Japan-based technology company that is developing integrated solar and wind power systems for maritime vessels. The Aquarius MRE System will use an array of rigid sails and solar panels to build a ship based on a renewable energy system. A 16-passangers shuttle called Hydroville is being tested in Belgium by CMB Tech. This passenger vessel uses hydrogen gas as its fuel. The company also plans to start producing all its ships on a low emission level within 10 years.

Hydroville uses hydrogen gas as its fuel

The road to a cleaner and greener shipping industry is not as easy as it sounds. Unavailability of power, power quality issues, resource location, information barriers and cost issues are a list of problems that can just go on and on. The most concerning issues among them are the unavailability of power and cost issues because the unpredictable sea weather can never ensure a constant supply of solar and wind energy. It's also difficult to raise funds and persuade firms to invest in a risky project.

There are too many challenges but the possibilities are also infinite. Commercial use of rotor engines and biofuels has proven that a future with green ships is not a dream anymore.



Ayon Paul

Student

Department of Naval Architecture and Offshore Engineering

Bangabandhu Sheikh Mujibur Rahman Maritime University (BSMRMU)

A Desired Three-week Industrial Attachment

Md. Mehedi Islam Limon

Practical training is an essential part of any engineering discipline. That's why our curriculum includes the Industrial Attachment for the students of Naval Architecture and Offshore Engineering (NAOE). This offers opportunities for the students to participate in and analyse the proper development of any engineering field. In this regard, the students of NAOE 1st Batch, BSMRMU participated in the Industrial Attachment at Dockyard and Engineering Works Limited (DEW), Narayanganj from 14 November to 2 December 2021.

From the very beginning of our university life, the batch mates of NAOE 1st batch desired the Industrial Attachment. Finally, the opportunity came after our 6th semester final exam.

On 14 November 202, at very early in the morning, we started our journey for the Industrial Attachment to the DEW Ltd from the university premises along with our respected Professor Commodore M Munir Hasan (retd).

DEW is one of the oldest dockyards that was established in 1922 during the British colonial period by the British government. It has a 99-year history of elegance. After 1947, the dockyard was handed over to Pakistan Industrial Development Corporation (PIDC) from the ownership of Royal Indian Marine Services (RIMS). Later in 1956, the name of this yard was changed from 'Dockyard Limited' to 'Dockyard and Engineering Works Limited'. After the great Liberation War of 1971, the ownership of the yard was transferred to Bangladesh Steel and Engineering Corporation (BSEC). However, due to many difficulties, the yard was marked for layoff in 2002. To revive the yard once again, the Government of Bangladesh handed over this remarkable dockyard to Bangladesh Navy on 7 December 2006.

We surely received the most practical knowledge in our university lives during those three weeks of Industrial Attachment at DEW Ltd. Their hospitality was excellent, as was their friendly demeanour. All of the instructors, officials, and staff were knowledgeable and kind. Their lecture and instruction skills were competent. We received answers to all of our questions from them. During those three weeks, we observed practical activities and related them to our theoretical understanding. We also learned practically about the entire construction process, from keel laying to vessel undocking. Finally, on 2 December, the three important weeks we spent at DEW Ltd came to an end.

Md. Mehedi Islam Limon

Undergraduate Student
Department of Naval Architecture & Offshore Engineering
Bangabandhu Sheikh Mujibur Rahman Maritime University (BSMRMU)

Remembering Sanaullah Chowdhury

Pioneer of Private Ship Owning in Bangladesh

Md. Mostafa Aziz Shaheen

There was just one ship-owning firm in erstwhile East Pakistan before Bangladesh's liberation, with its operations headquarters in Chattogram. That was the late A K Khan's Pakistan Steam Navigation Company operating two ocean-going ships (named "Fatehabad" and "Jahangirabad"). The ships were in service until around 1969.

Except for two ocean-going merchant ships that became the exclusive property of the newly founded Bangladesh Shipping Corporation (BSC) after Bangladesh's independence in 1971, the country had no ocean-going merchant ships. At that time, all ships owned and managed by Pakistan National Shipping Corporation and other private companies were carefully withdrawn from Bangladesh. However, the newly formed BSC was the only state-owned company to run the business.

The private sectors of shipping and aviation were allowed to operate a couple of years after the independence. Private investment in international shipping took longer to materialise. During that time, Mr Sanaullah Chowdhury was the only individual who pioneered private sector shipping in Bangladesh.

When he was a teenager in 1955, Mr Sanaullah Chowdhury started working at Shaw Wallace (Pakistan) Ltd, a shipping agency, as a trainee shipping clerk. Shaw Wallace was the Chattogram agent for the renowned German shipping line Hansa Lines. Sanaullah was a bright and sharp young man. He quickly grabbed the attention of German business leaders who were visiting Chattogram. They offered him training in its Bremen headquarters. There was no degree or credential, but there was extensive on-the-job training. In Germany, Holland, and Belgium, he learned a lot about shipping. He astonished his German bosses by expressing a wish to return to East Pakistan rather than pursue a career in shipping in Europe. He left Shaw Wallace in 1966 to start his own family business, Atlas Shipping Services. Mrs Umme Salma Chowdhury, Sanaullah Chowdhury's wife, joined the firm as a working partner in its inception. She was in charge of the finance department and made a significant contribution to the company's success. He obtained an agency for Scindia Steam Navigation of India and India Steamship Co. of Calcutta shortly after Bangladesh was liberated. For SCI, he then obtained a cargo booking agency. He eventually obtained an agency for the Shipping Corporation of India. He expanded his business to include agency, chartering, brokerage, and other services. His company was a success.

In 1978, he (Atlas Shipping) purchased a second-hand cargo ship with a capacity of 10,000 DWT and registered it at Chittagong Port as 'Al-Salma'. It was the first private-owned Bangladeshi ocean-going merchant ship. Al-Salma was operating on the route of Bangladesh-Singapore-Colombo-Karachi-Bangladesh. Under his leadership and efficient ship management, the company grew up shortly. He continued to acquire secondhand ships one after the other. 'Al-

Sharmeen' was acquired in 1980, 'Al-Sayestha' was purchased in 1981, 'Al-Sana' was purchased in 1985, 'Al-Salma-2' was purchased in 1985, 'Al-Swamruz' was purchased in 1986, 'MV Safar' was purchased in 1989, and 'Al-Salamas' was purchased in 1997. Due to the economy of shipping costs and market downtrend, some of the company's ships were scrapped. The final ship they owned, 'MV Safar' was scrapped in 1999, putting an end to their ship-owning enterprise. His ships plied over the seas from Japan and South Korea to Pakistan and the Persian Gulf in the west.

The Silver Jubilee of Atlas Line's establishment as 'Mark of Success' was celebrated in 1991. In 1995, Atlas Line signed an agreement with Korea Maritime Transport Co.(KMTC), Ltd., Seoul, Korea, and began the 'Bengal Bridge Service' to ensure the smooth operation of their vessels and to increase the frequency of traditional liner services from the Far East to the Bay of Bengal under Atlas / KMTC joint services. Bengal Bridge Service's major goals were to build joint operation centres in Seoul and Singapore to oversee operations such as marketing and claims settlement, as well as to enhance and maintain the highest level of service. The full transportation service provided by Atlas Lines on Bangladesh- Far East – Japan – Bangladesh route had a well-established reputation based on 40 years of expertise. In order to fulfil the diverse demands of clients, Atlas provided a comprehensive variety of professional transportation services through conventional lines, trampers and chartering during these years. The Atlas Line presently operates on the most convenient timetable link to all major ports in the Far East and Japan.

Mr Sanaullah often visited his ship at Chittagong Port and discussed operational matters with the onboard ship's master and chief engineer. Instead of going to the air-conditioned luxury wheelhouse, Mr Sanaullah used to go 'straight to the engine room'. With his freshly ironed white shirt and slacks, he would inspect the engine room and understand the ship's condition only by looking at the engine room's appearance and by hearing the sound of the ship's machinery. He didn't need to speak with engineers because he understood engine behaviour from his shipping business expertise for many years. He personally used to look after the appointment of officers for both ship and shore. Besides, the Atlas Initiative and Chowdhury Family also support the Bangladesh Marine Academy Scholarship Programme. He was a strong supporter of the Bangladesh Marine Academy (BMA). His agency, as well as his son (second-generation shipping company and shipowner) Asifur Chowdhury's Singapore-based firm, Seatrek, both employed numerous Marine Academy graduates. The Atlas Initiative advocates for Bangladesh Marine Academy and its graduates, promotes Bangladeshi maritime education and provides career opportunities for the mariners. One of the BMA graduates, Capt. Khaled Saifullah began his career as a cadet with Atlas Shipping in 1978 and had remained with the company as a master till 1991. Mr Chowdhury travelled to Chittagong just to attend the ceremony of handing over command to him, he recalled. Mr Chowdhury's public relations skills were honoured during his time with the renowned Hansa Line. His company Atlas Shipping has helped a large number of Bangladeshi seafarers to build successful careers all around the world.

M.V. 'AL-SAYESTHA' Former Names: PACIFICO (1972), TRIPOLI (1969), AXENFELS (1965); IMO number: 5032008

On 25 April 2019, in Dhaka, the legendary and country's pioneer shipping personality, Mr Sanaullah Chowdhury passed away. The spirit of Mr Chowdhury will live on in the thoughts of people who work in the maritime industry in Bangladesh. We pay homage to the departed soul of this heroic shipping legend of the nation.

Md. Mostafa Aziz Shaheen

Lecturer,
Department of Port & Shipping Management
Bangabandhu Sheikh Mujibur Rahman Maritime University (BSMRMU)

The write-up is prepared with the assistance of the website of Bangladeshi daily newspaper (the financial express), Bangladesh Ocean Going Ship Owners' Association (BOGSOA), Gulfseaways, Juldia Marine Academy Alumni Association, Atlas Bangladesh, bdmariners.org, balticshipping.com, vesseltracking.net and vesselfinder.com

Special gratitude to CEng Sajid Hussain, Commandant, Bangladesh Marine Academy, for providing the rare vessel's images of the Atlas as well as contributing to the article's value.

Special thanks to Captain Fazlur Rahman Chowdhury, the legendary mariner of Bangladesh for his wonderful article in the Financial Express.

FLEET OWNED BY MR. SANAULLAH CHOWDHURY

VESSEL NAME	LENGTH (m)	BREATH (m)	SIZE (DWT)	BUILDER/YEAR	PURCHASED YEAR
M.V. "AL-SALMA"	144	17	10,000	HINDUSTAN SHIPYARD, VISAKHAPATNAM, INDIA (1958)	1978
M.V. "AL-SHARMEEN"	92.06	13.39	4,000	FERGUSON MARINE, PORT GLASGOW (1965)	1980
M.V. "AL-SALMA-2"	-	-	10,000	-	1985
M.V. "AL-SAYESTHA"	129	16	8,000	AG WESER. BREMEN, GERMANY (1962)	1981
M.V. "AL-SANA"	123.75	17	8,000	SHIN KURUSHIMA HASHIHAMA DOCKYARD, HASHIHAMA (1967)	1985
M.V. "AL-SWAMRUZ"	143.5	21	12,500	TOHOKU SHIPBUILDING, SHIOGAMA (1974)	1986
M.V. "SAFAR"	-	-	14,500	-	1989
M.V. "AL-SALAMAS"	116	19	9,800	1976	1997

Prime Minister inaugurated the Payra bridge

The Honourable Prime Minister Sheikh Hasina has inaugurated a bridge in Patuakhali district that spans the Payra River. On 24 October, she virtually opened the bridge from Ganabhaban. At the same time, the Prime Minister unveiled a plaque marking the laying of the foundation stone for a 6-lane highway with separate SMVT lanes on both the Dhaka-Sylhet and Dhaka-Tamabil routes.

The journey from Barishal to Kuakata used to take 6 to 8 hours. Because of the Payra bridge, it now takes only 3 to 4 hours. It is envisaged that the addition of ferry-free road connectivity will boost Kuakata's tourism appeal. The construction project of Payra bridge at Lebukhali point on Patuakhali-Barishal highway was approved by ECNEC in 2012 and the Honourable Prime Minister laid the foundation stone on 19 March 2013. On 24 July 2016, the Chinese contractor Longjian Road & Bridge Co., Ltd. began work on the project. The project was prolonged in two phases till 30 June 2022, despite the fact that the work order planned for the bridge to be finished in 33 months.

The Payra bridge, with a length of 1,470 metres and a width of 19.76 metres, is unique in its design. This four-lane bridge was built using extradosed cable-stayed technology. The Shah Amanat bridge in Chattogram, which spans the Karnaphuli River, was built using the same technology.

Ships of Bangladesh have a greater share in the transportation of goods under the PIWTT

For trade between Bangladesh and India, waterways are becoming more common than highways. Every year, the quantity of trade between the two countries via rivers grows. Bangladeshi ships transport a bigger proportion of these items. Bangladeshi ships will transfer goods between the two nations 92 % in fiscal year 2020-21. Indian ships are responsible for the remaining 8% of the cargo. Only raw ingredients for cement were previously imported by sea. However, rice, wheat, maize, stone, and other products are being imported as well. As a result, the volume of commodities transported has increased. This is according to a report given by the Bangladesh Inland Water Transport Authority (BIWTA) at a recent meeting of the parliamentary standing committee on the Ministry of Shipping.

The amount of import-export between the two countries in the 2016-17 fiscal year was more than 2,624,000 metric tons, according to data provided by the BIWTA. Only 29 Indian ships were used to transport these goods, compared to Bangladesh's 3,011 ships. As a result, Bangladeshi ships carried 99% of the goods that year.

Prime Minister has directed to set up Matarbari Development Authority

The Honourable Prime Minister Sheikh Hasina has directed to set up an authority to coordinate the ongoing development projects in Maheshkhali and Matarbari areas of Cox's Bazar. She said that many projects are underway in the Matarbari and Maheshkhali areas and these tasks should be carried out by a single authority rather than separately. The Prime Minister made these remarks at a meeting of the Executive Committee of the National Economic Council (ECNEC) on 23 November.

In Cox's Bazar's Maheshkhali and Matarbari regions, 37 projects are now underway, including Matarbari deep seaport, which is being supervised by Chittagong Port Authority. And, the 1,200 MW power station at Matarbari is administered by the Ministry of Power. Moreover, Bangladesh Economic Zone Authority (BEZA) is in charge of establishing economic zones. Gas pipelines, LNG terminals, and roads are all being constructed. These development projects are being implemented by different departments of the Government. Therefore, to coordinate these activities, the Prime Minister has directed to establish the Matarbari Development Authority. The new authority will work in the same way as the Payra and Chittagong Port Authorities.

After the ECNEC meeting, the Minister of the Ministry of Planning MA Mannan informed the press that a total of 10 projects worth Tk 29,344 crore have been approved at the ECNEC meeting. State Minister for Planning Shamsul Alam, Secretary of the Planning Division Pradip Ranjan Chakraborty and others were present at the press conference.

Prime Minister called upon foreign investors to reap the benefits of the business environment

The Honourable Prime Minister Sheikh Hasina had urged foreign investors to reap the benefits of all the government-initiated investment facilities in Bangladesh. On 28 November 2021, she made the call during her opening remarks at the two-day 'International Investment Summit-2021'. The Prime Minister joined via video teleconference from Ganabhaban in the main event organised by Bangladesh Investment Development Authority (BIDA) at the Radisson Blu Hotel in Dhaka.

On 29 November, the second day of the investment summit, State Minister for Shipping Khalid Mahmud Chowdhury MP also urged foreign investors to invest in Bangladesh.

At a press conference, BIDA's Executive Chairman Sirajul Islam revealed that at the end of the international investment summit, an investment promises of USD 270 crore (about Tk 23,000 crore) had been made. Saudi Arabia is the source of the majority of this investment promise. 81% of the total export income came from the readymade garments sector.

Ships will now directly sail between Italy and Chittagong Port

Experimentally, small container ships have started sailing directly from Chattogram to Europe. A ship carrying empty containers from an Italian port berthed at the Chittagong Port's jetty on 23 December.

The new service has been launched by freight forwarder RIF Line and its subsidiary Calypso Compania de Navigation. It is a Bangladeshi freight forwarder's collaboration with Italian buyers.

The garments industry will get the most benefit from this initiative. Because 60% of Bangladesh's export products go to European countries. As a result of this initiative, it will now take at least seven to eight days less than before to deliver goods to foreign buyers in Europe.

Bangladeshi ships account for a greater proportion of goods transported under the PIWTT

The import-export volume in the next fiscal year, 2017-18, was above 2,700,000 metric tons. These goods were delivered by 3,300 Bangladeshi ships, whereas only 86 Indian ships were involved. As a result, Bangladeshi ships made up 98% of all merchant ships in that year.

Bangladesh's ships were engaged to import and export nearly 2,400,000 metric tons of goods in fiscal year 2018-19, accounting for 95%, whereas 59 Indian ships were involved. The following fiscal year's import-export volume was over 2,780,000 metric tons. Bangladeshi ships transported 96% of the goods in that year, with 3,192 ships compared to 70 Indian ships.

The combined import-export volume of the two countries by sea in fiscal year 2020-21 was more than 3,959,000 tons. These goods were transported by 3,913 Bangladeshi ships, accounting for 92% of the total number ships, whereas 226 Indian ships, on the other hand, have been employed.

The Protocol for Inland Water Trade and Transit (PIWTT) has been in place between Bangladesh and India for trading across waterways since 1972. Goods could only be transported by Indian ships till the year 2000 and Bangladeshi ships came to operation after that year.

Health of ocean requires proper regional and global attention: Bangladesh

Bangladesh has said ocean health, like climate change, needs proper regional and international attention and frameworks supported by all stakeholders. "We must ensure that our ocean with its all resources remains healthy under proper surveillance and continue creating equitable opportunities for our people," said State Minister for Foreign Affairs Md Shahriar Alam. He made the call while delivering a speech at the 5th Indian Ocean Conference 2021 (Plenary Session 3) on 5 December arranged on a virtual platform.

The State Minister said oceans are the homes of opportunities and they are both engines for global economic growth and key sources of food security. He said sustainable harnessing in the Indian Ocean through coordination and joint efforts of the countries in the region can make a groundbreaking impact on socio-economic development creating jobs and opportunities for livelihoods. Doing so offers the possibility of generating new sustainable pathways to rebuild economies recovering from the effects of the global pandemic and sudden economic shock, said the State Minister.

Bangladesh leads the world in ship breaking

Bangladesh has topped the global ship breaking sector for the third year in a row. In 2020, Bangladesh claimed the top spot by breaking 38.5% of ships in the world. The report of the 'Review of Maritime Transport-2021' published by the United Nations Conference on Trade and Development (UNCTAD) on 18 November revealed this information.

India is ranked second, and Pakistan is ranked third, according to the report. India broke 29.1% of ships and Pakistan broke 16.6%. Turkey ranked fourth by breaking 9.2% ships and China ranked fifth with 1.1%. The contribution of the rest of the countries is only 5.5%.

In 2019, 54.7% of the total ship breaking in the world was in Bangladesh. In 2018, this share was 47.2%. In that year, Bangladesh overtook India and took the top spot. Bangladesh has held the top spot in this industry for the third time in a row.

Bangladesh to get more Japanese FDI in EEZs

Japanese companies are keen to invest more in Bangladesh's Exclusive Economic Zones (EEZs), HE Ambassador of Japan Naoki Ito.

"Around 300 Japanese companies are operating in Bangladesh. Many big Japanese companies, including Mitsubishi, will invest more in economic zones in Araihazar, Mirsarai and Matarbari," he told a discussion organised by BIDA and Better Bangladesh Foundation (BBF) on 24 Apr 2021.

He mentioned his country's long-term support for infrastructure development in Bangladesh, which is crucial for smooth running of business. He also advised Bangladesh businesses to catch new export markets in Asian countries, including Japan and South Korea, with its diversified RMG products.

The Minister of Planning MA Mannan MP attended the event as chief guest and former Bangladesh Bank Governor Dr Atiur Rahman joined as guest of honour.

It should be highlighted that the Government of Bangladesh is building a 1,000-acre Exclusive Economic Zone (EEZ) for Japanese investors in Narayangan's Araihazar in cooperation with Japan International Cooperation Agency (JICA), which will provide ready facilities for projects under agro-food, light engineering, chemical, automobile assembly, garments, pharmaceuticals etc.

Thai Port Authority and Chittagong Port Authority have signed an MoU

A Memorandum of Understanding (MoU) has been signed between the Port Authority of Thailand (Ranong port) and the Chittagong Port Authority of Bangladesh on 20 December.

The Memorandum of Understanding is expected to facilitate more trade between Bangladesh and Thailand by increasing sea connectivity. This is part of Bangladesh's broader vision to enhance greater connectivity with neighbouring countries, including the BIMSTEC region. The MoU will encourage the business community on both sides to explore more trade and investment opportunities. Apart from this, both the port authorities will benefit through information exchange and cooperation in promoting port management, operations, information technology, communication, port connectivity, coastal shipping, port-related industries and investment promotion.

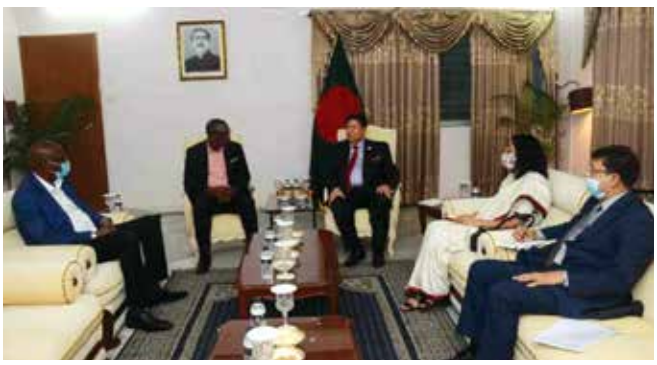
The Chittagong Port Authority Board Member Md. Jafar Alam and Lt. JG. Dr Chamnan Chairith, R.T.N., Deputy Director General (Asset Management and Business Development) from the Port Authority of Thailand (PAT) signed the Memorandum of Understanding on behalf of their respective authorities. The Secretary of the Ministry of Shipping Mohammad Mezbah Uddin Chowdhury, the Chairman of the Chittagong Port Authority Rear Admiral M Shahjahan, and other senior officials were virtually present at the signing ceremony.

A meeting between the shipping secretaries of Bangladesh and India took place in New Delhi

The meeting between Bangladesh and India at the shipping secretary level, 21st Standing Committee and 2nd Intergovernmental Committee, was held on 20-22 October in New Delhi, India. Earlier, a 21-member delegation from Bangladesh left Dhaka for New Delhi on 19 October to attend the meeting. The Secretary, Ministry of Shipping Mohammed Mezbah Uddin Chowdhury led the delegation. The bilateral meeting was held to enhance trade between Bangladesh and India through coastal shipping, transit and transhipment. It discussed issues of mutual interest.

The members of the delegation who participated in the meeting among others were Additional Secretary (Organisation-1) of the Ministry of Shipping A. K. M. Shamimul Huq Siddique, member of National Board of Revenue Zakia Sultana and Chairman of Chittagong Port Authority Rear Admiral M Shahjahan. The last meeting between the two countries at the shipping secretary-level was held on 4 and 5 December 2019 in Dhaka.

Bangladesh and Tanzania are eager to collaborate on the Blue Economy and agriculture



Through the establishment of official connections, Bangladesh and Tanzania have committed to collaborate in agriculture, the Blue Economy and other economic sectors.

Tanzania is keen to know more about Bangladesh's aquaculture, fisheries, shipbuilding, and horticultural sectors. The country also highlighted the importance of exchange of business delegations to develop mutual trade and economy. In this regard, Tanzanian Minister of Livestock and Fisheries Mashimba Mashauri Ndaki and Minister of Blue Economy and Fisheries Abdullah Hussein Kombo met Foreign Minister Dr AK Abdul Momen at the State Guest House Padma on 15 November and discussed the ways of broader cooperation.

Both ministers are in Dhaka for the 21st Council of Ministers of the Indian Ocean Rim Association (IORA) and related meetings. Dr Momen briefed the visiting ministers on Bangladesh's development progress and how Bangladesh had achieved amazing socio-economic growth under the visionary leadership of Father of the Nation Bangabandhu Sheikh Mujibur Rahman. Later, he expressed gratitude to Tanzania's government for its support of Bangladesh's chairship of the Indian Ocean Rim Association.

Bangladesh and the Maldives will cooperate to ensure regional security in the Indian Ocean

Prime minister Sheikh Hasina and president of the Maldives Ibrahim Mohamed Solih agreed on the importance of working together bilaterally, regionally and internationally in combating the rising menace of terrorism, violent extremism and radicalisation, according to a joint communiqué issued on 23 December. At the invitation of president Solih, Prime Minister Sheikh Hasina was on a state visit to the Maldives at that time.

Bangladesh side highlighted that the country has assumed the chairmanship of IORA for the first time, since October 2021 and sought the support of the Maldives for working together towards greater maritime safety and security in the Indian Ocean region. President Solih congratulated Bangladesh and assured it of Maldives' cooperation in this regard. Both the leaders agreed that connectivity in all its forms is crucial to promote tourism and trade; and also stressed the early launching of the direct shipping link.

Besides, both leaders expressed their concern on the climate emergency, noting that the effects of climate change directly and negatively impact the livelihood and wellbeing of people in island nations and low-lying coastal states like the Maldives and Bangladesh.

During her visit, Prime Minister Sheikh Hasina was accompanied by a high-level delegation, including Foreign Minister AK Abdul Momen, Expatriates' Welfare and Overseas Employment Minister Imran Ahmad, Health and Family Welfare Minister Zahid Maleque and senior officials of the Government of Bangladesh.

Bangladesh assumes chair of IORA

Bangladesh assumed chairship of Indian Ocean Rim Association (IORA) while Russia was added as new dialogue partner at its 21st Council of Ministers' meeting held on 17 November. More than 15 IORA member states with 11 ministerial-level delegations joined in-person while others joined virtually.

Under the theme of 21st Council of Ministers, "Harnessing the opportunities of the Indian Ocean sustainability for inclusive development", Bangladesh proposed "IORA-Dhaka Development Initiative (IORA-DDI)" for inclusive regional development.

The Foreign Minister AK Abdul Momen said the meeting established a working group on disaster risk management under the coordination of India. "We also finalised IORA guidelines for humanitarian assistance and disaster relief," he said.

At a strategic dialogue on COVID-19 recovery, all IORA members emphasised on getting COVID-19 vaccine equally for reasonable price. The Foreign Minister said that Bangladesh also reiterated its position regarding Indo pacific region.

To prevent shipping pollution, maritime 'green corridors' will be established

Nineteen countries signed a new agreement to build zero-emission maritime routes in order to decrease the global warming effects of the heavily polluting shipping industry.

By the middle of the decade, the Clydebank Declaration, adopted at the Cop26 climate change meetings in Glasgow, proposes to build six 'green corridors.'

Routes from Saudi Arabia to India and China were among the early alternatives for the plan, but those three countries were not among the deal's signatories.

The agreement states that "in the coming years, activity will be scaled up" by adding "additional routes, longer routes, and/or having more ships on the same routes." About 3% of worldwide greenhouse gas emissions are attributed to shipping. Most ships use the most polluting form of fuel and can stay in service for decades, making it difficult to reduce their environmental impact. Ships might potentially be converted to run on zero-carbon fuels, according to experts.

Future fuels are expected to be a combination of hydrogen, ammonia, or renewable electricity, according to the marine sector, although many technological concerns remain unanswered. The International Maritime Organisation (IMO) of the United Nations is aiming for a 50% reduction in worldwide fleet greenhouse gas emissions by 2050, compared to 2008 levels.

Seatrade Maritime Awards recognised major industry achievements

The Seatrade Maritime Awards Middle East, Indian Subcontinent, and Africa, in collaboration with Lloyd's List, were held on 14 December during UAE Maritime Week 2021under the patronage of the UAE Ministry of Energy and Infrastructure.

The awards saw the announcement of 16 winners from an impressive shortlist. Eleven of the 16 prizes came from categories that were independently reviewed and recognised specific industry successes such as safety, sustainability initiatives, technical advancements, education, unique industry achievements, and more.

Five independent panels volunteered their time and expertise to reviewing each nomination and offering a transparent judging procedure, with the finalists going through two rounds of assessment prior to the event.

UAE Maritime Week is the important gathering place for professionals having a vested interest in the development of the UAE's maritime sector. The week-long series of events, which takes place every year, provides attendees with an important opportunity to network, build partnerships, and exchange ideas as the region continues to emerge as a key industry hub. UAE Maritime Week 2021, organised by Informa Markets Maritime and held in Dubai from 12-16 December, was held under the auspices of the UAE Ministry of Energy and Infrastructure.

Horizon Technologies, a maritime intelligence firm, has announced a new partnership with Virgin Orbit

Virgin Orbit, the US-based responsive launch and space solutions company that has announced a planned business combination with NextGen Acquisition Corp. II (NextGen), announced the signing of an agreement on 21 December establishing a close and multi-faceted partnership with Horizon Technologies (Horizon), the UK-based global leader in innovative space-based Maritime Domain Awareness (MDA) through signals intelligence. According to the terms of the agreement, Virgin Orbit will become Horizon's preferred launch partner, will invest in the company, and will assign a Virgin Orbit representative to Horizon's board of directors. Horizon presently intends to use LauncherOne's unique ability to attain customised orbits for at least five launches.

Horizon is already a world leader in airborne systems through its FlyingFish and BlackFish product lines, which are in use on numerous aircraft worldwide for customers such as NATO and the European Border and Coast Guard Agency (FRONTEX). This work has already begun, with the impending launch of the first of their AMBER commercial SIGINT CubeSats, which will provide clients with increased Maritime Intelligence Data Service. Monitoring for detection of dark target detection of illicit activities, piracy, smuggling, illegal fishing and terrorism will be among the AMBER system's applications. Horizon will continue to expand the AMBER constellation and related services through more launches onboard Virgin Orbit's mobile LauncherOne system.

Horizon Technologies is a global leader in innovative SIGINT and space-based Maritime Domain Awareness (MDA) Intelligence Solutions.

Marina intends to implement fundamental changes in marine education and training

The Maritime Industry Authority (Marina) intends to implement fundamental reforms in Philippine maritime education and training by eliminating the one-year On-Board Training (OBT) requirement from the BS Marine Transportation (BSMT) and BS Marine Transportation (BSMarE) programmes.

Marinas can now focus on improving and advancing the competence and careers of seafarers through training provided by Maritime Training Institutions (MTI).

STCW Office Executive Director VAdm Rene Medina elaborated on what he calls the proposed enhanced curriculum standardisation for BSMT and BSmarE programmes, explaining that they will continue to be four-year courses, but instead of the current onboard training on the fourth year, students will stay in school for additional subjects, more laboratory activities and practical training using simulators. Upon graduation, students may commence the one-year OBT under Marina's supervision. After completing the 12 months, they will be issued their Certificate of Competency (COC) by the Maritime Administration. The proposal has already been presented to the Technical Panel for Maritime Education (TPME) of Philippines.

UNCTAD says smart, sustainable maritime transport is essential for overall recovery

Although the impact of the COVID-19 pandemic on marine trade was less severe than projected last year, the knock-on consequences will be far-reaching and might reshape the industry, according to UNCTAD's newest assessment, released on November 18th.

According to the assessment, maritime trade declined by 3.8% in 2020, but later rebounded, and is expected to increase by 4.3% in 2021.

Global socioeconomic recovery, according to the UNCTAD, will be dependent on smart, robust, and sustainable maritime transportation, as well as a global COVID-19 vaccination initiative that ensures developing nations have more equitable access to doses.

UNCTAD said the pandemic has also exposed and magnified existing challenges in the maritime transport industry, particularly labour shortages and infrastructure needs.

The agency has called for urgent action to resolve the plight of hundreds of thousands of seafarers who remain stranded at sea due to the pandemic, as lockdowns, border closures and a lack of international flights have affected crew replacements and repatriations.

The assessment said industry, Governments and international organisations must ensure seafarers are designated as key workers and vaccinated as a matter of priority.

Mitsui OSK Lines gives the world a glimpse of future CO2 ships

Mitsui OSK Lines (MOL) and Mitsubishi Shipbuilding (Japan) have completed a concept study for a large liquefied CO2 (LCO2) carrier that could become the mainstream in the LCO2 shipping sector in the near future.

The partners investigated various hull designs to determine which were the most effective and practical for a cargo tank size of up to roughly 50,000 cu m with various tank pressure levels.

"To respond flexibly to client needs across the entire value chain, we will make quick efforts to realise a larger LCO2 carrier with a high degree of complexity and build a range of ship types," MOL said in a statement.

Meanwhile, in South Korea, shipbuilder Daewoo Shipbuilding & Marine Engineering (DSME) and American class society ABS collaborated to develop designs for a 70,000 cu m very large LCO2 carrier, while steelmaking giant Posco collaborated with Hyundai Mipo Dockyard and its parent company Korea Shipbuilding & Offshore Engineering, as well as Lloyd's Register and the Liberian Registry, to develop a 20,000 cu m LCO2 carrier by 2025.

Graduation Ceremony of the World Maritime University

Graduates from the Master of Science in Maritime Affairs and PhD programmes attended the Class of 2021 graduation ceremony in Malmö, Sweden, on 31 October. The ceremony was held without guests because to the ongoing COVID-19 pandemic and was live streamed for family, friends, and colleagues who joined in the celebration. The overall number of graduates at the 2021 WMU graduation ceremony was 5,632, representing 171 nations.

HE Mr. Kitack Lim, the first Secretary-General of the International Maritime Organization (IMO) and WMU Chancellor, thanked the City of Malmö and the Swedish Government for their continued generosity and support in hosting the university, as well as the many donors for their ongoing commitment to the WMU mission and sustainability. He emphasised the importance of WMU's interdisciplinary programmes, which ensure that graduates are well-rounded, informed, and bright persons who take a holistic approach to maritime and ocean concerns.

Dr Cleopatra Doumbia-Henry, WMU President, gave the opening remarks. In her speech to the graduates, she highlighted that the Malmö Class of 2021 had completed their studies entirely under COVID-19. She stressed the important role that the graduates will play in rebuilding the globe following the pandemic, in order to create a cleaner, greener world with low and zero carbon emissions from ships and ports.

Regarding the annual student awards, the Chancellor's Medal for Academic Excellence for the MSc in Maritime Affairs 2021 in Malmö was awarded to Mr Nguyen Hoang Vuong (Vietnam).

Strathclyde University is involved in five clean maritime projects funded by the Department of Transport

The world's first green submarine is one of five maritime projects involving the University of Strathclyde to win UK Government funding worth a total of £1.7m.

The successful project bids involve researchers from the University's Naval Architecture and Marine Engineering (NAOME) department and are among 55 winning projects of the £23 million Clean Maritime Demonstration Competition.

The Research & Development contest is funded by the Department of Transport, who will work with Innovate UK, part of UK Research and Innovation. The aim is to support the development of innovative technology to drive the commitment to have zero emission ships operating commercially by 2025 – creating hundreds of highly skilled jobs and establishing the UK as world leaders in clean maritime.

Northeast Maritime Institute signs a deal with Kongsberg Digital

The Northeast Maritime Institute (NMI) in Massachusetts, USA, has inked a partnership agreement with Kongsberg Digital (KDI). This is the first partner agreement signed with a maritime eLearning provider and includes the delivery of a range of K-Sim cloud-based simulation applications for NMI global online students.

NMI's dynamic learning management system makes a variety of courses available online to mariners all over the world. Northeast Maritime Online is an online maritime education, training, test, and certification platform (NEMO). The K-Sim Connect applications will be incorporated into NMI's eLearning courses.

The digital platform K-Sim Connect offers a variety of simulation solutions aimed at improving maritime education and training. Engine management, cargo handling, radar, ECDIS, and route planning simulation solutions are already available, and the product library will be expanded with further applications in the navigation training arena in the near future.

By 2028, the global digital education market is expected to reach USD 77.23 billion

The growing use of internet-enabled gadgets has contributed significantly to the recent growth of the digital education market. Factors such as rising mobile device penetration and greater need for personalised learning are driving demand for digital education content. In recent years, the education industry has seen a paradigm change from traditional learning to personalised and interactive learning.

The global digital education market is estimated to reach USD 77.23 billion by 2028, according to Grand View Research. From 2021 to 2028, the market is expected to grow at a 30.5%. The rise in mobile cellular subscriptions, which allow users to access digital information on their smartphones and tablets whenever they want, is also increasing the preference for digital education content. Digital education content products from market vendors are also being used by educational institutions in order to provide tailor-made content that is integrated with traditional curricula. Furthermore, technological breakthroughs such as virtual classrooms create significant growth potential for organisations that now provide online learning services.

By 2030, plastic pollution is forecasted to double

According to a UN Environment Programme (UNEP) report released on 21 October, plastic pollution in oceans and other bodies of water is increasing rapidly and might more than double by 2030.

The report underlines the negative effects on human health, the economy, biodiversity, and climate change. It also claims that a significant reduction in wasteful, avoidable, and problematic plastic is important to tackling the global pollution catastrophe.

It suggests an expedited transition from fossil fuels to renewable energies, the elimination of subsidies, and a shift toward more circular approaches to waste reduction to help reduce plastic waste at the scale required.

The paper, titled 'From Pollution to Solution: a Global Assessment of Marine Litter and Plastic Pollution', indicates that there is an increasing concern from source to sea, across all ecosystems.

Plastic currently makes about 85% of all marine litter. It will nearly triple by 2040, dumping 23-37 million metric tons of waste into the ocean each year. This equates to around 50 kg plastic per metre of coastline. As a result, all marine life faces a serious risk of toxification, behavioural disorder, malnutrition, and asphyxia, from plankton and shellfish to birds, turtles, and mammals.

The human body is vulnerable in the same way. Plastics are found in seafood, beverages, and even common salt. When hanging in the air, they also penetrate the skin and are inhaled. This form of contamination in water sources has been linked to hormonal alterations, developmental disorders, reproductive abnormalities, and even cancer.

FlexMaritime service expands into Indian territorial waters

Intelsat, the world's largest integrated satellite and terrestrial network operator, announces the expansion of its global FlexMaritime service, now enabling connectivity for vessels travelling in Indian territorial waters and immediately improving service coverage for all 8,000 Intelsat FlexMaritime vessels. The historic development also allows Indian-registered vessels to connect to Intelsat's award-winning global high-throughput maritime network. Intelsat's expansion is made possible by a new in-country gateway that is operationally ready to deliver service via Intelsat's HTS satellites under the In-Flight and Maritime Connectivity (IFMC) licence of India-based partner Cloudcast.

FlexMaritime's entry into India would create new commercial opportunities and drive digital transformation for thousands of Indian-flagged vessels and ships operating in Indian territorial waters. According to the Ministry of Shipping of India, sea transport accounts for around 95% of India's commerce volume and 70% of its trading value.

FlexMaritime meets the connectivity needs of every type of vessel with capacity and global reach, even in high-traffic port sites, with terminal sizes of 37cm, 45cm, 60cm, and 1 metre. The gateway will be based in Noida, India, and will serve as a major link between Intelsat's terrestrial ground network and space assets, as well as extending Intelsat's current global network to a vital trading port. Services will be available through Intelsat's many solution partners commencing in early 2022.

The winner project of the 'Smart Maritime Land Operations Call' has been announced by MarRI-UK

A consortium of eight organisations (one port, two SMEs, three higher education institutes and two research technology organisations), along with other supporting organisations and led by the Port of London Authority, have been awarded £1.3m as part of the Smart Maritime Land Operations Call. The award comes as part of a Maritime Research and Innovation UK (MarRI-UK) initiative supported by the Department for Transport (DfT) to develop a national hydrogen highway network that incorporates land, sea and port networks.

The call was launched in November 2020, with organisations from across the UK able to apply for grants to develop mid TRL (TRL 3-7) technologies. The consortium proposal was selected by independent reviewers from a total of 19 high-quality submissions, with assessment criteria including establishing the benefits for the maritime sector, innovation, the technology's strategic fit with Maritime 2050 and alignment with MarRI-UK vision, and value for money.

This funding will support the development of technological innovations that will enable smart maritime and land operations for UK maritime, ensuring the sustainability and longevity of the sector through the collaborative development of technologies that will suppport a world-leading industry that is fit for the future.

Bangabandhu Sheikh Mujibur Rahman
Maritime University, Bangladesh

Web: www.bsmrmu.edu.bd