

BLUE ECONOMY IN THE BAY OF BENGAL
Bangladesh, India & Sri Lanka

**WORKSHOP 2: BLUE ECONOMY IN THE BAY OF BENGAL:
CRACKING IMPLEMENTATION BOTTLENECK**

WORKSHOP REPORT

Workshop 2: Blue economy in the Bay of Bengal: cracking implementation bottleneck

CONTEXT AND OBJECTIVES

Joël Ruet, President, The Bridge Tank

The spirit of these three workshops is devoted to understanding, mapping the initiatives and gaps in action on blue economy in the Bay of Bengal, more particularly in Bangladesh, India and Sri Lanka. Our first workshop was held on November 26th, dedicated to understanding the challenges with the participation of several entities. Our second workshop aims to continue this understanding by gathering experts who participated in the first edition and new experts and to start a strategic conversation with the AFD.

Dr. (Mrs.) Hélène Djoufelkit, Research Director of the AFD

The AFD's interest in this topic resides in the socio-economic importance of these resources. Blue economy is a huge part of the global trade that consists of most of the employment, particularly in fisheries. However, it is difficult to assess the real GDP percentage of this activity, with researchers considering that blue economy constitutes 3 or 5% of the regional GDP. Blue economy is also a developing issue with regards especially to climate change pressure and the environment conservation. Therefore, it is essential to identify potential impacts, how to adapt or mitigate them and what would be the priorities for each country facing these challenges. This is what we tried to identify during the first workshop. We then drew a series of recommendations on socio-economic aspects.

In terms of challenges in the economic side, we identified 3 challenges:

- **Pressure the environment and anthropic activities on the marine ecosystem.**
- **Disaster risk management**
- **Growing demand on fisheries and tourism**

On the social side, we identified the following factors as essential:

- **Food security issue, as 50% of protein comes from fish**
- **Job access**
- **Climate change adaptation**

Regarding data, it is a necessary tool to better understand, evaluate and manage those issues. Data is also needed to develop standards. For now, environmental standards are not internationally developed. **The AFD is active in terms of standard. Data is also necessary to increase awareness of policy makers.**

PANEL 1: DATA COLLECTION FOR IMPROVED MONITORING OF THE BLUE ECONOMY'S ASSETS

In the continuity of the first workshop, we have decided to deepen the analysis on data issues. Rigorous data collection and precise inventory of the fishery stocks are keys to drive public policies for the blue economy. Better monitoring, reporting and inventory making, scientific and technological advancements could better halt resources' abuse, whilst ensuring an equal and sustainable use of ocean and coastal resources.

Dr Shailesh Nayak, National Institute of Advanced Studies (NIAS), India

Dr. Shailesh Nayak is currently Director, National Institute of Advanced studies. He was Distinguished Scientist during 2015-2018 and was Secretary of the Ministry of Earth Sciences in Government of India, during August 2008-2015, providing leadership for programs related to earth system sciences. Dr. Nayak obtained a PhD degree in

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Geology from the M.S University of Baroda in 1980. He has been credited with launching many research programs. He set up the state-of-the-art tsunami warning system for the Indian Ocean in 2007 in just two years' time, providing tsunami advisories to the Indian Ocean rim countries. He pioneered in development of algorithms and methodologies for application of remote sensing to coastal and marine environments, generated a baseline database of the Indian coast, and developed services for fishery and ocean state forecast.

Dr. Nayak's presentation aimed to give a glimpse of the focus areas, advisory services to the fishermen, the assessment of primary, secondary, and tertiary productivity, biotechnology, biodiversity and coastal environment and data base on ocean developed by/in India. Dr. Nayak divided his presentation into three parts by providing us information on blue economy challenges focused on fisheries and coastal management, data and recommendations.

Throughout his speech, Dr. Nayak identified the need for coordination at national and international levels to combat challenges such as: governmental protection of the richness of blue resources for scientific development, gathering of knowledge, the continuous evolution of fish stock due to climate change impacts, monitoring, developing technology used at the service of knowledge and the need for a framework for data collection.

Dr. Shailesh Nayak expressed the need to connect both scientific sides from data collection and services based on one question: how can we transform data in knowledge and action for fishermen? For Dr. Nayak, fishery is the most important component of the blue economy in the Bay of Bengal, stating that fishery is not only related to fish but is itself a system, a value chain.

Dr. Nayak proposed his own definition of blue economy "as an ocean dependent economy development which is essentially targeted to improve the quality of life for people. At the same time, blue economy should be an inclusive social development system maintaining the environment of ecological security. It is not an economic development, but we have to ensure both the environment and ecology for a sustainable use".

Dr. Nayak then explained how India has been working on blue economy for 25 years, particularly in the fishing industry. Using satellites, India developed fish availability models depending on environmental and meteorological conditions. This potential fishery advisories example is estimated to succeed about 80%, reducing in search time 60-70% and increasing 2-4 times fish catches. The two most numerous species of fish in the area, oil sardine and Indian mackerel, have decreased in numbers, due to overfishing. However, climate change and warmer water temperatures have been identified by experts another reason, as well as the increase of harmful algae. Although India provides services to monitor these changes, Dr Nayak highlighted that marine biodiversity monitoring needs further developing within the framework of cooperation, as protection of marine wildlife cannot be done by a single country.

Finally, Dr. Shailesh Nayak put forward several recommendations:

- Ocean environmental data will be crucial to make macroeconomic decisions about blue economy. Large Volume of scientific data have been organized on the Indian Ocean around GIS as the Ocean Data and Information System.
- Development of an accounting system for ushering blue economy and strengthening societal relevance of oceans within a framework integrating scientific data along with environmental, social and economic data.

- Development of an institutional framework for investments in infrastructure, human resources, finance, and governance systems.
- Management and accounting of oceans as valuable assets for sustainable growth.

Mrs. Akshita Sharma, Biodiversity Portfolio Manager, AFD Delhi

Mrs. Akshita Sharma is an experienced project manager with a demonstrated history of working in public policy and environment. She has strong skills in Analysis, Environment, Health, and Safety (EHS), Biodiversity, Presentation and Patent Law. She joined the AFD Delhi Office in July 2021.

Mrs. Sharma focused on the challenges that India and the region are facing within the fisheries sector, highlighting the urgent need of data management and how it represents an important role in supporting the fishery resources monitoring, assessment and management systems.

The policy framework in India is based on 3 pillars: autonomy, sustainability, and development.

Mrs. Sharma highlighted a series of problems in the fisheries sector:

- **Problems related to the Indian Economic Exclusive Zone** (about 2.5 million km square) and its fish stock management. Due to the high expanse of the Indian marine region and the diversity of its habitats, conducting a scientific evaluation of the stock is extremely difficult. Even if India has launched interesting initiatives to ensure that there is a total management of the fish stock, there are certain problems: First, a lack of open access data due to a non-disclosure clause of the report with the marketing agency. Second, inaccurate data collection based on approximation at traditional fishing vessels landing and fishing ports, where vessels account for 80% percent of the national fleet.
- **High impact of climate change to habitats** such as coral reefs, seagrass, and mangrove beds due to factors such as ocean temperature change, coastal flooding, coastal erosion, freshwater input, acidity etc.
- **The aging fishery research fleet**, with an average of 32 years, contains vessels that are not versatile and not highly adaptable to integrate new programs.

AFD could support and lead a proper management of the fish stocks with 3 possible interventions:

- **Strengthening biologic fish resources and their resistance to climate change** - biologic fish assessment is already being carried out in India. An angle off oceanography could be introduced, ensuring the maintenance of a minimum scientific base to stock assessment to allow research to keep and offer recommendations to benefits operators and decision makers.
- **Intervening on application related marine or maritime sectors management** - coral reef, mangroves, or coastal zones monitoring, assessment, management, inventory of suitable areas for farms (shrimp, seaweed), and IUU monitoring. For this to work, it would be necessary to identify India's priority for the next 15 years. AFD could be a good partner to initiative cooperation among Indian and French institutions to understand what the requirements in the coming decades would be.
- **Supporting the data collection, monitoring and evaluation systems in a pilot phase of maritime states.** The type of intervention has already been a success by the AFD in other regions of the world. Notably, the AFD could play a leading role in the region for the fisheries assessment and management.

Mr. Nishan Perera, Blue Resources Trust, Sri Lanka

Mr. Nishan Perera is a marine biologist and underwater photographer with an interest in coral reef ecology, fisheries and marine protected area management. He has previously worked with the IUCN and was a member of Project Seahorse. His current research includes field studies on seahorses, coral reefs and sustainable small-scale fisheries. He is the author of Coral Reefs of Sri Lanka, and has contributed articles and images to the Sri Lankan Airlines magazine Serendib, Explore Sri Lanka, Life Times Magazine, African Diver, Sport Diving Australia and Magazyn Nurkowanie Poland.

Mr. Nishan Perera focused his presentation on resources management challenges in Sri Lanka, links between science and research focusing on coral risks, and solutions for management and sustainable mechanisms as policy tools.

Mr. Perera explained that Sri Lanka, like other countries in the region, is facing numerous challenges in optimizing blue economic resources. As an inland nation, Sri Lanka struggles particularly with **ecosystem degradation** and **declining fish stock**, both key issues mainly caused by fish exports. The problem is not related to the fishery itself but on the scale and the lack of management. Mr. Perera stated that issues of **policy contradiction & sectoral/institutional approach** in Sri Lanka are mainly caused because of there is no coercive approach to international policy at national policy level nor at implementation and research and data gathering level.

Mr. Perera identified **data gaps** as the cause of these challenges, putting forward the need for data in Sri Lanka, particularly for a better resources **inventory**, with a **long-term perspective**. There is no strong temporal monitoring of Sri Lankan resources, linked to financing and funding. There is also a need to look at financial mechanisms' solutions in long term implementation rather than specific projects. Mr. Perera also highlighted the lack of critical data related to **fisheries stock assessment** (small-scale fisheries), **ecosystem health** (coral reefs and seagrass), **oceanography** parameters and **socioeconomic** data. Noting that tourism also constitutes a large part of blue economy in Sri Lanka, Mr. Perera also added that balancing tourism and fisheries would be key to improving Sri Lanka's economy.

Mr. Perera finally presented **ongoing initiatives** launched by the Blue Resources Trust, such as habitat mapping of coral reef, collaboration with Australia to participate to the global documentation of reef shark, efforts given by Sri Lanka to have a Vessel Monitoring System (VMS), as part of the Indian Ocean Tuna Commission obligations, support provided by Blue Resources Trust for the development of databases and application.

Mr. Abu Saleh Khan, Executive Director, Institute of Water Modeling, Bangladesh

Mr. Khan graduated with a degree in Civil Engineering from BUET in 1980 and later completed MSc. Engg in Water Resources, specializing in the hydro-morphological impact assessment using mathematical models. Mr. Khan has a long professional career of 30 years in planning and management of water resources. He served on the Bangladesh Water Development Board at various capacities in the planning and design of major flood control, irrigation and drainage projects. Since 1990 he has been engaged in the use of Mathematical Hydraulic Models for improved planning of water and water related environmental studies.

Mr. Abu Saleh Khan insisted on the particularity of blue economy's concept in Bangladesh and its relation to exploitation, preservation, and regeneration of the marine environment.

Throughout his presentation, Mr. Abu Saleh Khan explained the potentials of blue economy in national strategic sectors where the blue economy's concept is deeply anchored such as: **shipping and port facilities** (transporting 94% of Bangladeshi foreign trade), **fisheries and aquaculture** (fishing accounts for 25% of the GDP of the

agricultural sector and nearly 4% of the total GDP of the country), **energy** (gas & oil production and renewable energy & blue energy potentials), **tourism**, **freshwater** harvesting, **land reclamation** potentials, issues, activities and extreme events of **Bangladesh Coastal Zone**.

Concerning **data collection and monitoring**, Mr. Khan explained methodologically its value chain based on three steps: exploring blue resources, finding the potentials, hydrological and morphological data. He listed the lack of appropriate vessels, equipment and technology as the main issues related to data collection and monitoring in Bangladesh. For Mr. Khan, the global main issues related to blue economy in the Bay of Bengal are: protecting balance of environment by avoiding over-exploitation, knowledge, expert and workforce, and technology for exploring offshore resources and climate change.

Finally, Mr. Abu Saleh Khan identified a series of solutions for the issues presented during his speech: resources identification; marine spatial planning; policy for exploitation of blue economy; investment; training and capacity building; sustainable exploitation of resources.

PANEL 2: NATIONAL FRAMEWORK FOR IMPROVED COORDINATION BETWEEN PUBLIC, PRIVATE ENTITIES, RESEARCHERS AND IMPLEMENTERS

In the Bay of Bengal countries, a lack of coordination between public, private entities, researchers and implementers results in difficulty to drive strong, resilient and sustainable blue economy activities. Transversal and transparent coordination is needed to encourage public policy actions, and boost public and private investment for blue economy mainstreaming, such as infrastructures related to fisheries activities, access to market, legal framework, and social services for people.

- Short presentation of take-aways from experts' workshops and objectives by Joël Ruet, President of The Bridge Tank & Jacky Amprou, Regional Director for South-Asia, AFD
- Round table – 5 minutes pitch of projects, initiatives or solutions from each speaker
- Open discussion across panelists

Joël Ruet, President, The Bridge Tank

This session was devoted to solutions and to engaging conversation across and within auctioneers by gathering representatives from chambers of commerce, economic actors, public agencies from the region and from France, at least for the public agencies (AFD). This panel comes in the second workshop, in a series of three, where we are moving gradually from understanding the issues, examining the tools and looking at how we can share the tools towards trying to see how those tools can serve evolving joint projects or identifying gaps that owe to be address in PPP (public private partnership) manner at the regional level or at the international level for cooperation.

Jacky Amprou, Regional Director for South-Asia, AFD

Before moving to the main takeaways as a development banker, Mr. Jacky Amprou explained strategic frameworks developed by the AFD related to blue economy:

- **Ocean strategy** - the AFD board has recently approved with three pillars: improve the governance of the maritime areas and resources, promote competitive, sustainable and inclusive ocean sectors & preserve maritime and coastal ecosystems.

- **French Indo-Pacific strategy** - approved by the French government. The AFD is contributing to the development component of this strategy, which gathers many other components such as defense or security. Blue economy is one of the sectors identified, which has an opportunity to develop regional cooperation in the Indo-Pacific.

Summary of the main takeaways from the inaugural workshop and the first panel of the second workshop:

- **Need for more research and data on fishery resources.** All the speakers highlighted the challenges related to data including lack of tools, equipment and the importance of the policy design to promote sustainable management of marine resources. **The AFD is willing to work more on those aspects.**
- **Lack of information and coordination at country level,** based on issues of institutional capacity building. Legal framework and strategic documents do exist in Bangladesh, India and Sri Lanka, but sometimes these documents lack implementation. Having discussed with stakeholders, it seems that they are not aware of the existence of such documents, which makes it difficult for a financial partner, like the AFD, to reconcile the national strategies, promoted by the central government, and the local interest. **The AFD will be interested in listening to the expert's view on how to build institutional capacity of the sector to promote national strategies and local interest's reconciliation.**
- **Lack of regional cooperation and vision on blue economy,** regardless of the great deal of expertise at country level. **The AFD is interested in working on the regional dimension, as part of the French Indo-Pacific strategy. The AFD also wished to hear expert's point of views on the regional dimension, in particular in how the AFD as a financial partner can support blue economy regional approach in the Bay of Bengal and where we should start and who would be the right partner.**
- **Finding the right combination in terms of funding.** During the inaugural workshop, Dr. Arnab Das concluded his speech saying "it is important to find the right combination between nature based solutions and technology based solutions". In the same way, Mr. Amprou explained that the **AFD is willing to find the right combination between investment in infrastructures,** which is the core at the AFD, **and social investments** to enhance livelihood, such as food security, job access and climate change adaptation.

Dr. Saurabh Thakur, Associate Fellows, National Maritime Foundation, India

Dr. Saurabh Thakur has a PhD in international relations, Jawaharlal Nehru University. His areas of research are climate change, blue economy, climate security, marine pollution, global environmental politics and resilience of coastal urban agglomerations.

He added elements of context to keep the conversation going:

- The idea of **blue economy as a connecting element in the region** can lead to a regional blue economy strategy.
- **The understanding of top down and bottom-up contents on how the blue economy is going to be implemented in the region** is one of the key takeaways from the inaugural workshop and the panel 1 of the second workshop. For instance in India, which has a federal system, it is necessary to understand how blue economy is being formalized at the national level but how it gets translated at the very bottom level. This is the main challenge. To try to answer the issue of tools in addressing the challenges of the blue economy, Mr. Saurabh Thakur asked what sort of an impact transition will do the blue economy policies on a larger population.

Dr. (Mrs.) Chime Youdon, Associate Fellows, National Maritime Foundation, India

Dr. Chime Youdon has a PhD in European Studies, Thesis: “The European Union and China in the Climate Change Negotiations: From Copenhagen to Paris” Jawaharlal Nehru University in New Delhi. Her areas of research are climate change, climate resilience, coastal urban agglomerations, coastal ecosystem and carbon sinks, and international climate change politics

Dr. Youdon identified important elements of discussion:

- **Data collection methodology.** Lack of transparency, utility, could lead to manipulation or misrepresentation of the data, could again lead to maladaptation to climate change. As a researcher, she is facing those kinds of difficulties, notably by working on mangrove forest in India.
- **Lack of climate change modeling and climate projection in India.**
- **Regional cooperation related to blue economy.**

Mr. Shri Aditya Dash, Vice Chairman, Marine Products Export Development Authority (MPEDA), India

Mr. Shri Aditya Dash has been appointed Vice Chairman of the MPEDA since last august. He is the Managing Director of Rams Assorted Cold Storage Ltd, Bhubaneswar, Odisha. He has completed BBA in Finance from George Washington University, Washington D.C before venturing out to the seafood sector.

Mr. Dash gave a speech as an expert on fisheries sector with experience both in the private and public sector:

First, Mr. Dash identified the importance of realizing that there are **multiple stakeholders across the value chain of blue economy** in India (MPEDA, EIA/EIC, CAA, State Fisheries Department, Central Fisheries Department, Importing Countries, CSOs/NGOs, private industry) and the challenge of gathering all these experts in line on blue economy topics. Mr. Dash emphasized that a round table discussion, as was being held, would be a good place to start, before the implementing of tangible solutions.

MR. Dash then identified several **pilot projects**:

- An aquaculture Improvement Program (AIP) with MPEDA’s naCSA (National Center for Sustainable Aquaculture)
- Smallholder Farmers are the foundation of the global shrimp aquaculture value chain
- Interventions required improving productivity via effective disease management and accurate weather forecasts at the micro level.

These pilot projects are the logical next step after discussions to forge real connections and partnerships between different stakeholders which then lead to better coordination.

Mrs. Dharshani Lahandapura, Chairperson, the Marine Environment Protection Authority (MEPA), Sri Lanka

Mrs. Dharshani Lahandapura is an experienced Legal Consultant with a demonstrated history of working in the fields of Corporate Social Responsibility, Communication, Corporate Communications, Contract Management, and Sustainability. She is a strong legal professional with a Post Graduate Diploma focused in Environment Management from University of Colombo.

Mrs. Dharshani Lahandapura began her speech by presenting blue economy’s potential in Sri Lanka based on coastal tourism, deep sea minerals and marine-based energy. She highlighted the process that should be formulated to achieve desirable goals by a long-term plan to double to ocean economy and the necessity of

national policies, strategies and a road map up to 2030. The MEPA proposed to formulate a comprehensive national policy strategy and road map. However, this cannot wait until there is a comprehensive plan with a two-way approach. While preparing long term policy, it is necessary to implement identified projects to reach targets. She presented actions launched by the MEPA and projects that are under discussion: Formulate National level Marine Spatial Plan & Zoning; Blue Carbon Project; Pilot Project – Blue Green Fisheries Village in Kudawella; Aquaculture in Eastern Province; Actions for the conservation of Marine Protected Areas.

Active solution seekers to improve blue economy in Sri Lanka, the MEPA identified several challenges such as pollution, multi-stakeholders/fragmented institutions, data driven decision making, data repository, baseline data, continuous research aligned with industry requirements & financing.

Mr. Khairul Majid Mahmud, Director, Dhaka Chamber of Commerce & Industry, Bangladesh

Khairul Majid Mahmud is the Chairman & Managing Director of CALDWELL GROUP, a position that he has held since the inception of the company in 2007. Mr. Mahmud completed his early schooling at St. Gregory's High School in Dhaka, Bangladesh before pursuing higher education abroad, graduating from Black Hills State University in Spearfish, South Dakota, USA. After returning to Bangladesh, Mr. Mahmud has ventured into various business sectors, beginning his entrepreneurial pursuits by founding Clarion International Limited, a company focused on international commodity trade in cement, rice, wheat and fertilizers. His career took a new turn towards Real Estate as a Director at Living Stone Ltd, where he developed numerous projects. Mr. Mahmud combined all of his business pursuits into CALDWELL GROUP, where he is also involved in projects in the Real Estate & Housing, Railway, ICT & Machine Readable Passport & Machine Readable Visa, Telecommunication, International Trading of Essential Commodities, Healthcare Sector, Power sector, Ceramic Industry and E-commerce. Along with his entrepreneurial success, Mr. Mahmud has also held distinguished positions in several well-respected institutions. He has served as the president of the oldest and most prestigious Dhaka Club Ltd for the year 2013-14, 2014-15, 2018-19, 2019-20 respectively. He is also serving as a Director for the Dhaka Chamber of Commerce and Industry for the term 2011-2013 and 2021-2023.

Mr. Mahmud delivered a deep overview of Bangladesh's blue economy's vision and solutions. According to World Bank, Bangladesh's ocean economy stands at 3.1% of the country's overall GDP. There remains a huge potential of the ocean economy, which can be utilized to make this ratio a regional and global average. Mr. Mahmud stressed the intercorrelation of SDGs and marine life protection, in particular SDG goal 14, identifying the importance of a sustainable ocean economy for SDG achievements. Mr. Mahmud also stated that private and public coordination is essential to increase awareness in businesses.

Mr. Mahmud then presented the potential of ocean economy in Bangladesh's exclusive economic zone, which has huge marine resources including oil and gas and is responsible for the livelihood of 30 million people. Mr. Mahmud also identified the potential harvesting of biological, biotechnological, and pharmaceutical ingredients as well as renewable energies such as offshore wind, wave electricity and gas and mineral resources. However, the most important activity of Bangladesh's ocean economy is undoubtedly sustainable fishing, which means: "leaving enough fish in the ocean, respecting habitats and ensuring people who depend on fishing can maintain their livelihoods. It is also essential to ensure that the fishermen of the country are rehabilitated during the seasons when fishing is prohibited. Mr. Mahmud also pointed out the inadequacy of the cold chain system in Bangladesh, as reported by World Fisheries.

Recommendations and solutions:

- The public and private sectors could work in tandem for common development of this sector. Frequent exchange of delegation, information, knowledge, and training between the two sectors could help

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capacity building of the private sector, enriching maritime resource skills as well as encouraging foreign investment for tech and knowledge transfer.

- Engagement of the private sector to bring in relevant 4IR technologies: IOT, Artificial intelligence, Robotics and GPS mapping of the ocean floor that can in turn help in fishing, resource mapping and other risky resource extraction means. Required infrastructure and shipbuilding could be obtained through PPP initiatives for strengthening supply chain in marine resource and trade.
- Joint research studies of potential avenues like ocean infrastructure, fishery, shipping and offshore energy through the PPP model. A national blue economy development and implementation roadmap is needed specifying role of private and public sectors. Government could ensure regulatory support in Capacity building, skills development and innovation in this sector.
- Capital market led bond financing “Blue Bonds” for the businesses and Government agencies in ocean economy to meet the long-term and low-cost financing needs in blue economy scopes. The private sector also needs incentives with fiscal and non-fiscal supports, such as tax holiday, tax exemptions, free technological supports, etc. to exploit desired growth.
- The 8th five-Year plan of GoB has prioritized potentials of blue economy but could be revisited with the provision of private sector engagement as the private sector has manifold stakes. ADP of National budget should have sufficient allocation for this.

Dr. Arnab Das, Director, Maritime Research Center, India

Dr. (Cdr) Arnab Das is the Director of the Maritime Research Centre (MRC) at the Indian Maritime Foundation (IMF), Pune. He has been pushing the concept of Underwater Domain Awareness (UDA) and associated Acoustic Capacity Building as a critical requirement for India’s Maritime Strategy.

Dr. Das thought that all stakeholders need to make a start and more and more experts coming to the ocean domain. To do so, Dr. Das proposed 5 points, based on the underwater domain awareness that he presented during the inaugural workshop:

- **A user guide for industrial partnership.** In the region, particularly India, there is a failure to get the ecosystem right; either it is too politics heavy or business heavy.
- **Developing blue economy supported by private sector.** Public entities face difficulties to balance budget, private entities should engage solutions for the public sector advocacy. Dr. Das expresses the need for private sector to play a leading role in terms of collaboration, which would support in some manner the public sector for better coordinate the blue economy sector.
- **Consolidate the diversity.** The Bay of Bengal is unique for many reasons. For instance, Western imported technology cannot work in the region. Therefore, equal participation with other entities must be developed. For example, a French entity may bring support but must be managed by a local organization.
- **Financing.** A major challenge consistently highlighted throughout this event on which Dr. Das shares the same views as his fellow participants. The MRC is working on blue loans and understands that the Indian government is not expected to support MRC or experts in every step. Money must be raised, and funding groups convinced.
- **Developing sustainable entrepreneurship.** This is something the blue economy sector should focus on and make it attractive and innovative.

Mr. Ameya Prabhu, Vice-President, Indian Chamber of Commerce, India

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Mr. Ameya Prabhu is the Founder and Managing Partner of UAP Advisors and the Managing Director of NAFA Capital. He has been designated as a “Young Global Leader” by the World Economic Forum. He is a writer and the author of “The Rock Babas and other stories”, book of short stories publisher and distributed by Amazon. He is also a trustee of Manav Sadhan Vikas Sanstha a NGO focused on holistic human development. UAP’s businesses include: Nafa Capital: Asset management platform focused on managing public equities, debt capital markets and private equity. NAFA’s fintech venture will be launching in 2022; New Age Financial Advisors: 50:50 JV with IFFCO focused on investment banking, agtech and direct market procurement from the farmers; Principal Investing: Angel and VC investing. Sector agnostic; Strategic Advisory: Focus on renewable energy, clean technology and emobility.

Mr. Ameya Prahbu began by explaining the fundamental issues of blue economy, an ancient concept as many civilizations have always lived next to the ocean. The human being has always benefited from marine resources. **The challenge today is how to create a sustainable blue economy?** Overfishing, seafood stock management, oil spills, overexploitation of oil and gas and other minerals, pollution, are contributing to the damage to the ocean. Mr. Prabhu shares the ideas and solutions that have been raised during the previous presentation. Mr. Prabhu lists 5 main areas, where he particularly focuses on the first one:

- **Blue energy** means not only offshore wind, but using tidal and wave energy, and looking at country interconnectivity. Concerning interconnectivity, there is a huge potential between Sri Lanka and India. Blue energy is still quite expensive. The Ministry (of Energy) is starting pricing an externality from coal, nuclear and gas. The biggest problem in economy is that we do not consider externalities.
- **Aquaculture.**
- **Coastal and maritime tourism.**
- **Blue biotechnology.**
- **Resources (mining, oil & gas)**

He finally proposed solutions to ensure a successful blue economy:

- **Promoting a partnership approach between all members in Southeast Asia.**
- **Mutualizing and boosting further investments.**
- **Creating a joint strategy**, where chambers of commerce, public entities and institutions such as the Maritime Research Center can design this strategy all together.
- **Proposition for a special planning of the Ocean floor and resources planning with a holistic approach.**
- **Workingtogether**, as the ocean has no boundaries. Boundary is a political thing. **We share the same resources. We should not exploit these resources, but we should harness them.**

Mrs. Panchali Ellepola, Project Officer, AFD Sri Lanka

Mrs. Panchali Ellepola has about 10 years’ experiences in consultancy, sustainability, urban development and planning and project management. She has joined the AFD Colombo office in 2019. Amongst other responsibilities, she is in charge of the preparatory project for fishery harbors improvement.

Mrs. Panchali Ellepola reminded the round table of the economic and social importance of fisheries for Sri Lanka which represent 2.3 % of the total exports and the livelihoods of 2.7 million people. This sector suffers from many deficiency issues as developed by the previous speakers, but some government figures estimate that the services are very poor, estimated at around 40-50%. This is mainly attributed to the poor harbor facilities and services, fish offloading, landing, handling and storage practices. The market conditions are quantitative-oriented rather than qualitative-oriented, which directly contribute to the overfishing and maintaining the circle of poverty for several

fishermen. Due to the lack of transparency and monitoring, these practices contribute to maintaining long term overfishing practices.

A project was started in 2019 with four identified priority ports to improve the quality of fish taken, export and sustainable fishing resources, while maintaining and developing employment, modernizing and improving port management. The AFD hoped to replicate this project across the country.

The project focuses on **4 main areas**:

- **Improve harbor infrastructures** to reduce the poor services and maximize the fishing outputs.
- **Enhance harbor management capacity and practices** to implement more effective management and monitoring systems in the 4 harbors.
- **Strengthen the management of Sri Lanka marine and fishery resources** and the monitoring, controlling of the marine and fishery resources.
- **Create monitoring to the value chain** of the sector to allow the fishery communities to power financial benefits and improve livelihoods.

Brief presentation of experiences and challenges the AFD is facing working on the blue economy topic.

- **The institutional setup of Sri Lanka.** Among others, the AFD has 4 main institutional actors that are directly involved in this project (Ministry of Fisheries, Department of Fisheries, Sri Lanka Harbor Cooperation and National Aquatic Resources Research and Development Agency). All these organizations have distinct system and overlapping mandates, which make the implementation and the continuation of projects very difficult. However, the AFD has been quite successful by bringing these actors all together to discuss the key priorities and needs.

Mr. Reda Souirgi, Country Director Sri Lanka, AFD

Mr. Reda Souirgi is an engineer from the French Ecole Polytechnique. He is a specialist of transportation and has 15 years of experience with French transportation, logistics companies and the AFD.

Mr. Souirgi confirmed that the AFD is willing to be more active in the blue economy sector. Initiatives taken by the AFD in Indonesia are quite a good example, in particular in investing in sub-sectors of blue economy, such as shipping using data and satellites to avoid oil discharged at sea; CRIMARIO initiative for better communication among vessels and crises management in the ocean; coastal and maritime tourism, with support of Proparco, which is kind to look after tourism development in linked with maritime and coastal protection.

As many speakers underlined the fact that **institutional capacity building in Sri Lanka is lacking**, Mr. Reda Souirgi noticed that in Indonesia the AFD was able to develop a strong cooperation in the blue economy sector, as there is an institutional integration. One operator oversees illegal fishing, harbor management, environmental protection etc. He highlighted the **challenge of sustainability** which still needs to be handled. Also, the **challenge of informality** is quite huge in the blue economy sector, keeping the circle of poverty but limits the multi stakeholders' approach in terms of project implementation.

Mrs. Soma Mitra-Muckerjee, Director – Head of Projects, The Bengal Chamber of Commerce and Industry, India

Ms. Soma Mitra Mukherjee, Head of Research, The Bengal Chamber, has an experience of about two and half decades in this field, working across all States in India. Ms. Mitra Mukherjee is a PGDM in Mass Communication from Jadavpur University, Kolkata. Soma joined The Bengal Chamber of Commerce and Industry in 2016 and currently holding the position of Deputy Director in the Chamber. Prior to joining the Bengal Chamber she has worked as a journalist for about 20 years. She has served as the Political Editor of Zee 24 Ghanta News Network and also worked as a Senior Correspondent for ANI- Reuters Television. Soma also writes for WFS (Women Feature Service) mainly on women and children in conflict zones and received The CARE- Women's Feature Service Fellowship-2008 for covering women and children issues. She received The Best Journalist of West Bengal Award in the year 2014. Soma with her extensive experience in skill, socio economic and primary research domain is responsible to create industry resource cell along with Department of TET & Skill Development, Government of West Bengal on behalf of The Bengal Chamber. Soma is also an IVLP (International Visitor's Leadership Programme, the US Dept of State's premiere professional exchange programme) alumna.

Mrs. Mukherjee presented the BCCI and its structure. Despite being a Chamber of Commerce, the BCCI has a separate research division, mainly focusing on primary and secondary research and data analysis. The BCCI contributes to bring private sector and finance into various projects, notably on water waste transportation with World Bank. The BCCI primary and secondary research team is strong. Thanks to their work, many projects and works have been conducted for many of the 80 000 fish farming families in Bengal. Among those fish farming families, the challenge of **sustainability** is key. Mrs. Soma Mitra-Mukherjee explained that at the bottom level, the **sustainability awareness** is very poor for the young generation. This is why **active private entities should connect their project at the very bottom level**.

Mr. Pattabhi Rama Rao, Group Director, Ocean Observations, Modelling and Data Assimilation Group, Indian National Center for Ocean Information Services (INCOIS)

M.Sc. (Meteorology); Activities focused on: Ocean Observation System, Satellite Remote Sensing and In-situ data acquisition and processing, Ocean Data Management, Web-based Data Services, Tsunami and Storm Surge Early Warning Services.

By having Mr. Srinivas Kumar for the inaugural workshop from the INCOIS, Mr. Kumar terminated the discussion.

Mr. Rao presented a short PowerPoint about ocean data and information as a key element of blue economy. As a representative from INCOIS, he emphasis the importance of ocean observation, information and advisory for multi stakeholders involved in the blue economy sector, such as fishing community, coastal states, navy coast guards, ports and harbors, off-shore and shipping, research institutions and academia and how ocean observing system works to obtain long term high quality in-situ sub-surface oceanographic and near surface met-ocean parameters to support better operating systems. Mr. Rao explained that the INCOIS has launched an earth system science data portal under the authority of the Ministry of Earth Sciences.

Mr. Rao identified 2 ways forward to support blue economy thanks to data:

- Develop a national framework to integrate environmental, social and economic data from different stakeholders to stimulate the blue economy.
- Effective and efficient use of ICT for decisions makers and policy matters

FINAL REMARKS AND CONCLUSION

Dr. Arnab Das, Director, Maritime Research Center, India

Dr. Das highlighted that there is still so much work to be done and governments cannot do it by itself. This is why, for example, other institutions specialized in data should complete the work done by INCOIS, as data will be required and be more and more mandatory to increase knowledge.

Mr. Shri Aditya Dash, Vice Chairman, Marine Products Export Development Authority (MPEDA), India

MPEDA would be interested to develop projects including Bangladesh, Sri Lanka, and possibly Myanmar, notably on small scale fishery, as the initiative NetFish.

Dr. (Mrs.) H  l  ne Djoufelkit, Research Director of the AFD

She stated that she is quite impressed by the quality of the research at all levels presented during the workshop, which proves the research is ongoing. As takeaways, Dr. Djoufelkit advises **research plug to actions** to answer the demand for the industry and economic sectors. We need to think about what the missing links on demand are. There is also a need to **plug the research at the decisional level (budget and reform)**. **Dr. Djoufelkit concludes by proposition that we, experts, should think towards a model gathering all the blue economy aspects**

Mr. Jacky Amprou, Regional Director for South-Asia, AFD

Mr. Amprou appreciated having all these kinds of actors and experts brought together for this discussion and the effort given to identify solutions, with a common goal: developing and promoting sustainable management of marine and fisheries resources.

Sustainable management of marine resources needs to be combining with acceptable wait of return, when it comes to business; it is a precondition to track private funding. **The AFD plays a catalytic role, which brings others investors to create a networking to work all together on solutions.** This idea was largely explored during the discussion, which need to be continued.