

HD-BOBP DIALOGUE ON  
**Development of a Marine Fisheries Research  
Network for the Bay of Bengal Region**

14 Feb 2023

**Event Report**



*Inside...*

**Outcome Document**

**Kochi Declaration**

*A Resolution for Marine Science Cooperation in the Bay of Bengal Region*

## About the Organizers



### Bay of Bengal Programme Inter-Governmental Organisation (BOBP-IGO)

*The BOBP-IGO is a regional fisheries advisory body with Bangladesh, India, Maldives, and Sri Lanka as its contracting parties. It is mandated to enhance cooperation amongst its member countries and other countries (especially Indonesia, Malaysia, Myanmar, and Thailand) for sustainable fisheries management in the Bay of Bengal region. The organisation evolved from the erstwhile Bay of Bengal Programme of the Food and Agriculture Organization of the United Nations (FAO), founded in 1979. The BOBP-IGO Secretariat is hosted by the Government of India and is located in Chennai.*



### Centre for Humanitarian Dialogue (HD)

*HD is an International non-profit organisation founded on humanity, impartiality, neutrality and independence. It aims to prevent, resolve, and mitigate conflicts through dialogue and mediation. HD has been involved in organizing BOB Maritime Dialogue Series involving regional experts. The first dialogue was held in 2021, and the second in 2022, the critical decision was to organize an event to network academic and research organizations in the region.*

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## Structure of the Dialogue

The dialogue was conducted in five sessions. Senior Government Officials from the Government of India, HD, and the Director, BOBP-IGO took part in the inaugural session and shared their views. The morning session continued with country presentations, where representatives from participating countries presented their respective initiatives and requirements for regional cooperation. After the lunch break, the participants joined breakout groups to engage in focused discussions on modalities of fostering collaboration. Each breakout group presented the gist of respective conversation and concluded ideas in the plenary session providing an opportunity for all attendees to engage and share their views. Finally, the event concluded with a closing session where the key takeaways from the event were presented.



# 1.

## The Context

The Bay of Bengal rim countries are leaders in different areas of fisheries. The entire region contributes about 21% of global seafood production and is home to the largest conglomeration of the small-scale fisheries sectors. Marine fishing in the Bay of Bengal region (BOBR) generates about USD 10 billion annually at the point of first sale and between USD 15 and 20 billion when reaching the consumers' plates. The revenue generated from the sector is vital for coastal communities living in the BOBR and very often the sole source of income for the community.

Considering the ecological and socio-cultural commonness of the region, it is well-advocated that countries should collaborate in education, research, and training (ERT) to address common problems facing the region. However, there is yet to be an effective mechanism to promote and manage regional coordination in ERT.

In this backdrop, a Regional Dialogue on Marine Scientific Cooperation in the Bay of Bengal Region (BOBR) was organised on 14<sup>th</sup> February 2023 in Kochi, India, with the following objectives:

- Appreciate the transboundary nature of fisheries in BOBR.
- Assess the current status of collaboration among the BOB littoral countries and the need for strengthening the partnership;
- Develop a roadmap for future regional cooperation on marine scientific research.

The agenda of the event is given in Annex 1.

The Bay of Bengal Programme Inter-Governmental Organisation (BOBP-IGO) and the Centre for Humanitarian Dialogue (HD) hosted the event at the side-lines of the International Symposium on “Innovations in Fishing Technologies for Sustainable and Resilient Fisheries”.

Representatives of the Governments, research and educational institutions, and experts from the coastal countries of the BOBR took part. The list of participants is given in Annex 2. The dialogue provided an opportunity to discuss the scope, objectives, and modalities for developing partnerships. In addition, efforts were made to explore nuances of various narratives on South-South cooperation collectively.



**Amb. Venu Rajamony** IFS, Senior Advisor (South Asia), HD, provided the opening remarks. He highlighted the crucial role of HD in resolving conflicts worldwide and the efforts of HD to bring together the coastal countries to address issues such as pollution, fisheries, and climate change in the Bay of Bengal Region. Amb. Rajamony further noted that this dialogue followed the Second Bay of Bengal Maritime Dialogue that HD organised. He stressed that most marine research institutions in the BOB region collaborate with Western countries but they lack intra-regional cooperation. He surmised that it is essential to bring together all the research and academic institutions and work on establishing an institutional framework to enhance collaboration.



Providing contextual insight, **Dr. P. Krishnan**, Director, BOBP-IGO, highlighted the importance of fisheries for coastal livelihoods and for ushering in the blue economy in the Bay; however, it faces many challenges, such as pollution, climate change, and over-exploitation. Emphasising the need for institutional collaboration, Dr. Krishnan articulated that the BOB rim countries differ in their competencies and choice of methods used in assessing and managing fish stocks in their respective territories. However, as most fish species are transboundary, there is a need to find practical solutions and methodologies that can be adopted for the Bay holistically to ensure sustainable fisheries. He added that there are many instances of people-to-people collaboration in the region. There is a need to transform such individual networks into organic institutional collaborative experiences to realize the potential of collective marine research prowess in the region. "In this context, the dialogue's objective is to recognise the transboundary nature of fisheries, assess the current status of collaboration between countries, and develop a roadmap for future networking", said Dr. Krishnan.



**Dr. J.K. Jena**, Deputy Director General (Fisheries), Indian Council of Agricultural Research (ICAR) was Guest of Honour and in his speech said that the primary goal of all countries is to maintain and enhance the livelihoods of the communities living in coastal regions. However, while coastal fisheries resources are under stress in the Bay of Bengal region, mesopelagic (below a depth of 200m), fishes are still not fully exploited. Therefore, countries should invest

in developing technologies to address this issue. He called upon the countries to find a modus operandi for formalising networking amongst researchers and academics from the Bay through dialogue. Dr. Jena highlighted the need to establish a physical or virtual network or a 'secretariat' for better cooperation; he also noted the challenges in building such an inter-governmental network from scratch. Outlining the agenda for such a network, he emphasised that while several organisations work

independently on illegal, unreported, and unregulated (IUU) fishing and ensuring responsible fisheries, the results still need to be evident. He concluded with a call to use the present dialogue to discuss building a marine fisheries research network to cater the fisheries sector needs of the whole Bay of Bengal region.



**Amb. Rudrendra Tandon**, IFS, Additional Secretary (BIMSTEC & SAARC), Ministry of External Affairs, Government of India was Guest of Honour and he explained the transformational growth of BIMSTEC as a regional entity and its mandate. He said BIMSTEC aims to work with other regional organisations and international partners to eradicate poverty, improve connectivity, and enhance trade and investment. BIMSTEC provides a platform for regional-level actions. Its member countries are exploring for concrete, implementable activities that can be undertaken at the regional level, with SDG 14 providing a ready-made agenda to pursue. However, one of the challenges in designing proper cooperation activities in and around the Bay of Bengal is the need for adequate scientific knowledge about the maritime domain. During the last BIMSTEC Summit in 2022, the Prime Minister of India, Mr. Narendra Modi, recognised this challenge and emphasised the need to establish a network connecting all scientific institutions in the maritime domain. Amb. Tandon suggested that since collaborative activities have administrative and financial implications, the proposal for networking activities should be simple and modest. He also stressed that faculty exchange and joint research programmes could be easily implemented at the early stage using the existing institutional mechanisms and the Dialogue was expected to come out with a practical approach in this regard.



**Mr. Jatindra Nath Swain**, IAS, Secretary, Department of Fisheries, Ministry of Fisheries, Animal Husbandry and Dairying, Government of India, during his Inaugural Address, highlighted the significance of the Bay of Bengal in global seafood production, especially in the context of small-scale fisheries (SSF). As many SSF communities rely on the Bay of Bengal, all countries in the region must ensure the sustainability of fisheries and better livelihoods of fishers. He said that most of the shared fisheries in the Bay of Bengal are yet to be brought under a coordinated regulatory regime. Mr. Swain emphasised the need for a scientific and joint management of marine resources to sustain the livelihoods of millions of SSF in the region.

He said that establishing a cooperative network and identifying an organisation to coordinate the activities of the marine research network is of utmost importance for the region. Mr. Swain expressed his hope that BOBP-IGO, as a Regional Fishery Body, may play a role in this regard and the deliberations during the event would also focus on identifying the operationalisation requirements





Glimpses from the HD-BOBPIGO Dialogue with participants from the BOB rim countries



# 3.

## Country Presentations

Subsequent to the inauguration, the country delegates gave presentations on various aspects of collaboration in their respective countries. A brief profile of the speakers is appended as Annex 3. Each country's representative shared the country needs for collaboration, potential areas of cooperation, appropriate institutes and universities for collaboration/networking, existing frameworks for facilitating collaboration and experience sharing, and the country expectations. Additionally, several representatives highlighted existing frameworks in their countries that support collaboration and experience sharing such as joint research projects and academic exchanges.

The presentations demonstrated the intent of a solid commitment to collaborations and highlighted the great potential for meaningful partnerships between the BOBR countries.

### 3.1. Bangladesh



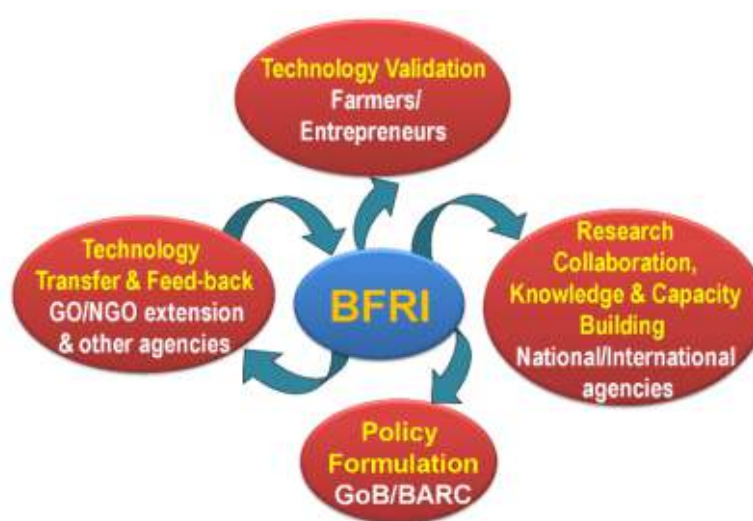
**Dr. Yahia Mahmud**, Director General of Bangladesh Fisheries Research Institute, made the country presentation for Bangladesh.

Bangladesh has a coastline of 710 km and a continental shelf of 37,000 sq. km. Bangladesh is rich in living marine resources and harbours 475 species of finfish, 98 species of shellfish, and 17 species of molluscs. The key objectives of the National Fisheries Policy of Bangladesh are to (i) increase fish production sustainably, (ii) meet the animal protein requirement, (iii) generate employment opportunities, (iv) conserve fisheries resources and species diversity, and (v) reduce post-harvest losses. The country has an elaborate legal framework comprising the Fish and Fish Products (FIQC) Act 2020, Fisheries Quarantine Act 2019, Fish Hatchery Act 2010, Marine Fisheries Act 2021, and Marine Fisheries Harvest Policy 2022 for the management and development of fisheries.

The ongoing work programmes of the Government include:

- sustainable exploitation of marine fishery resources;
  - introduction of a Vessel Tracking and Monitoring System;
  - development of policies and methods for the management of sustainable fisheries;
  - establish marine protected areas (MPA);
  - undertake digital marine fisheries resource mapping;
  - develop deep sea fishing (beyond 200m of EEZ and ABNJ) to harvest tuna and large pelagic fishes; and
  - curbing IUU fishing and promote responsible fisheries.
- Current research priorities in marine fisheries are focused on:
- **Marine Fisheries:** Sustainable commercial exploitation of marine invertebrates, Ecosystem modelling & EBFM.
  - **Mariculture:** Developing appropriate culture technologies for finfishes, shellfishes, and molluscs and seaweed farming.
  - **Product Development:** Developing diversified value-added products & by-products from seaweeds and developing value chains for local & international markets.

BFRI could be the nodal agency from Bangladesh for regional collaboration with other BOB countries. BFRI can assist in bringing together national institutes and universities for joint research programmes with regionally important institutes and Intergovernmental organisations.



Framework for Regional Collaboration in Bangladesh

## 3.2. India



**Dr. G. Sugumar**, Vice Chancellor, Tamil Nadu Dr. J. Jayalalithaa Fisheries University, and **Dr. C. N. Ravishankar**, Director and Vice Chancellor of ICAR-Central Institute of Fisheries Education, made the country presentation for India.

India has a well-established National Fisheries Research & Education System with 7 National Fisheries Research Institutions, 4 Specialised Fisheries Universities, and 25 Agricultural/General Universities with Fisheries Faculty in tropical, sub-tropical & temperate climates zones/resources with over 2000 scientists in more than 25 specialised disciplines. In addition, with over 20,000 researchers, India's National Agricultural Research and Education System is one of the largest in the world.

The Government is pursuing the adage of 'Vasudhaiva Kutumbakam', that was highlighted during its ongoing Presidency of the Group of 20 (G20). The Sanskrit adage implies that "The World Is One Family", that is, 'there is One Earth, One Family, One Future', affirming a healthy environment and life on our 'one earth', nurturing harmony within whole humanity as 'one family' and preserving hope for all as 'one future'.

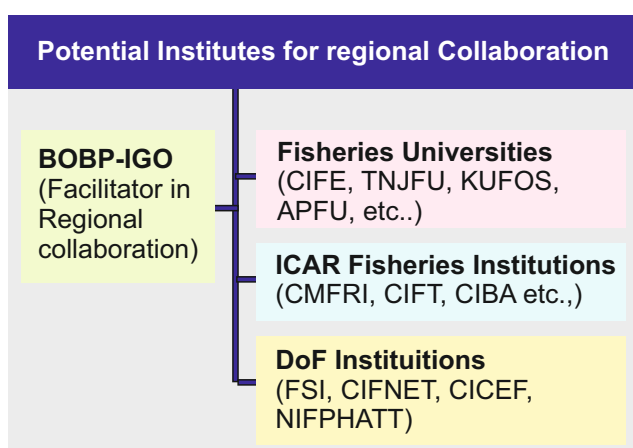
The presenters said countries should come together with the theme, **“One Ecosystem - One Shared Marine Resource - One Science”** to ensure global connectedness, share knowledge, and address issues like climate change and threatened resources.

Identifying the potential areas, the presenters noted the following areas for cooperation in research:

- Stock Assessment Models & Approaches: Shared Stocks;
- Small-Scale Fisheries & Livelihoods;
- Deep Sea Fishing/Fishing in Open Seas;
- Ecosystem-Based Fisheries Management/Marine Governance;
- Climate Change, Vulnerability, Adaptation & Resilience;
- Marine Spatial/Geospatial Planning;
- Blue Economy & Circular Economy;
- Seafood Trade & Quality Assurance; and
- Science-Policy-Practice Interface.

To promote collaboration, academic programmes, such as Joint Masters, Ph.D. & Post-Doc Programs and Student/Faculty Visits & Exchange should be considered.

There is scope for collaboration under the existing framework in the region, such as BOBP-IGO and SAARC. These organisations could provide necessary guidance in identifying regional issues and bringing together like-minded researchers. Further, they can also facilitate institute-to-institute cooperation by enabling the signing of a Memorandum of Understanding (MoU) between institutes from India and abroad.



### 3.3. Malaysia



**Dr. Muta Harah Zakaria**, Head, Department of Aquaculture, Faculty of Agriculture, Universiti Putra Malaysia (UPM), Malaysia made the country presentation for Malaysia.

The University Putra Malaysia and Borneo Marine Research Institute of University Malaysia Sabah are the two major universities in the country on marine research. Current research focuses include Broodstock Management, breeding and Seed Production of finfishes, Fish Nutrition and Feed Development, Fish Health and Disease, Invertebrate Culture, Water Quality, and Waste Water Management, Integrated Multi Tropic Aquaculture (IMTA), Seaweed culture, and Marine Biodiversity assessment and conservation.

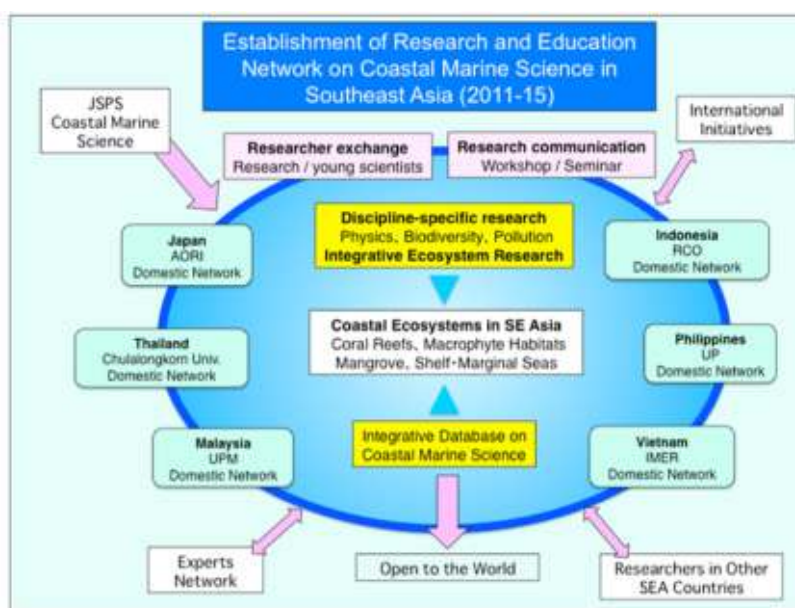
Issues and Challenges: Malaysia is facing several issues related to the Environment (Climate change, Pollution, Coastal sand mining, etc.), Food security (Overfishing, Increasing food demand, lack of relevant knowledge, etc.), and Socio-economics (Financial incentives, Community Relationship and Safety, etc.).

Malaysia had a breakthrough in grouper aquaculture by hybridising *Epinephalus fuscoguttatus* and *Epinephalus lanceolatus* to produce seeds for mariculture. The F1 hybrid seed has a fast growth rate, a high survival rate, and excellent organoleptic properties. Further, *Scylla tranquebarica* seed production and rearing technology has been standardised, and the community has provided training for culturing the mangrove crab.

Potential areas for collaboration:

- Sustainable breeding and genetic conservation;
- Fish capture technologies – R&D on sustainable fishing gears;
- Combating IUU fishing;
- Climate change;
- Policy and regulations; and
- Coral Triangle (CT).
- Expected outcomes:

- Development/creation of research facilities related to sustainable resources research and fisheries technology and support the SDG Goal: 14 (Life Below Water), SDG: 8 (Decent work and economic growth), SDG: 9 (Industry, innovation, and infrastructure), SDG: 13 (Climate action), and SDG:17 (partnerships for the goals).



Existing Framework for Collaboration in Malaysia

- Staff and student (postgraduate) exchange programmes to promote long-term research collaborations between the collaborators.

### 3.4. Maldives



**Dr. Ahmed Riyaz Jauharee** from the Fisheries Unit, Maldives Marine Research Institute (MMRI), Maldives made the country presentation for the Maldives.

Maldives is heralded as one of the world's most-important tuna-fishing nations and a popular tourist destination. Main economic activities involve tourism (GDP – 21%) and Fishing (GDP – 5%). The average fish consumption in the Maldives is 140 kg/person/year, making it one of the highest fish-consuming countries in the world. Nearly 12% of the working population of Maldives are fishers, which also employ almost 50% (~60,000) of the workforce in the outer islands. Moreover, 95% of the Maldivian exports are related to fisheries generating a revenue of about USD 230 million. MMRI is the only scientific research organisation to assist the Government, industry, and the public in making informed decisions about the rational utilisation of the country's marine resources.

Major research activities of MMRI involve:

- **Coral reefs:** Monitoring of coral reefs (Water quality, Fish, Invertebrates, etc.) and preliminary studies on recruitment and nursery rearing of corals.
- **Reef and Grouper fishery:** Studies on breeding and fish aggregation sites, catch composition, maturity, length frequency, and fish movement.
- **Tuna Fishery:** Studies on Tuna and bycatch composition, length frequency, movement, and behaviour at anchored FADs.
- **Aquaculture:** Grouper, Sea cucumber, Pearl Oyster, and Clownfish.

Further, the Maldives has a Fishery Management Plan developed through a participatory approach to conserving groupers.

**Nekton Expedition:** The Nekton Maldives Mission is the first systematic survey and sampling of the Maldives from sea-surface to 1000 metre depths. Very little is known, at present, about what is in waters below 30 metres depth around the vast majority of the country's islands. In partnership with the Government of Maldives, the Mission aims to help create extensive new marine protected areas and ensure that the ocean continues to protect and provide resources to the Maldivian people.



Nekton Expedition in the Maldives



### 3.5. Myanmar



**Dr. Nyo Nyo Tun**, Head of the Marine Science Department at Mawlamyine University, made the country presentation for Myanmar.



ORV Sagar Kanya expedition off Myanmar coast

Marine science departments are present in different universities in Myanmar, including Sittwe University, Patheingyi University, Mawlamyine University, and Myeik University. The primary focus on marine research involves Marine Biodiversity and Conservation, Fishery Biology, Stock assessment, Socio-economic assessment, and Aquaculture. Recently, bivalve culture and seaweed culture have emerged commercially in Myanmar.

Myanmar's Marine Science Department and Japan International Research Centre for Agricultural Sciences (JIRCAS) jointly worked on "Development of Technologies for Sustainable Aquatic Production in Harmony with Tropical Ecosystems."

In this project, efficient aquaculture techniques like combining multiple organisms, e.g., fish with seaweed and environmentally friendly non-feeding aquaculture techniques for bivalves, are being developed for sustainable aquatic resource production in harmony with tropical ecosystems. In addition, low-cost fishmeal feed using alternative resources is being designed to reduce aquaculture feed costs.

India-Myanmar Joint Oceanographic Studies in the Andaman Sea: ORV Sagar Kanya was involved in an Indo-Myanmar Joint oceanographic cruise (National Institute of Oceanography, India and Mawlamyine University, Myanmar) to study the physical, chemical, biological, and geological processes in the Andaman coast adjoining Myanmar.

Additionally, MV SEAFDEC, RV Dr. Fridtjof Nansen, and RV Xiang Yang Hong have conducted a series of surveys on the Myanmar coast.

Various international organisations such as the Wildlife Conservation Society and the German Agency for International Cooperation, are involved in marine research in Myanmar. In addition, collaborations with international cooperation (GIZ), ASEAN Fishery Education Network, and World View International Foundation are also well-founded.

The inadequate funding and expertise in fisheries and aquaculture is a significant constraint in developing the fisheries sector in Myanmar. This calls for regional collaboration among the fisheries experts in the BOB region.



### 3.6. Sri Lanka



**Dr. M.J.S Wijeyaratne**, Chairman, the National Aquatic Resources Research and Development Agency (NARA) made the country presentation for Sri Lanka.

**Dr. M.J.S Wijeyaratne** highlighted the need for exchanging expert knowledge and experience, sharing the issues, seeking solutions, and training and capacity building. Potential areas for collaboration

- **Demarking the potential areas** for collaboration, the Chairman, NARA outlined the need for Joint oceanographic studies, including studies related to weather forecasting, identifying extreme weather events, and providing information for fishing vessels to ensure the safety and security of fishers. He said such studies could be done jointly in the Bay of Bengal region.
- **Sustainable Energy Management:** Energy efficient engines and use of renewable energy – this can be done through technology transfer.
- **Fishing ground forecasting:** Sharing satellite data on fishing grounds (PFZs).
- **Adaptation and mitigation of climate change impacts:** Joint research focused on low carbon emission fishing crafts and introducing temperature resistant and salinity tolerant species, etc., for aquaculture.
- **Other areas:** Reducing bycatch, Hatchery techniques, Pearl Oyster culture & Social Protection, and fishers' well-being.

#### Potential institutes

National Aquatic Resources Research and Development Agency (NARA), National Aquaculture Development Authority (NADA), Ocean University of Sri Lanka, Wayamba University of Sri Lanka, University of Jaffna, University of Ruhuna, Eastern University of Sri Lanka, University of Sri Jayewardenepura, and the University of Kelaniya.

The existing framework for facilitating collaboration and experience sharing in Sri Lanka

- **Periodic research symposia:** These events are organised by research institutes, universities, professional associations, and societies like the Sri Lanka Association for Fisheries and Aquatic Resources, the Sri Lanka Forum for Small Scale Fisheries, and the Sri Lanka Association for Advancement of Science.
- **Collaboration among Institutes:** Universities and the Ministry of Fisheries provide guidance and research facilities for postgraduate and undergraduate students, conducting joint research and training programmes, providing policy advocacy, etc.

Regional collaboration should improve human resource capacity, enhance aquaculture production, and ensure sustainable utilisation of resources, especially offshore fishery resources, through sharing sustainable practices, adaptation to climate change impacts, and securing environmentally, economically, and socially sustainable fishery sectors in the region.

### 3.7. Thailand



**Dr. Suriyan Tunkijjanukij**, Dean, Department of Aquaculture, Faculty of Fisheries, Kasetsart University KU) and **Dr. Salin KR**, Department of Food, Agriculture and Bioresources, Asian University of Technology jointly made the country presentation for Thailand.

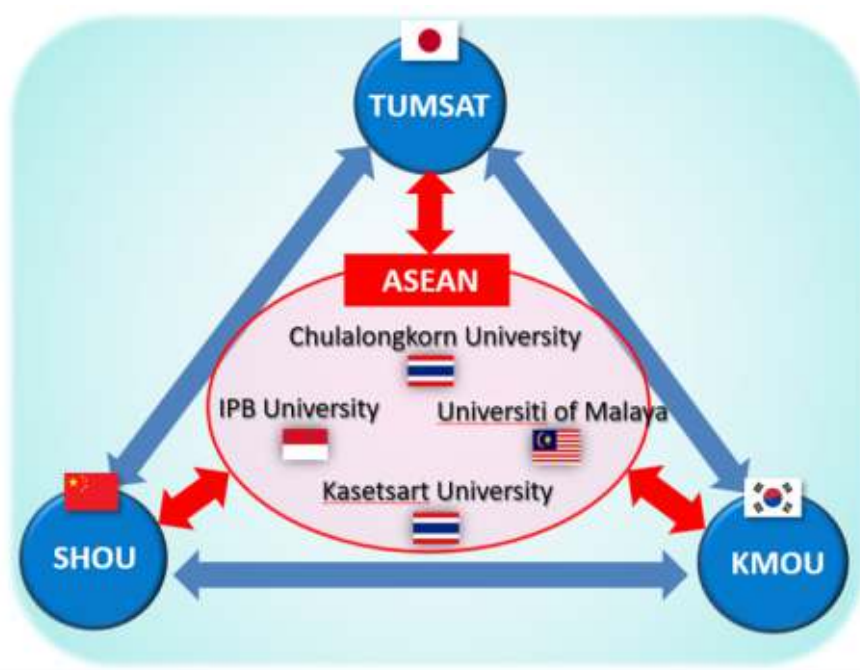
Kasetsart University (KU) and the Asian Institute of Technology (AIT) are among Thailand's leading institutes in fisheries and aquatic sciences.

Already the KU has been collaborating with various universities in Japan for student and staff exchange programmes. Also, Split-site Ph.D. and Masters programmes are being practised in association with Ghent University and the Ocean University of China, respectively. KU is also a member of the ASEAN Fisheries Education Network, a team of the university-based consortium representing the fisheries and aquaculture-oriented institutions within the Southeast Asia region. The main objective of ASEAN-FEN is to support and facilitate the activities of educators and scientists and respond to local, national, regional, and international issues on fisheries and aquaculture.

Further, KU is a part of the OQEAPOUS Plus Program, a student exchange programme in Asian nations at the graduate level based on the credit transfer system with quality assurance. This quality assurance is at the same level as an internationally recognised credit transfer system.

Asian Institute of Technology is a postgraduate institute with more than 30 academic programmes and 100+ faculty members from 20+ countries. Most of the research carried out by the AIT has applied value, and so the study is designed to work in tandem with the industry.

The aquaculture and Aquatic Resources Management programme was started in 1982 and offered Masters' and Doctoral level programmes with a prime focus on Sustainable Asian Aquaculture. It also provides a 3-month certificate course on sustainable Asian aquaculture. Thematic areas of research include eco-friendly aquaculture technologies, innovative hatchery management technology for finfish and shellfish, and disease diagnostics and health management. Furthermore, AIT also brings together scientists and researchers by organising conferences like "Giant Prawn" and "Asian Aquaculture".



OQEAPOUS Plus Program

From the country presentations and discussions on potential areas of collaboration, it was evident that the region has made significant progress in aquaculture and considerable expertise exists within the countries to develop current aquaculture practices. However, as far as the development of mariculture and governing marine fisheries are concerned, countries have limited expertise. For the region as a whole, there is the scope for significant improvement in national capacities through cooperation in marine fisheries and mariculture, especially, in areas such as stock assessment, ecosystem approach, and climate change adaptation.

Another significant outcome of the country presentation is that all the countries, irrespective of the state of their science, would benefit from such cooperation. India and Malaysia, with significant research networks amongst the countries in the region, would benefit from cooperation in areas such as climate change and fisheries governance. One such specific example is hilsa fisheries management. Hilsa is a shared resource amongst Bangladesh, India, and Myanmar. Bangladesh has made remarkable progress in rejuvenating the fishery.

The following table presents a summary of key areas of cooperation. In the Table, green boxes are research areas, where countries have built up internal capacity to meet current needs and the orange boxes represent areas, where countries can significantly benefit from cooperation to meet the current needs. However, for meeting future needs, across-the-board development would be necessary, which could be fostered through collaboration among the countries.

Research area/Country	BDG	IND	MAL	MLD	MYN	SRL	THA	BOB
Aquaculture development								
Blue Economy & Circular Economy								
Climate: vulnerability, adaptation & resilience								
Curbing IUU fishing								
Deep sea fishing for tuna and large pelagic fishes								
Digital marine fisheries resource mapping								
Ecosystem-Based Fisheries Management								
Management of marine protected areas (MPA)								
Mariculture development								
Marine Spatial/Geospatial Planning								
Science-Policy-Practice Interface								
Seafood trade & quality assurance								
Small-scale fisheries & livelihoods								
Stock Assessment Models & Approaches								
Sustainable exploitation of marine fishery								
Value-added product development & value chains for local & international markets								
Vessel Tracking and Monitoring System								



Interaction of the Seerfish Group

## Group Discussion 4.

Following the presentations on various countries, participants were divided into three groups to engage in in-depth discussions on:

- **Functional arrangement for a networking platform** – Potential organisational structures for the creation of the platform (such as a central coordinating body or bilateral/multilateral arrangements between countries addressing shared themes);
- **Securing government support** – Strategies for obtaining political backing for the platform; and
- **Financial arrangements** – Innovative models for operational sustainability.

The participants explored multiple possibilities for establishing a marine fisheries network in the Bay of Bengal Region.

**The broad consensus that emerged among the discussion groups is summarized below:**

1. **Focussing on Effective Collaboration:** The imperative need for collaboration among the Bay of Bengal Rim countries has been firmly established, as reflected in several multilateral initiatives such as SAARC and BIMSTEC. Given the shared challenges and opportunities facing the Bay of Bengal region, this strong consensus emphasises the collective commitment of member countries to work together for mutual benefits. As a result, the focus should be on HOW to achieve effective collaboration rather than dwelling on WHY cooperation is needed.
2. **South-South Cooperation in Marine Sciences:** Research partnerships in the region are often directed toward the north and west, mainly due to funding availability. Participants, primarily representing the region's fisheries and marine science sectors, recognised the shared resources and ecosystems of BOB rim countries in the marine domain. They emphasised the urgent need to strengthen research collaborations to develop harmonious ecosystem-based regional fisheries management policies.
3. **Modes of Collaboration:** Institutions from the region shall individually and collectively pursue innovative research collaborations. Some illustrative arrangements are:
  - **Joint Research Proposals:** Researchers from universities and institutions should collaborate and develop joint research project proposals and seek funding from various multilateral agencies.



Interaction of the Tuna Group

- **Parallel Student Research:** Universities shall encourage professors to network with regional counterparts and develop joint regional studies using standard approaches. Students from participating universities can then conduct research in their respective regions, with periodic interactions for knowledge and experience sharing, resulting in joint research publications, and compiling regional data.
- **Split-site Ph.D.:** Universities may agree to facilitate student research at other regional institutions on a mutual exchange basis, promoting exposure to work culture and regional issues and networking with regional experts.

While such collaborations may be feasible within existing frameworks, creating a dedicated platform with funding support would accelerate the achievement of regional research networking goals.

4. **Developing a clear, actionable, and results-oriented agenda** that addresses the pressing concerns and shared goals of the countries is essential. This agenda should prioritise establishing a strong regional network and leveraging existing partnerships and resources while exploring new avenues for collaboration. By building on the foundation of the broad consensus reached by the countries, a unified and cooperative framework can be created for addressing critical issues and seizing emerging opportunities in the marine fisheries sector.

The agenda must focus on several key areas, including:

- Identifying common goals and objectives that align with the priorities of each rim country, ensuring a coordinated approach to addressing shared challenges and capitalising on mutual opportunities.
- Establishing a robust communication and knowledge-sharing platform that facilitates the exchange of ideas, best practices, and lessons learned, ultimately promoting a more robust and integrated regional community.
- Encouraging cross-sectoral collaboration, engaging stakeholders from the academic, governmental, and private sectors to harness their collective expertise and resources in pursuit of shared goals.
- Developing innovative funding and resource allocation mechanisms that support collaborative research, capacity-building, and policy advocacy efforts, driving the sustainable development and management of the marine fisheries sector.
- Strengthening institutional capacities, enabling regional organisations like BOBP-IGO to lead and operationalise the networks and initiatives emerging from this collaborative framework.





Interaction of the Mackerel Group

Concentrating on these critical areas can create a persuasive and agenda-driven approach to regional collaboration in the marine fisheries sector. Moreover, by building on the broad consensus already achieved among the countries, the collective efforts can drive meaningful progress, foster regional cooperation, and contribute to the sustainable development of the Bay of Bengal region.

**5. Strengthening Academic Networks:** Academic networks are crucial in fostering collaboration within the marine fisheries sector. Universities have already established mechanisms for student exchange through Memoranda of Understanding (MoUs) with partner institutions. These agreements create opportunities for knowledge sharing, cultural exchange, and the development of joint research initiatives. However, these collaborations often tend to be limited to specific partners and predefined areas, which may hinder prospects for broader regional cooperation.

In addition to MoUs, scientist-to-scientist collaborations, joint research projects, and student exchange initiatives have contributed to the growth of academic networks. These initiatives not only help facilitate the exchange of ideas and best practices but also foster long-term relationships among researchers from different countries. One notable example of such an effort is the ASEAN Universities Network, coordinated by Nalanda University, aimed at promoting collaboration and knowledge sharing among academic institutions in the region.

**6. Integrating Collaboration with Country Research Funds:** Marine research requires substantial funding. Given the current allocation of resources for research and marine sciences in BOB countries, allocating funds specifically for regional collaboration may be challenging. Countries could, however, include a component for regional cooperation within their internal funds, such as earmarking resources for joint research projects or split-site Ph.D. fellowships. In addition, research areas may be predetermined based on national priorities.

**7. Establishing Regional Research Funds:** BOB rim countries could approach multilateral funding agencies to designate funds for regional research in areas prioritised by member countries. This would facilitate the institutionalisation of regional research in a more targeted and strategic manner.

**8. Institutional Mechanism for Operationalizing Regional Cooperation:** Participants widely agreed that establishing a new institutional framework would be complex and resource-intensive. BOBP-IGO, a regional fishery body mandated to foster collaboration and cooperation among member countries, was deemed an appropriate organisation to take the lead in operationalizing the networks.



## Box 1

### Expanding Regional Collaborative Networks

#### Potential Interventions by BOBP-IGO

Participants noted BOBP-IGO's existing virtual network, the BOB Policy Research Group (BOBPRG), which enables researchers from various disciplines and countries to collaborate and contribute to regional fisheries research, development, and policy advocacy. They proposed forming thematic research or expert groups, ensuring adequate representation from all countries. These groups would work on specific themes or issues within the marine and fisheries domain, enhancing the effectiveness of the regional network.

The BOBP-IGO could play a pivotal role in further expanding and strengthening academic networks in the marine fisheries sector by supporting the following strategies:

- **Encourage universities to establish new partnerships** and broaden the scope of existing MoUs, allowing for more diverse and flexible collaborations beyond traditional boundaries. BOBP-IGO can help facilitate these connections by providing a platform for networking and communication among academic and research institutions.
- **Address complex regional challenges and** promote interdisciplinary research initiatives that bring together experts from various fields, such as marine biology, fisheries management, oceanography, and environmental policy. BOBP-IGO can contribute by identifying research priorities and fostering collaborative projects.
- **Create opportunities for early-career researchers and students** to engage in international collaborations, fostering the development of the next generation of experts and leaders in the marine fisheries sector. BOBP-IGO can support this by offering fellowships, internships, and exchange programmes.
- **Establish regional conferences, workshops, and seminars** that facilitate knowledge exchange, networking, and capacity building among researchers, practitioners, and policymakers. BOBP-IGO can play a central role in supporting the organisation of such events to promote collaboration among the researchers from academic and research organisations.
- **Develop online platforms and digital resources** that promote open access to research findings, data, and other relevant information, enhancing collaboration and knowledge sharing among academic networks. BOBP-IGO can lead in creating and maintaining such platforms, ensuring that they meet the needs of researchers and stakeholders in the region.

By implementing these strategies with the support of BOBP-IGO, academic networks in the marine fisheries sector can be expanded and strengthened, leading to more effective regional cooperation, innovative solutions to shared challenges, and the sustainable development of the Bay of Bengal region.

The following table summarises key recommendations from the group discussion, the plan for implementation, and the role identified for different agencies.

<b>Key Recommendation</b>	<b>Implementation Plan</b>	<b>Role of concerned agencies</b>
<b>1. Broaden the scope of academic and research collaborations</b>	Encourage universities to establish new partnerships and enhance existing MoUs	Taking the message of the dialogue to the concerned governments (national institutes). Provide a platform for networking and communication among academic institutions (HD, BOBP-IGO)
<b>2. Promote interdisciplinary research</b>	Identify research priorities and foster collaborative projects across various fields	Coordinate and support interdisciplinary research initiatives in marine fisheries (BOBP-IGO)
<b>3. Support early-career researchers and students</b>	Offer fellowships, internships, and exchange programs	Foster the development of the next generation of experts and leaders in the marine fisheries sector (National institutes, BOBP-IGO)
<b>4. Organize regional conferences and events</b>	Establish conferences, workshops, and seminars to facilitate knowledge exchange and networking	Organizing and sponsoring events to promote academic collaboration (HD, BOBP-IGO)
<b>5. Develop online platforms and resources</b>	Create digital resources promoting open access to research findings, data, and other information	Lead the creation and maintenance of such platforms, ensuring they meet the needs of researchers and stakeholders (HD, BOBP-IGO)
<b>6. Strengthen existing research networks</b>	Form thematic research or expert groups, with adequate representation from all countries	Utilize the BOB Policy Research Group (BOBPRG) to enable researchers to collaborate & contribute to regional research (BOBP-IGO)
<b>7. Mainstream collaboration within the research funds of countries</b>	Allocate funds specifically for regional collaboration within internal funds	Encourage countries to earmark resources for joint research projects or split-site Ph.D. fellowships (National institutes)
<b>8. Establish regional research funds</b>	Approach multilateral funding agencies to designate funds for regional research	Facilitate the institutionalization of regional research in a targeted and strategic manner (all)
<b>9. Strengthen BOBP-IGO's role as an institutional mechanism</b>	Utilize BOBP-IGO as the primary organization to operationalize the networks	Foster collaboration and cooperation among member countries, leveraging its mandate as a regional fishery body (National institutes, BOBP-IGO)

In conclusion, the group discussions highlighted the importance of collaboration and networking among the Bay of Bengal countries in marine fisheries research. Participants recognised that a dedicated platform would expedite achieving regional research networking goals. Existing networks, such as BOBP-IGO, could be crucial in facilitating and operationalising these collaborations. In contrast, new funding strategies, such as regional research funds, would provide additional support for joint initiatives. By fostering cooperation through various modes, such as joint proposals and split-site Ph.D. programmes, member countries could work together to address common challenges and promote sustainable management of shared marine resources in the Bay of Bengal region.

Following the presentations and in-depth discussions, the attendees collectively agreed to develop a resolution based on the key findings and recommendations from the deliberations. This Resolution would serve as a guiding document to ensure the effective implementation of the strategies discussed and foster collaboration among member countries in addressing shared challenges in the marine fisheries sector. The Resolution adopted by the participants is provided as the outcome of the dialogue and appended herewith.

**It was recommended that the organizers shall share the outcomes of the Dialogue and the proposed Marine Drive Declaration with respective governments for consideration. BIOBP-IGO shall present the same in its Governing Council also for mainstreaming the propositions into institutional actions.**



## Closing Session

# 5.

**Mr. Willem Punt**, Coordinator for South Asia at HD provided the closing remarks and Way Forward. Addressing the gathering, he stated that there is a clear push among the researchers and academicians for a BOB Marine Research Network and cooperation. The governments of the BOB countries are interested in the Joint Research Network. BOBP-IGO and HD will work together to identify the priorities and a framework for institutional set-up to coordinate the activities.

**Dr. P. Krishnan**, Director of BOBP-IGO, thanked the Bay of Bengal rim countries' delegation and acknowledged HD's support in fostering regional collaboration in marine fisheries. He assured that a robust platform for joint research and academic activities would be established through collective efforts. Dr. Krishnan invited representatives to actively engage with the Bay of Bengal Policy Research Group (BOBPRG) and contribute to strengthening collaboration among researchers. Their involvement would be vital in promoting the exchange of ideas, knowledge, and best practices, enhancing cooperation, and sustainable management of shared marine resources. He emphasised the importance of continued support from member countries and organisations. He urged participants to remain committed to the collaborative agenda, participate in implementing proposed action points, and work together to tackle challenges facing the marine fisheries sector in the region.

# **Kochi Declaration**

## ***A Resolution for Marine Science Cooperation in the Bay of Bengal Region***

14 February 2023



**Outcome Document of the**

**HD-BOBP DIALOGUE ON  
Development of a Marine Fisheries Research  
Network for the Bay of Bengal Region**

## Kochi Declaration

### A Resolution for Marine Science Cooperation in the Bay of Bengal Region

The Bay of Bengal region is a vital contributor to global seafood production, boasting the largest conglomeration of small-scale fisheries. Considering the ecological and socio-cultural commonness of the region, it is well-advocated that countries should collaborate in education, research, and training (ERT) to address common problems facing the region. However, there is yet to be an effective mechanism to promote and manage regional coordination in ERT, to tackle common challenges like climate change and ecosystem health.

A Regional Dialogue on Marine Scientific Cooperation in the Bay of Bengal Region was organized in Kochi, India, on 14<sup>th</sup> February, 2023 jointly by HD and BOBP-IGO. The dialogue explored various narratives on South-South cooperation and provided a platform to collectively address challenges like pollution, climate change, and over-exploitation.

The attendees included representatives from the littoral countries of the Bay of Bengal and educational and research institutions involved in fisheries and ocean research in the region, and they discussed the following topics:

- The significance of the Bay of Bengal's marine environment and fish stocks for food security and livelihood of coastal communities.
- Concerns about transboundary marine environmental degradation and depletion of fish stocks.
- The necessity for timely collective intervention and cooperation among marine scientists, policymakers, and regional governments.

The Dialogue identified the core tenets of the agenda for cooperation as under:

- **Common goals and objectives** that align with the priorities of each member country, ensuring a coordinated approach to addressing shared challenges and capitalising on mutual opportunities.
- **Robust communication and knowledge-sharing platform** that facilitates the exchange of ideas, best practices, and lessons learned, ultimately promoting a more robust and integrated regional community.
- **Cross-sectoral collaboration**, engaging stakeholders from the academic, research, governmental, and private service sectors to harness their collective expertise and resources in pursuit of shared goals.
- **Adequate funding and resource allocation mechanisms** that support collaborative research, capacity-building, and policy advocacy efforts, driving the sustainable development and management of the marine fisheries sector.
- **Strengthened institutional capacities**, enabling regional organisations like BOBP-IGO to lead and operationalize the networks and initiatives emerging from this collaborative framework.



## The outcome of the Dialogue was adopted as the “Kochi Declaration: A Resolution for Marine Science Cooperation in the Bay of Bengal Region”

### The Declaration:

Underscoring the importance of the marine environment and fish stocks in the region;

Recognizing the transboundary nature of marine environmental degradation and depletion of fish stocks and

Appreciating the lack of functional platforms for facilitating research cooperation and collaboration among the BOB littoral countries.

Called upon the littoral states of the Bay of Bengal to consider:

- Creation of the '**Bay of Bengal Marine Research Network**' under the BOBP-IGO Agreement, consolidating existing research networks, as a means of strengthening regional cooperation on marine scientific research.
- BOBP-IGO, to operationalize the collaboration network through appropriate mechanisms to provide technical assistance and capacity-building support to the BOB rim countries and HD.

**And urged the littoral states of the Bay of Bengal to:**

**Review** the outcomes of the dialogue i.e., the Kochi Declaration and consider taking appropriate measures to support marine research and education in the region.

**Support** marine research in the region, including exploring options for financing and promoting methods of marine education and research.

**Strengthen** collaboration among the countries, particularly in the marine science domain, given the shared challenges and opportunities facing the Bay of Bengal region.

**Design and implement** programmes to facilitate collaboration between/among countries, institutions, and individuals (researchers/ students).

**Earmark funds** for regional collaboration within existing programmes at the regional and national level, to kickstart joint research projects, fellowships, etc.

**Leverage** multilateral funding agencies to designate funds for regional research in areas prioritised by member countries to facilitate the institutionalisation of regional research in a more targeted and strategic manner.

**Support** the BOBP-IGO, a regional fishery body mandated to foster collaboration and cooperation among member countries, in operationalizing the networks.

The Declaration recognizes the significant role of the multi-lateral agencies in facilitating regional collaboration and towards this end,

**Invites** the United Nations system, including the FAO and other relevant bodies to extend all support, including technical and financial, as appropriate, for the effective implementation of this Resolution.

**Urges** the international community to support the efforts of the Bay of Bengal littoral states in addressing challenges to the marine environment and fish stocks and contributing to the sustainable development of the region.

**The attendees decided to remain engaged in this matter and adopt this declaration by consensus on the 14<sup>th</sup> of February 2023 at Kochi, India.**



Time (Hours)	Agenda	Person
0930- 1030	<b>Session I: Opening Session</b>	
0930 - 0935	Welcome Remarks	HD Representative
0935 - 0945	Setting the Context	<b>Dr. P. Krishnan</b> , <i>Director, BOBP-IGO</i>
0945 - 1030	Guests of Honour	<b>Dr. J.K. Jena</b> , <i>DDG (Fisheries), ICAR, DARE, GoI</i> <b>Amb. Venu Rajamony</b> , <i>IFS, Senior Advisor for South Asia at HD</i> <b>Amb. Rudrendra Tandon</b> , <i>IFS, Additional Secretary (BIMSTEC), Ministry of External Affairs (MEA), Govt. of India.</i> <b>Shri. Shri Jatindra Nath Swain</b> , <i>IAS, Secretary (Fisheries), Dept. of Fisheries (DoF), Govt. of India</i>
1030 – 1100	<b>Group Photo &amp; Coffee break</b>	
1100 - 1245	<b>Session II: Country Presentations</b> Co-chairs: <b>Dr. Dilip Kumar</b> , <i>Former Vice Chancellor, ICAR-CIFE</i> <b>Dr. Oscar Amarasinghe</b> , <i>Chancellor, Ocean University of Sri Lanka, Colombo &amp; Former Vice Chancellor, University of Ruhuna, Colombo</i> <b>Each country shall make a coordinated presentation (12 min) comprising:</b> <b>(a)</b> Region/Countries' need for collaboration; <b>(b)</b> Potential areas of collaboration; <b>(c)</b> Potential Institutes and Universities for collaboration/network; <b>(d)</b> Existing Frameworks in the country for facilitating collaboration and Experience sharing; <b>(e)</b> Expected outcome & application.	
1100 – 1112	Bangladesh	<b>Mr. Yahia Mahmud</b> , <i>Director General, Bangladesh Fisheries Research Institute (BFRI), Mymensingh</i>
1112 – 1124	India	<b>Dr. C.N. Ravishankar</b> , <i>Vice Chancellor, ICAR-CIFE, Mumbai</i>
1124 – 1136	Indonesia	<b>Dr. Romi Novriadi</b> , <i>Jakarta Technical University of Fisheries, Ministry of Marine Affairs and Fisheries</i>
1136 – 1148	Malaysia	<b>Prof. Dr. Muta Harah Zakaria</b> , <i>Head, Dept. of Aquaculture, Faculty of Agriculture , University Putra Malaysia (UPM), Malaysia</i>
1148 – 1200	Maldives	<b>Dr. Shafiya Naeem (TBC)</b> , <i>Director General, Maldives Marine Research Institute (MMRI),</i>
1200 – 1212	Myanmar	<b>Dr. Kay Lwin Tun</b> , <i>Head of Department, Department of Zoology, University of Yangon, Yangon</i>
1212 – 1224	Sri Lanka	<b>Dr. M.J.S. Wijeyaratne</b> , <i>Chairman, National Aquatic Resources Research and Development Agency (NARA), Colombo</i>
1224 – 1236	Thailand	<b>Dr. Suriyan Tunkujjanukij</b> , <i>Dean, Dept. of Aquaculture, Faculty of Fisheries, Kasetsart University, Bangkok</i>
<b>1245 – 1400</b>	<b>Lunch break</b>	
1400 -1500	<b>Session III: Group Discussion</b> The participants will be divided into THREE groups. Each group will be supported with a facilitator from the organizers. The Group will identify a representative for moderation and making plenary presentation. Each Group will discuss on the following three broad areas, towards operationalization of the network. <ul style="list-style-type: none"> <li>Functional arrangement of networking platform - Potential Organizational set-up for creating the platform (is it necessary to have a central coordinating body or can be a bilateral/multilateral arrangement between countries addressing common themes)</li> <li>Seeking government Support-Likelihood of governments accepting and extending political to the platform and strategies thereof.</li> <li>Financial arrangements: Innovative models for operation.</li> </ul>	
<b>1500 – 1530</b>	<b>Tea Break</b>	
1530 – 1645	<b>Session IV: Concluding Session</b> Panel: <b>Mission Heads &amp; Senior Bureaucrats</b> from BOB Countries	
1530 – 1600	<b>Group Presentations</b>	Each Group Facilitator will present the summary in 5-7 min each
1600 – 1615	<b>Discussion</b>	Participants
1615 – 1645	<b>Special Remarks</b>	Panel Members
1655 - 1700	Words of Thanks	<b>Dr. P. Krishnan</b> , Director, BOBP-IGO
1700	<b>Close of Meeting and disassembly</b>	

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**Dr. Yahia Mahmud**

Dr. Yahia Mahmud is currently serving as Director General at Bangladesh Fisheries Research Institute, Bangladesh. His areas of expertise include aquaculture and environmental science. He has developed several breeding and farming protocols for various endangered fish species.

**Dr. G Sugumar**

Dr. G. Sugumar, the Vice-Chancellor of Tamil Nadu Dr. J. Jayalalithaa Fisheries University has a university service of 33 years possessing rich teaching, research, extension, and administrative experience. His areas of expertise include fish microbiology, post-harvest technology, and value-addition.

**Dr. C. N. Ravishankar**

Dr. Ravishankar, C.N. is presently working as Director and Vice Chancellor of ICAR-Central Institute of Fisheries Education. He has over 35 years of experience in food science research, post-harvest fisheries technologies, food safety, technology commercialisation, and business incubation. Handled

**Dr. Muta Harah Zakaria**

Dr. Muta Harah Zakaria is currently working as Head, Department of Aquaculture, Faculty of Agriculture, Universiti Putra Malaysia (UPM), Malaysia. Her area of expertise includes the assessment and analysing the genetic diversity of seaweed and seagrass resources in Malaysia.

**Dr. Ahmed Riyaz Jauharee**

Ahmed Riyaz Jauharee currently works at the Fisheries Unit, Maldives Marine Research Institute (MMRI), Maldives. He does research in ecology and marine biology. At present, Riyaz Jauharee is working on tuna ecology in the Maldives, especially looking at tuna aggregations around anchored FADs.

## Brief Profile of Speakers



**Dr. Nyo Nyo Tun**

Dr. Nyo Nyo Tun is now the Head of the Marine Science Department, at Mawlamyine University. She has undertaken several research studies related to fisheries biology, bivalve culture, and marine resource conservation. She is working with international organisations including the Norwegian Agency for Development Cooperation (Norad) participating in Surveys of fishery resources and ecosystems onboard



**Dr. M.J.S Wijeyaratne**

Dr. M.J.S. Wijeyaratne, Former Vice Chancellor of the University of Kelaniya, is currently the Chairman, National Aquatic Resources Research and Development Agency (NARA), Colombo, Sri Lanka. His research interests lie in fish biology, fisheries management, and environmental conservation and management.



**Dr. Suriyan Tunkijjanukij**

Dr. Suriyan Tunkijjanukij is currently serving as Dean, Dept. of Aquaculture, Faculty of Fisheries, Kasetsart University, Bangkok, Thailand. His area of expertise includes finfish and shellfish aquaculture.



**Dr. Salin KR**

Dr. Salin KR is currently serving as an Associate Professor, Aquaculture and Aquatic Resources Management, Department of Food, Agriculture and Bioresources, Asian University of Technology, Thailand. His area of expertise includes leaner Aquaculture Production Systems, Aquaculture-environment interactions, Innovative and Climate-smart fisheries, and aquaculture production/consumption





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