

# Quadrilateral Dialogue Series on Blue Economy- India's Pathway to a Sustainable, Secure and Resilient Economy

*National Conference August 16-18<sup>th</sup> 2021*

## Programme Overview

The Blue Economy Working Group Report on “National Accounting Framework and Ocean Governance” by the Economic Advisory Council to the Prime Minister of India, provides a working definition of Blue Economy as - “Blue economy refers to exploring and optimizing the potential of the oceans and seas which are under India’s legal jurisdiction for socio-economic development while preserving the health of the oceans. The Blue Economy links production and consumption to capacity and envisages an integrated approach to economic development and environmental sustainability. It covers both the marine, that is offshore resources, as well as the coastal, that is onshore resources.” With the draft Blue Economy Policy under preparation, the road to developing India’s coasts and oceans is almost complete.

Blue Economy has been considered as vital framework to address economic, social, environmental challenges and opportunities within one umbrella. Blue Economy goes beyond the traditional forms of trade and geopolitical dynamic to include traditional sectors such as fisheries, shipping, tourism and emerging sectors like deep sea mining, harnessing ocean energy and marine biotechnology. The framework is wide and all-encompassing reiterating the need to view every sector and issue from a multi-disciplinary perspective. The framework of Blue Economy encompasses myriad opportunities and challenges into one composite goal to be achieved through dialogue, national and global governance and international cooperation.

To discuss the myriad of issues a series of six diginars was organized by the India Office of the Konrad-Adenauer-Stiftung (KAS), The Energy and Resources Institute (TERI), National Maritime Foundation (NMF) and Federation of Indian Chambers of Commerce & Industry (FICCI). NMF, TERI and FICCI each organised two diginars each, with the aim to deliberate and collate ideas and recommendations on several aspects of Blue Economy ranging from economics, security to sustainability. Each diginar also covered several major issues that are critical to achieve Blue Economy aspirations of India in addition to collating observations and recommendations that would support India’s planned Blue Economy policy and implementation strategies. These wide range of issues were debated and discussed in the six diginars, under the following broad themes: -

- **Holistic Maritime Security in The Indian Ocean Region: Pursuing A Sustainable and Secure Blue Economy by NMF**

- **Ensuring sustainability of oceans for a healthy economy- securing livelihoods and enhancing security by TERI**
- **Blue Economy for Prosperity in Post Pandemic World: Opportunities in Traditional Sectors and New Avenues for Financing by FICCI**
- **Deconstructing Blue Economy in the Indo-Pacific by NMF**
- **Emerging Sectors and New Technologies by FICCI**
- **Staying Ahead of the Curve: Advancing S &T Innovation and Collaboration to accelerate Blue Economy in India by TERI**

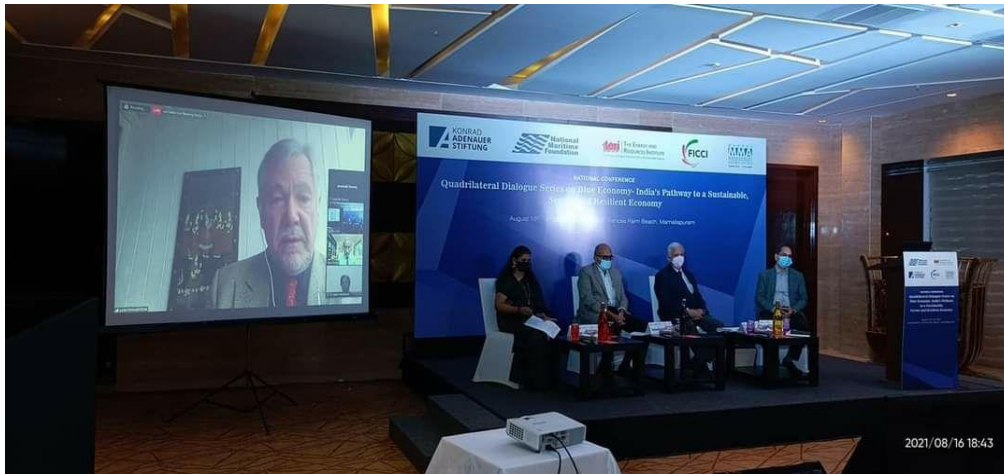
This national conference brought together experts to discuss the observations and recommendations that have emerged from all the dignitaries. The output of each dignitary will culminate into an edited volume of research papers that aim to contribute to the Blue Economy discourse.

### **Inaugural Session**

The first session was an introduction to the importance of the blue economy to the nation. It has been stated that oceans are an opportunity of innovation as there is a huge dependence on oceans for environment, economy and livelihood opportunities. The role of blue economy is essential for the post covid-19 restructuring of the economy and it is to transform the existing principles and frameworks accordingly. Blue economy necessitates the alignment of the Indo-Pacific region as well as oceans are an integral part of the region. Therefore, there is a need for finding solutions for global causes instead of national ones.

Blue economy is very close to the political and policy mandate of India as several linkages on the importance of deep-sea exploration and the businesses are linked to it. This has been supported by an increase in the contribution of the research community as well and the NITI Aayog's Blue economy policy framework is a testimony to the community's contribution. However, there is a lot of scope for India to work towards building blue economy as no official Blue Economy Framework has been proposed yet in addition to the already existing reluctance in the usage of the term 'Blue Economy'. Therefore, there is a need to adopt a targeted approach for blue economy in all the regions, Indian Ocean Rim Association (IORA), Association of Southeast Asian Nations (ASEAN) and Quadrilateral Security Dialogue (QUAD) and currently US, Japan and Australia are the main proponents of blue economy.

Blue economy is also imperative to provide sustained economic growth and further a balance between environment and economy. This would require the quantification of the damage done to the environment and also the contribution of biotic and abiotic resources. The quantification of the impacts occurred due to climate change, sea level rise is required to understand the level of efforts required. Proper accounting of natural resources as well as of their contribution to the economic growth of a nation is required. Trade openness will also play an important role in the expansion of blue economy and the development of ports, connectivity, marine transport and sustainable transport. Blue economy can also have an important role in just transition as post 2035 the economy may move back to coal-based power production but with the help of blue economy the capacity of the offshore, tidal and hydro can be enhanced.



## Session I

This session focused on the contributions of blue economy in harnessing the post- COVID recovery through various initiatives and financing opportunities. The scope of blue economy is huge in India as it contributes around 4.1% to the GDP (2017) and its contribution has increased by over 40% between 2012 and 2017. But there exists an approximated \$2.5 trillion funding gap in achieving the sustainable development goals (SDG) and among all the SDGs, SDG14 (life below water) receives only 3.5% of the total donor commitments. In particular, there is an estimated \$149 billion funding gap every year for the SDG14. Currently, Official Development Assistance (ODA) and philanthropy are the major sources of funding in the blue economy context, therefore financing requirements are being fulfilled by public funds but there is a need for private funds as well. The various instruments for private financing include Debt financing (Low risk, low return), blended financing, impact only financing and equity financing (High Risk and High return, a place where institutional investors need to come in). The funders of blue finance particularly in the Asian region include institutions like United States Agency for International Development (USAID), The Ocean Conservancy and private players like Procter & Gamble, Dow, Danone, Unilever, The Coca-Cola Company and Chevron Phillips Chemical. The role of these funders has been to offer early stage capital and technical expertise as well to support new business models. Blue bonds are another avenue of financing that has emerged over the last few years; however, World Bank and Global Environment Facility (GEF) are the only guarantors in it. Seychelles launched blue bonds in 2018 with a dual purpose of stabilizing the country's credit rating and investing. In Asia, China has been the only country to launch blue bonds towards ocean protection. But there still remain many challenges for the development of blue finance that would require the support of enabling factors like Government Intervention, community engagement, commercial and development banks and multilateral agencies.

Innovation and research are also imperative for a controlled revolution within the blue economy. In addition, there is a need to build a knowledge-based economy and invest in the process of knowledge and distribution. For this it is required to bring changes in the existing dependency approach of the human on the environment, a just transition evaluation needs to be in order to assess the impact on communities and coastal areas and the role of human capital and maritime awareness needs to be harnessed.

The session also emphasized on the impact of COVID19 on blue economy. Out of all the sectors of blue economy, travel, tourism and aviation have been the worst affected. There has been an estimated INR 1.25 trillion loss due to the pandemic and an 11% fall in export totaling at \$5.968 billion loss. This leads to the opportunity of developing ports for enhancing water connectivity, establishment of sewage and fish water treatment infrastructure, marine transportation, sustainable marine aquaculture and the

reduction of post-harvest losses. This requires the zero plastic usage, extended producers responsibility zone creation, pricing, product design and municipality and community action. Tapping the offshore energy is also important and entails a lot of opportunity for the future as it is a source of stable electricity and fewer offshore turbines are required to produce the same capacity of energy.

## Session II

The second session focused on the traditional sectors of blue economy that include fisheries, shipping and aquaculture. Fish is the cheapest source of animal protein and provides over 20% of animal protein to 2.6 billion people globally and amounts to more than 30% in developing countries. India stands 6<sup>th</sup> in global marine fish production and is a prominent exporter of seafood products. The country stands second in inland fish production and the sector contributes around 1% to the Gross Domestic Product (GDP) and more than 7% to the Gross Value Added (GVA). Though the share of the sector is high in the country but globally the share of the sector needs to be increased that would require adequate facilities. The focus area should be to enhance knowledge capacity, technology exchange, and private partnerships. India's maritime power also needs to be enhanced but the country's marine fleet capacity is very low given the marine transport is the cheapest and fuel efficient transport. There is a need to prioritize marine transport, enhance fleet capacity, prior to which cost benefit analysis should be undertaken. It has been recommended that a national mission should be constituted that would require an adequate PPP model. A robust mechanism is also required for the efficient discharge of waste in ports and oil spillage regulation.

The sector is also claimed to be underperforming because of which the cost of fishing is increasing. The policy steps recommended here are, the increase in the mechanization processes to optimize the potential, increase in the reserved area for artisanal fishers for stabilizing income, declare the fish reserves for improving fish stocks and the enhancement of cold chain facility to improve revenue from fisheries and arrest any wastages.

There are many existing issues with the fishing fleet as well including overcapacity, declining catch efficiency and the large emissions from the fleet. It has been estimated that large mechanized boats emit around 1.18t CO<sub>2</sub> and the smaller ones generate about 0.59t. The total fuel consumption in the fisheries sector is 1% of total fossil fuel consumption in India, and emits 3.17 MMTCO<sub>2</sub>eq. The measures that can be taken include solar and LNG powered boats, square mesh technology, strengthening monitoring, control, and surveillance, improving the cold chain. The other important measures highlighted are the implementation of eco-labelling and certification schemes, necessary policy and institutional support, complete utilization of catch and reduction of post-harvest losses and the extraction of high value products from secondary raw materials from fish.

The methodologies and estimation frameworks for accounting the various activities of blue economy were also presented during the session. The mapping of the various activities is very important that largely include the harvesting of living resources, extraction of non-living resources, trade and commerce. The estimation frameworks proposed are based on either sectoral aggregates or the person employed in the sector however data availability is identified as a big challenge for the accounting of various activities of blue economy. To address these data issues it is important for the relevant ministries to bear the responsibility supported by dedicated primary surveys.

Oceanic health is also very important for a sustainable ocean economy. Climate change, sea level rise and ocean acidification have a large scale effect on the productivity of the sectors of blue economy. Climate-induced disruption to ocean ecosystems is projected to lead to reductions in important ecosystem services, such as aquaculture and fishery productivity and recreational opportunities. Therefore what is required is the implementation of various ecosystems management tools, address

the SDGs and facilitate actions with the stakeholders and ensure that sustainable livelihoods go hand in hand with the preservation of biodiversity. The conservation of blue carbon habitat is required for which schemes for environmental preservation should be encouraged. The community based sustainable ecosystem approach should be the way forward in such a case for which skilling of local human resources is required.



### Session III

This session focused on the importance of maritime security for a resilient blue economy. There is widespread climate variability in the Indian Ocean region as well. The sea surface temperature of tropical Indian Ocean region has observed warming of 1°C over the period of 1951-2015 as compared to the global average SST of 0.7 °C over the same period. This largescale increase has the potential to augment disasters such as cyclones, tsunami, heat wave and sea level rise and in particular the 500 m stretch of areas near the coast is extremely vulnerable to sea level rise. This leads to events like mass bleaching of coral reefs, loss in aquaculture and marine productivity and the acidification of ocean water. There are direct economic consequences of these activities as well, both direct and indirect. In addition, the supply chain gets disrupted both at the demand and supply side. There is a loss of human resources and in extreme cases the permanent shutdown of operations due to non-reparable damage to infrastructure and assets. Thus what is required is the mainstreaming of coastal disaster management, investment in disaster resilient infrastructure, knowledge management and the development of monitoring framework for coastal disaster management.

Climate change also leads to major disruptions leading to economic losses, crop failure, loss of ecosystem and loss of fisheries. It has been estimated that by 2100 the sea level will rise by 0.63 – 1.01 meters. This has been mainly due to the lack of understanding of the climate phenomenon and the long term inaccuracy of climate models. If the business as usual scenario continues, then there will be an increase in marine heatwaves that will lead to severe oceanic based disasters. The role of disaster management organizations is also imperative in building a climate change resilient blue economy. These organizations should focus on communication and community based actions to mobilize disaster relief measures, thus aligning their actions with adapting to any changes in the ecosystem. In such a case, a transition towards efficient technological measures is the need of the hour.



## Session IV

Regional cooperation is an important aspect of blue economy that enhances achievement of sustainability, security and economic prosperity. India has high advantage in shipping and maritime transportation from the perspective of coast, navigation and distance. In the recent past, the Indian Ocean region has gained traction anchored by the various blue economy initiatives like SAGAR (Security and Growth for All in the Region). This has led to a comparative advantage of the region in intra-regional trade and out of the total 43 countries in the region, 38 are WTO members. Therefore the regional architecture is enhancing scale, quality, and trade costs but there is need for institution building like Indo pacific regional Investment forum, Indo Pacific Business forum. In such a case the way forward should include the enhancement of Indo Pacific economic co-operation and trade facilitation opportunities.

As a part of regional cooperation, the mindful considerations for blue economy should include people, peace, prosperity, partnership and planet. There is a need to specify the regional blue economy co-operation and national blue economy agenda that might create competition but unlike Japan, Australia India's objective is maritime security and disaster risk reduction. For regional cooperation in the region, there should be a balance between QUAD, IORA, ASEAN for sake of regional co-operation that needs requisite policies for collaboration with clear measurable goals and targets. Thus, this ensures a level of economic playing field for all stakeholders in the geographic region. This urges the scope of private partnership as well to enhance market adoption. Exchange programmes, with workshops and training programmes can be very important in enhancing regional cooperation. This will lead to the understanding of sustainable management of ocean partner states and in such a case women and MSMEs both play a crucial role for regional cooperation and prosperity in the blue economy. Overall, maritime security should be ensured to counter terrorism, and trafficking.

Without gender inclusiveness, economic development, sustainable development, just transition could not be seen. This has been recognized, adopted and prioritized by IORA that leads to women's economic empowerment in the various sectors of blue economy. Among all the sectors, fisheries are seen as a male dominant activity but at the supply chain level, women have a major role both along the pre harvesting and post harvesting stages. In the processing stage as well, 85% of the work is done by women. Despite this largescale importance of women, social stigma is the key challenge that hampers their participation in the blue economy. Thus women should be actively involved in decision making for transformational changes.

There exist huge energy prospects for blue economy as well particularly in offshore and floating solar and the whole of Asian region has the capacity to take the lead in offshore wind and contribute around 60% to the total capacity. Technologies like floating turbine, large capacity wind turbine are promising and creating economic sense in some parts of the world. As regional cooperation is imperative in enhancing the economic potential of blue economy, integrated models should be built for electricity generation and evacuation to avoid any social conflict. Cross border energy trade could be seen as prospect of off shore wind energy for regional cooperation.



## Session V

There is a growing use of ocean and its resources within the global economic value chain such as energy, food, and travel and supply chain management. Because of the large number of sectors being a part of blue economy, it will benefit the industry through collaboration across the sector, creating synergies and building economies of scale. Therefore there is a need for establishing resilience by building stable infrastructure, planning for adaptation through designing, planning and infrastructural research, addressing conflicts between wind offshore and fisheries, improving ocean knowledge and financing technical solutions.

Because of the various activities of climate change in the recent past, there has been a rise in the sea level and it has been estimated that a one meter rise in sea level will deprive the mangroves off oxygen whilst also increasing cases of soil erosion which can decrease their growth levels. Additionally, the increase in ocean heat waves will augment cases of cyclones which will further impact mangroves and their stability. Specifically for mangroves, there is a need for ensuring optimal availability of freshwater for mangroves, the protection of mangroves outside the Coastal Regulation Zones (CRZ's). Pollution impacts the health of mangroves as well, therefore pollution control should be ensured along with the minimization of post-harvest losses and sea ranching which needs to be encouraged.

Measuring the impact of blue economy is also essential that can be done through the performance of SDG14 (Life under Water), measuring the impact of climate change and the Ocean Health Index. It is imperative to measure the marine pollution which is done through the global indicator, Index of coastal eutrophication (ICEP) and floating plastic debris density and the national indicator, Coastal water quality index (WQI). The status of the sewage treatment plants (STPs) is gloomy in India as there exists around 70% gap in sewage treatment capacity. Plastic debris and micro plastics are the greatest threats to Ocean Health worldwide, but the development of policies meant to reduce and prevent

further plastic pollution lags behind those that have been created and agreed upon to limit carbon emissions. The other sub-targets of SDG14 are to sustainably manage and protect marine and coastal ecosystems, conserve at least 10% of coastal and marine areas and minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels. Therefore the blue economy decision making framework for SD14 and its indicators include multi sector collaboration, integrated long terms solutions, ecosystem based management and an increase in marine spatial planning.



## Session VI

The next session aimed at looking at harnessing the potential of blue economy with the help of information, communication and data accumulation. The use of ICT (Information and Communication Technology) helps avoid losses which is the primary principle of blue economy. For this purpose, it is currently imperative to get all the players together to understand the challenges. System to system integration will help in minimizing human intervention that will reduce the chances of any human error. If the blue economy moves forward with this notion, ICT will become the driving force for sustainable development of the ocean economy. IT has already changed the way shipping routes and travel management is undertaken, and moving forward will command the direction of shipping development and the industry within the context of blue economy.

Because of the complexity of maritime domain, there is a need for technology and collaboration. A nodal Centre for Excellence was setup by International Maritime Organization (IMO) in April 2019 for promoting collaborative maritime safety and security; towards a peaceful, stable and prosperous Indian Ocean Region. This will also lead to the enhancement of maritime awareness, coordination of activities and the development of expertise among the partner nations. There exist many maritime challenges like maritime terrorism, natural disasters, piracy, robbery and theft at sea, illegal, unreported and unregulated fishing and drug smuggling, gun running and human trafficking. There are other hybrid threats as well like the maritime security threats, cyber threats and maritime environment pollution. Thus what is required is the sharing of information and data with the partner nations across to build databases and create prediction systems that can help us better understand the future; addressing of piracy and robbing needs at a global level; coming together of fisheries and cooperatives since high seas are beyond national jurisdiction. Thus, a need for collaboration with different countries arises on this aspect.



Development of new technologies and innovations is required for the better and sustainable utilization of resources; it leads to new sources for growth, gaining access to new resources and spaces for development and to ensure the economic and social needs without damaging the planet. A sustainable economy for oceans can be achieved through improved data on oceanic sciences, the use of STI (Science, technology and Innovation) to improve efficiency, productivity and cost structures, scientific research and the development of blue biotechnology. Specifically for India, marine biology, biotechnology is new frontiers for R&D and even private investments. Sustainable fishing technologies are also required to enhance aquaculture, capture fisheries and fish processing. IT enabled shipping and ports are also important to maximize the economic and trade potential as improvements can be brought in shipbuilding and repair through technological innovations. Therefore there is a large potential for a wide range of ICT applications in almost all areas of blue economy, consistent and real time data for sectors like fisheries, tourism and shipping and ocean data to support informed decisions and adapt to the changing environment. Skill development is necessary to adapt STI in blue economy which will require technology based skilling, re-skilling and upskilling along with coastal community building programmes and increasing awareness on the potential opportunities for employment.

For the enhancement of STI, enough investments are required. Globally it has been estimated that only 1.7% of the national budgets are allocated to ocean sciences and technology and only 30% of the funds spent on blue economy are allocated to marine science based projects. But around 14 countries have increased their budget allocations for marine science and technology between 2013 and 2017. Investments to science and technology have been significant in India as well and numerous efforts have been taken to deepen the knowledge base on ocean sciences. Therefore from the perspective of India, budget enhancement and investments for S&T needs to be promoted, bilateral and multilateral relations in ocean sciences needs to be intensified, increase focus on skill and capacity development, increase awareness on the potential opportunities for employment in blue economy sectors and prioritize the proposed National Blue Economy Council.



## Session VII

This session focused on the emerging sectors, technological innovations and sustainability concerns in blue economy. There is a large scale need for information dissemination in India as downside of ocean risk needs to be understood and evaluated in addition to the understanding of best practices of successful blue economy nations and their implementation in accordance with the composition of a national framework. Extremities related to potential devastation together with the need for preserving the health of the oceans for the future generation must be appreciated. The steps taken by the developed nations can also be understood and implemented. There is a need for facilitation from government, local, as well as international regulatory agencies as they move towards achieving the short and long term objectives. An effective interphase between the industry and regulatory bodies and other stakeholders would also need to be formulated. Therefore a roadmap needs to be developed that must comprise of future potential, immediate intervention, information sharing and the management of the commons. Coordination between different sectors needs to happen in order to understand the different linkages between all the stakeholders, there is a need for the technological development of a deep ocean mission, ocean climate change advisory, creation of multipurpose dam projects to eradicate water scarcity issues, establishing ecosystem based services and management and the commercialization of offshore wind technologies.



Science and technology is not only required in traditional sectors of blue economy like fisheries, shipping and aquaculture but in new and upcoming sectors like deep sea mining as well. Sustainable extraction of minerals needs to be focused upon alongside deep sea mining. Gas hydrate research needs to be expanded given its potential of energy development. Therefore the implications of green infrastructure on energy development have to be understood and the way they can be managed with respect to blue economy also needs to be addressed. This requires inclusiveness and good faith between governments and stakeholders in order to build networks of partnerships. Partnerships help in addressing various challenges and the management of waste is one such important challenge. In order to prevent dumping of wastes and harmful chemicals countries need to expand their jurisdiction so as to deepen their judicial powers within the seas. Thus it is recommended that responsibility needs to be shared and guidelines and principles need to be articulated within the largescale blue economy framework.

# Social Media Coverage



#BlueEconomy Conference – Session 5, 6 and 7:  
The fifth session looked back at what had already been done in our oceans to mitigate climate change and render the Blue Economy Framework mo...see more



#BlueEconomy Conference – Session 3 and 4:  
The National Conference of the Quadrilateral Dialogue Series on Blue Economy - India's Pathway to a Sustainable, Secure and Resilient Economy conti...see more



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TERI is happy to present working papers produced as part of the Quadrilateral dialogue series being jointly implemented by **Konrad-Adenauer-Stiftung e.V.**, **National Maritime Foundation- NMF** and **FICCI**.

The first paper in this series, by **SWATI GANESHAN**, **Mani Juneja**, **Asha L. Giryana**, and **Christina de Souza**, focuses on ensuring sustainability of oceans for a healthy economy through providing sustainable livelihoods, preserving **#biodiversity**, and addressing socio-economic challenges. Read here:

<https://bit.ly/34ruen2>

The second paper focusses on leveraging Science, Technology and Innovation (STI) in **#BlueEconomy**. It talks of how STI can provide the solutions required for India to stay one step ahead in the oceans sector. Read here:

<https://bit.ly/3oW7cyd>



## Programme Agenda

### DAY 1

16<sup>th</sup> August 2021

Arrival at ITC WelcomHotel,  
Mamallapuram, Chennai

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6.30 pm – 8.00 pm

*Inaugural session*

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- Welcome Remarks – Ravichandran Purushothaman, President, MMA & President, Danfoss Industries Pvt Ltd
- Introductory Remarks - Peter Rimmel, Resident Representative to India, Konrad-Adenauer-Stiftung (*Virtually*)
- Opening Remarks – Amb. Rajiv Bhatia, Chair, FICCI Blue Economy Task Force, India (*Virtually*)
- Special Remarks – Vice Adm. Pradeep Chauhan, Director General, National Maritime Foundation, India
- Special Remarks – Souvik Bhattacharjya, Associate Director, The Energy and Resources Institute, India
- Key Note Address - M. Rajeevan, Former Secretary, Ministry of Earth Sciences, Govt. of India, India (*Virtually*)
- Vote of Thanks – Swati Ganeshan, Independent Consultant & Honorary Adjunct Fellow, National Maritime Foundation

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*Dinner 7.30 pm onwards*

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**DAY 2**

**17<sup>th</sup> August 2021**

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*9.30 am - 11.00 am*

*Session I – Navigating the pandemic – Enabling economic recovery through blue opportunities*

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**Session Chair** – A. Subramanyam Raju, Professor, Pondicherry University

**Panellists**

- Mani Juneja, Research Associate, & Ria Sinha, Fellow, The Energy and Resources Institute
  - Saurabh Thakur, Associate Fellow, National Maritime Foundation (*Virtually*)
  - Souvik Bhattacharjya, Associate Director, The Energy and Resources Institute
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*11.00 am -11.30 am*

*Tea/Coffee Break*

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*11.30 am – 1. 00 pm*

*Session II – Traditional Blue Economy sectors- Transformations and emerging challenges*

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**Session Chair** – Kapil Narula, Senior Researcher, University of Geneva and Honorary Adjunct Fellow, National Maritime Foundation

**Panellists**

- A. Subramanyam Raju, Professor, Pondicherry University
  - Deepak Shetty, Former - Secretary to the Government of India and Director General of Shipping (*Virtually*)
  - Yugraj Yadava, Director, Bay of Bengal Programme
  - C N Ravishankar, Director, Central Institute of Fisheries Technology
  - Amey Sapre, Assistant Professor, National Institute of Public Finance and Policy
  - Asha L Giriyan, Fellow & Christina De Souza, Associate Fellow, The Energy and Resources Institute
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*1.00 pm - 2.00 pm*

*Lunch*

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**2.00 pm - 3.30 pm**

***Session III – Maritime Security for a resilient Blue Economy- Disasters,  
Infrastructure and safeguarding the economic lifeline***

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**Session Chair** – Vice Adm. Pradeep Chauhan, Director General, National Maritime Foundation

**Panellists**

- Prasoon Singh, Guest Faculty and Scholar, TERI-SAS (*Virtually*)
- Pushp Bajaj, Research Fellow, National Maritime Foundation
- Rekha Nambiar, Commandant, National Disaster Response Force

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**3.30 pm- 4.00 pm – Tea/Coffee Break**

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**4.00 pm- 5.30 pm**

***Session IV – Regional Cooperation for Blue Economy- Achieving Sustainability,  
Security and Economic prosperity***

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**Session Chair** – Prof. V N Attri, Former Chair in Indian Ocean Studies and Member FICICI Task Force on Blue Economy

**Panellists**

- Prabir De, Professor, Research and Information System for Developing Countries (*Virtually*)
- Capt. Sarabjeet Singh Parmar, Executive Director, National Maritime Foundation
- Gatot Hari Gunawan, Acting Secretary General, Ocean Rim Association (IORA)- (*Virtually*)
- Mallika Joseph, Senior Fellow, Women in Security, Conflict Management and Peace (WISCOMP)
- Swati Ganeshan, Independent Consultant & Honorary Adjunct Fellow, National Maritime Foundation

**DAY 3**

**18<sup>th</sup> August 2021**

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**9.30 am – 11.00 am**

***Session V –Preserving ocean health and managing climate change for a robust  
Blue Economy- Where we are and where we need to be?***

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**Session Chair** – Souvik Bhattacharjya, Associate Director, The Energy and Resources Institute

**Panellists**

- Fraddy D Souza, Fellow, The Energy and Resources Institute
  - R. Ramasubramanian, Principal Coordinator, M S Swaminathan Research Foundation
  - Paul Holthus, Founding President and CEO, World Ocean Council (*Virtually*)
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***11.00 am- 11.30 am – Tea/Coffee Break***

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***11.30 am – 1.00 pm***

***Session VI – Harnessing the potential of Information, Communication and Data  
Accumulation – Essential Strategy for Blue Economy***

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**Session Chair** – Amb. Rajiv Bhatia, Chair, FICCI Blue Economy Task Force, India (*Virtually*)

**Panellists**

- G A Ramadass, Director, National Institute of Ocean Technology
  - Avinash Chand Rai, Managing Director cum Chief Executive Officer, Adani Krishnapatnam Port Limited. (*Virtually*)
  - Capt. Soumyajit Mohanty (IN), Director IFC-IOR
  - Swati Ganeshan, Independent Consultant & Honorary Adjunct Fellow, National Maritime Foundation / Mani Juneja, Research Associate, The Energy and Resources Institute
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***1.00 pm - 2.00 pm***

***Lunch***

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***2.00 pm- 3.30 pm***

***Session VII - Emerging sectors, technological innovations and sustainability  
concerns – stepping towards an inclusive approach***

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**Session chair:** Sarabjeet Parmar, Executive Director, National Maritime Foundation

**Panellists**

- Sunil Kumar Singh, Director, National Institute of Oceanography (*Virtually*)
- Saibal Kumar De, Former CEO/Whole Time Dir, IL & FS Maritime Infrastructure Co. Ltd
- Geeta Madhavan, President, International Law and Strategic Analysis Institute (ILSAI) (*Virtually*)
- U. S. Panda, Scientist E, National Centre for Coastal Research

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**3.30 pm – 4.00 pm**  
**Concluding Session**

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**Conference Summary**

- Sushma Nair, Director, Federation of Indian Chambers of Commerce & Industry (*Virtually*)
- Sarabjeet Parmar, Executive Director, National Maritime Foundation
- Souvik Bhattacharjya, Associate Director, The Energy and Resources Institute

**Concluding Remarks**

- Pankaj Madan, Team Leader Programme Coordination, Konrad-Adenauer-Stiftung, India Office

**DAY 4**  
**19<sup>th</sup> August 2021**

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***Departure***

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- *Kartikey Sharma, Research Associate, TERI – Rapporteur*
- *Nitin Bajpai – Research Associate, TERI – Conference support*

**About the Partners**

**The Energy and Resources Institute (TERI)**

The Energy and Resources Institute (TERI) is an independent, multi-dimensional organization, with capabilities in research, policy, consultancy and implementation. We are innovators and agents of change in the energy, environment, climate change and sustainability space, having pioneered conversations and action in these areas for over four decades. With the believe that resource efficiency and waste management are the keys to smart, sustainable and inclusive development, TERI's work across sectors is focused on

- Promoting efficient use of resources
- Increasing access and uptake of sustainable inputs and practices
- Reducing the impact on environment and climate

TERI's research, and research based solutions have had a transformative impact on industry as well as communities. TERI has fostered international collaboration on sustainability action by creating a



number of platforms and forums. Headquartered in New Delhi, TERI has regional centres and campuses in Gurugram, Bengaluru, Guwahati, Mumbai, Panaji, and Nainital. TERI's 1200-plus team of scientists, sociologists, economists and engineers delivers insightful, high quality action-oriented research and transformative solutions supported by state-of-the-art infrastructure.

### **Federation of Indian Chambers of Commerce and Industry (FICCI)**

Established in 1927, FICCI is the largest and oldest apex business organisation in India. Its history is closely interwoven with India's struggle for independence, its industrialization, and its emergence as one of the most rapidly growing global economies. A non-government, not-for-profit organisation, FICCI is the voice of India's business and industry. From influencing policy to encouraging debate, engaging with policy makers and civil society, FICCI articulates the views and concerns of industry. It serves its members from the Indian private and public corporate sectors and multinational companies, drawing its strength from diverse regional chambers of commerce and industry across states, reaching out to over 2,50,000 companies. FICCI provides a platform for networking and consensus building within and across sectors and is the first port of call for Indian industry, policy makers and the international business community. FICCI's vision is to be the thought leader for industry, its voice for policy change and its guardian for effective implementation.

### **Konrad-Adenauer-Stiftung (KAS)**

The Konrad-Adenauer-Stiftung (KAS) is a political foundation. Established in 1955 as "Society for Christian-Democratic Civic Education", in 1964 the Foundation proudly took on the name of Konrad Adenauer, the first Chancellor of the Federal Republic of Germany. With 16 regional offices in Germany and over 120 offices abroad, the Konrad Adenauer Foundation is committed to achieving and maintaining peace, freedom and justice through political education. We promote and preserve free democracy, social market economy, and the development and consolidation of the value consensus. We focus on consolidating democracy, the unification of Europe and the strengthening of transatlantic relations, as well as on development cooperation. The leitmotif of the Konrad Adenauer Foundation "Germany. The next chapter" is supported by a thematic focus. With the three main topics Innovation, Security and Representation and Participation, it is quite clear which topics the Konrad Adenauer Foundation will focus on in the coming years. We cooperate with governmental institutions, political parties and civil society organizations, building strong partnerships along the way. In particular, we seek to intensify political cooperation in the area of development cooperation on the foundations of our objectives and values. Together with our partners, we make a significant contribution to the creation of a global order that empowers every country to determine its own developmental priorities and destiny in an internationally responsible manner.

### **National Maritime Foundation (NMF)**

The National Maritime Foundation (NMF), New Delhi, was established in 2005 as the nation's first maritime think-tank for conducting independent and policy-relevant research on 'matters maritime'. It was inaugurated by the then Defence Minister of India Sh. Pranab Mukherjee, (later the President of India) on 15 February 2005. While it is an autonomous think-tank, its intellectual and organizational development is supported by the Ministry of Defence and the Indian Navy. Since its inception, the NMF has grown from a fledgling organization into an established intellectual institution with robust academic linkages within the country and overseas.

The genesis of the NMF lies in a long-felt need to redress India's historical neglect of its maritime domain and to fill an acute intellectual void, by providing a common platform for discourse between maritime related institutions, organizations and disciplines, country-wide. It was also envisaged that

the Foundation would provide an open forum for professional debate amongst the various stakeholders within India's maritime domain, while serving to heighten maritime awareness amongst India's policy-makers and intellectual elite, as also civil society at large.

**Madras Management Association (MMA)**

Madras Management Association (MMA) is a premier institution that connects businessmen, industrialists, students and academicians, and policy makers and innovators to propagate Management Movement in this part of the country. Millions have benefitted from our collaborative programs, flagship events, seminars and workshops. We crossed many milestones to spearhead the spirit of Management Thought in this part of the country. Today, we are one of India's foremost management associations, winning the Best Local Management Association award continuously for the past 11 years, including in 2019-20.