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Economic Advisory Council
to the Prime Minister
Government of India

INDIA'S BLUE ECONOMY

A DRAFT POLICY FRAMEWORK

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ECONOMIC ADVISORY COUNCIL TO THE PRIME MINISTER
GOVERNMENT OF INDIA
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List of Acronyms

ABNJ	Areas Beyond National Jurisdiction
AIS	Automatic Identification System
ASEAN	Association of Southeast Asian Nations
CBD	Convention of Biological Diversity
CCRF	Conduct for Responsible Fisheries
CEUs	Coastal Economic Units
CEZs	Coastal Economic Zones
CLCS	Commission on the Limits of the Continental Shelf
CMSP	Coastal and Marine Spatial Plans
COMAPS	Coastal Ocean Monitoring and Prediction System
EAC-PM	Economic Advisory Council to the Prime Minister
EAFM	Ecosystem Approach to Fisheries Management
EEZ	Exclusive Economic Zones
EIA	Environmental impact assessment
EPR	Extended Producer Responsibility
FDI	Foreign Direct Investment
FICCI	Federation of Indian Chambers of Commerce & Industry
FTA	Free Trade Agreement
INCOIS	Indian National Center for Information Services
IORA	Indian Ocean Rim Association
IMTA	Integrated Multitrophic Aquaculture
ISBA	International Seabed Authority
ISIC	International Standard Industrial Classification of All Economic Activities
IUU	Illegal, unreported and unregulated
LCoE	Levelized Cost of Electricity
LNG	Liquefied Natural Gas
LOC	Line of Credit
LDC	Least Developed Countries
FMR	Fishery Management Regions
MCs	Marine Clusters
MFRA	Marine Fishing Regulation Acts
MoES	Ministry of Earth Sciences
MOFPI	Ministry of Food Processing Industries
MoHUA	Ministry of Housing and Urban Affairs
MPEDA	Marine Products Export Development Authority
NAS	National Accounting System
NBEC	National Blue Economy Council
NBEF	National Blue Economy Fund
OECD	Organisation for Economic Co-operation and Development
QTL	Qualitative Trait Locus
RoFR	Right of First Refusal
SBM	Swachh Bharat Mission
SDG	Sustainable Development Goal
SNA	System of National Accounts
TERI	The Energy and Resource Institute
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
VHF	Very High Frequency
VMS	Vessel Monitoring System
VLCC	Very Large Crude Carriers
WWF	World Wildlife Fund
WTO	World Trade Organization

Foreword

1. The Economic Advisory Council to the Prime Minister (EAC-PM), in pursuance of the Honorable Prime Minister Narendra Modi's thrust on the Blue Economy, has taken up the initiative to evolve a policy approach to the Blue Economy. Given the gaps and involvement of several Ministries, Departments and Agencies working in this domain, there is an urgent need for a unified and coordinated effort to address issues because they have macro-economic implications.

2. It is my privilege to present a draft Policy for India's Blue Economy. This has been formulated after several rounds of multiple deliberations with relevant Ministries, think tanks and experts. The draft expresses both the strategy as well as the vision that can be adopted by the Government of India. This exercise can be the foundation to harness Blue resources to secure a better economic future for the people in a sustainable manner.

3. I thank the Chairpersons of the seven Working Groups under the Blue Economy initiative, the Conveners, Members and the associated Young Professionals for their efforts. Their support has been very significant. They have contributed to a series of comprehensive reports that take stock of the different dimensions of the Blue Economy. Each report identified existing and emerging challenges and made a set of robust recommendations to capture the huge potential and opportunities in each sector. I also commend the contribution of Dr. Sumita Misra, Senior Adviser, EAC-PM as the main convening officer who followed up and coordinated the completion of this complex exercise. I also thank the Members of the Steering Committee for their active participation during the deliberations.

4. I hope that this document will contribute meaningfully to the Blue Economy initiative of the Government of India.

Ratan P. Watal
Member Secretary
EAC-PM

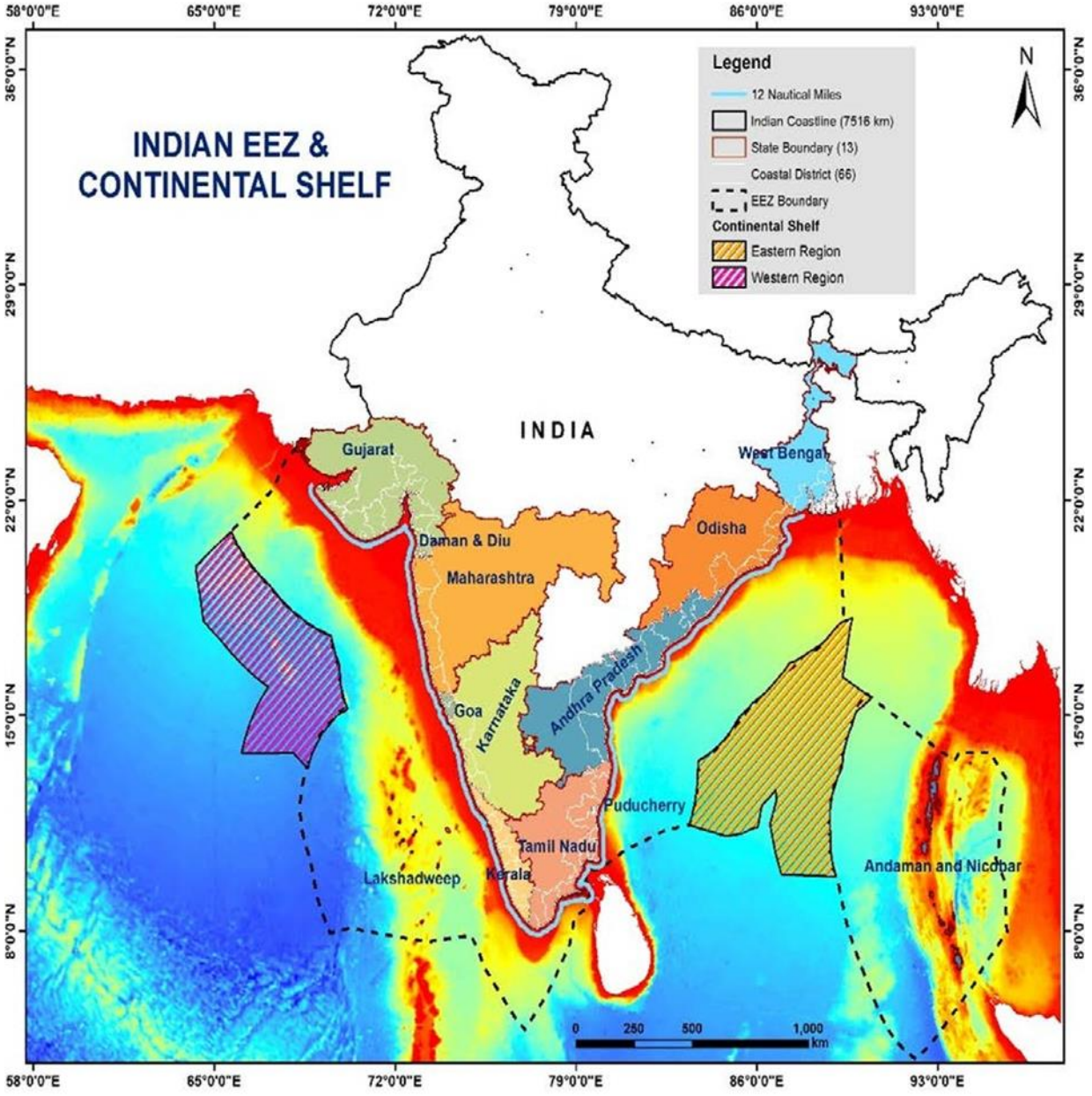
United Nations Sustainable Development Goal 14

"Conserve and sustainably use the oceans seas and marine resources for sustainable development"

"To me the Blue Chakra or wheel in India's national flag represents the potential of Blue Revolution or the Ocean Economy. That is how central the ocean economy is to us".

- Shri Narendra Modi
Prime Minister of India

INDIA & ITS TERRITORIAL WATERS



Source : Ministry of Earth Sciences, 2019

1. INDIA'S VISION OF THE BLUE ECONOMY

1.1 The economic philosophy of the Blue Economy was first introduced in 1994 by Professor Gunter Pauli at the United Nations University (UNU) to reflect the needs of future growth and prosperity, along with the threats posed by global warming. The concept was based on developing more sustainable models of development including concepts of engineering based on "no waste and no emissions". The Blue Economy assumed greater importance after the Third Earth Summit Conference - Rio+20 in 2012. The conference focused *inter alia* on expanding the concept of Green Economy to include the Blue Economy. The concept received a fillip when the United Nations' Sustainable Development Goal 14 sought to "conserve and sustainably use the oceans, seas and marine resources for sustainable development" as a guiding principle for global governance and use of ocean resources. Several member nations have now evolved their own definitions and paradigms of the Blue Economy. Globally, the Blue Economy was expected to grow at double the rate of the rest of the world economy according to pre-pandemic OECD estimates. It must be noted that value addition from the Blue Economy includes that from coastal manufacturing and services, maritime trade, shipping, offshore and coastal energy, deep sea minerals, aquaculture and fisheries, and marine-related technologies.

1.2 The world-over different national and global initiatives are being undertaken to harness the Blue Economy. Countries like Australia, Brazil, U.K., U.S., Russia, and Norway have developed dedicated national ocean policies with measurable outcomes and budgetary provisions. Countries like Canada and Australia have enacted legislation and established hierarchal institutions at federal and state levels to ensure progress and monitoring of Blue Economy targets.

1.3 India was among the first in the world to create a Department of Ocean Development in 1981, now the Ministry of Earth Sciences (MoES). Based on the experience of more than three decades, India has come a long way with the launch of new programmes such as "Deep Ocean Mission," "Oceanography from space" and "Launching of the data buoys" along the Indian coastline. These initiatives have enabled satellites to transmit data on various oceanographic features including weather for scientific analysis. MoES has joined the United Nations on the "Clean Seas Programme" to develop strategies for estimating and reducing Marine Litter/Plastic in the oceans, which is also a part of SDG-14. MoES has also signed two contracts with the International Seabed Authority (ISBA) for deep ocean exploration of minerals (Ploymetallic Nodules and Hydrothermal Sulphide) in the Indian Ocean. In order to reap the benefits of growth in these sectors, India must develop a sustainable policy for both upstream and downstream activities.

1.4 The Government of India's Vision of New India by 2030 enunciated in February 2019 highlighted the Blue Economy as one of the ten core dimensions of growth. The Blue Economy was mentioned as the sixth dimension of this vision stressing the need for a coherent policy integrating different sectors so as to improve the lives of the coastal communities and accelerate development and employment. Recently, Prime Minister in his 74th Independence Day Speech in 2020 highlighted that in the contemporary context a neighbour is not just the one with whom we share a physical border but also those with whom there is harmony in relations. Closer to home there is also the ongoing objective to connect our island territories to

submarine optical fiber cables to ensure high-speed broadband connectivity for the islands at par with services in the mainland. In this context India should recognize an important emerging economic and strategic axis that spreads from the East Coast of Africa to the Western Pacific Ocean, which can be called the Seychelles-Singapore-Samoa (SSS) axis. This axis should form the basis of a robust Blue Economy Policy for India.

1.5 India has a unique maritime position. Its 7517 km long coastline is home to nine coastal states and 1382 islands. The country has 12 major ports and 187 non-major ports, handling about 1400 million tons of cargo every year, as 95% of India's trade by volume transits by sea. India's Exclusive Economic Zone of over two million square kilometers is rich in living and non-living resources and holds significant recoverable resources of crude oil and of recoverable natural gas. The coastal economy also sustains over 4 million fishermen and other coastal communities. With these vast maritime interests, the Blue Economy in India has a vital relationship with the nation's economic growth

1.6 In recent years, there have been a series of initiatives for sustainable development in the maritime domain. These initiatives are catalysts to strengthen the growth of India's maritime interests and our Blue Economy. In the Post COVID-19 global scenario India is likely to witness significant growth in the marine sector by efficient and sustainable utilization of ocean resources.

1.7 India should strive for efficient and sustainable utilization of ocean resources and to integrate and Boost Ocean related capabilities, capacities and skills, with a view to accelerate employment and gross value addition, while safeguarding the environment and in harmony with the UN Sustainable Development Goals.

1.8 A clear agenda based on a transparent policy framework needs to be formulated to develop India's Blue Economy. The objective of this policy framework will be to enhance the country's GDP by promoting sustainable and inclusive economic growth in this new domain while aligning India's development agenda with national security goals and international commitments.

2. STAKEHOLDER CONSULTATIONS BY EAC-PM

2.1 The Ministry of Earth Sciences has been doing unique and significant work under its charter. However, in the contemporary context there is a need for a holistic and inter sectoral approach to address evolving issues in this important domain called the Blue Economy. Accordingly, with the aim of taking the Prime Minister's vision forward, the EAC-PM initiated inter-ministerial and stakeholder consultations to evolve a draft policy framework for India's Blue Economy.

Strategy and Approach

2.2 As a first step, a Plenary Group meeting was organized with all the relevant stakeholders in May 2018. Broad ideas regarding the nature and scope of the Blue Economy were discussed with the aim of evolving a common understanding on the subject. This was followed by the first meeting of the Steering Committee in August 2018 comprising of the Secretaries of relevant Ministries and domain experts. Following this meeting, seven priority areas were identified and Working Groups were constituted with the participation of senior officers of the relevant line Ministries, as well as select external experts from participating institutions. (Annex-I & II)

2.3 The committee members agreed to describe India's Blue Economy as an emerging concept comprising the entire eco-system of ocean resources including marine, maritime and the onshore coastal economic sub systems within India's legal jurisdiction which have close linkages with economic growth, environmental sustainability and national security. It was noted that an earlier Draft Policy on the Blue Economy was initiated by MoES in 2015, but was never finalized. The present report has built upon several ideas incorporated in that paper.

Definition of Blue Economy

2.4 Two aspects emerged regarding the Blue Economy during the discussions. First, that any conceptualization of the Blue Economy has to be multidimensional and inter-sectoral. Second, there is no universally agreed definition of the term Blue Economy. Therefore, it is critical that each country should define its parameters in its own context.

2.5 In the Indian context, the Blue Economy policy has to encompass many aspects. For instance, it must include all aspects of off-shore sovereignty. It must include economically valuable resources in water, as well as on and under the sea beds, onshore infrastructure like sea ports, maritime routes connected with domestic and international trade, and offshore energy resources, be they fossil-based or renewable. It must envisage new and emerging marine technologies and latest developments in science. It must look at production of goods and services from fisheries, marine manufacturing, shipping, and tourism that is connected with the sea and the oceans. Other equally significant aspects that require inclusion in this policy are ocean governance, maritime security, sustainability concerns and adherence to international treaties and commitments.

2.6 Keeping all these aspects in mind, India's Blue Economy can be defined as a subset of the national economy comprising of the entire system of ocean resources and man-made economic infrastructure in

marine, maritime and the onshore coastal zones within India's legal jurisdiction, which aid in the production of goods and services and have clear linkages with economic growth, environmental sustainability and national security.

Composition and Terms of Reference for Working Groups in Key Priority Areas

2.7 Seven Working Groups headed by eminent persons looked at key priority areas relevant for India.

The seven priority areas identified were:

Priority Area 1: National Accounting Framework for Blue Economy and Ocean Governance

Priority Area 2: Coastal Marine Spatial Planning and Tourism

Priority Area 3: Marine Fisheries, Aquaculture and Fish Processing.

Priority Area 4: Manufacturing, Emerging Industries, Trade, Technology, Services and Skill Development

Priority Area 5: Logistics, Infrastructure and Shipping (including transshipments)

Priority Area 6: Coastal and Deep-Sea Mining and Offshore Energy

Priority Area 7: Security, Strategic Dimensions and International Engagement

2.8 The working groups kept in view the following reference points while preparing their reports

- Overview of the sector/subject.
- Existing policies and regulations.
- The global scenario for the sector.
- Suggestions for short and medium term strategies.
- Assessment of challenges in each sector.
- Role of the government and the private sector.
- Policy recommendations.

2.9 Valuable inputs were taken from individual experts, representatives of various ministries of the government and external experts from institutions such as the Resource Information System for Developing Countries (RIS), the National Maritime Foundation (NMF), The Energy and Resource Institute (TERI), the Federation of Indian Chambers of Commerce & Industry (FICCI) and the Indian Ocean Rim Association (IORA).

2.10 The composition of the Steering Committee and of the Working Groups is provided at Annex I and II respectively. The key recommendations of the Working Groups are summarized in the following chapter.

3. KEY RECOMMENDATIONS OF THE WORKING GROUPS

The key recommendations of the seven working groups are set out in brief below. The full Working Group reports can be seen in the links at Annex-III.

(A) National Accounting Framework for Blue Economy and Ocean Governance

3.1 The size of the Blue Economy in India has conservatively been estimated to be about 4% of Gross Domestic Product. It is likely to be even higher if the methodology is improved. A new robust mechanism needs to be devised to collect data for estimating the Blue Economy in India. The first step should be to constitute an Expert Group to identify sectors and sub-sectors/ activities, which fall under the purview of the Blue Economy.

3.2 In this context, India needs to learn from global best practices. For this there is a need to establish active scientific collaborations with leading countries/institutions to develop suitable scientific tools and methodologies relevant to Blue Economy measurement and management.

3.3 In order to generate reliable data regarding the Blue Economy, the following recommendations were made:-

- Enlarge the 2008 National Industrial Classification to accommodate various untapped activities associated with the blue economy.
- Engage with all relevant ministries for the collection of data.
- Constitute or identify an official agency to secure relevant data at the dis-aggregated industry level.
- Intervene in the formative process of the UN International Standard Industrial Classification of All Economic Activities (ISIC) Revision 5.

3.4 It was recommended to commence periodical studies on specific sectors to assess the relative composition of different sub-sectors within the Blue Economy, with the objective of assessing the weights for different components within a broad sector related to the Blue Economy. These weights would be used to calculate the contribution of the sub-sectors in the Blue Economy.

3.5 While main streaming the Blue Economy in future estimates of national income and GDP, the need to estimate the possible damage that may be caused to the environment and the oceanic ecosystem on account of the exploitation of different ocean resources was also highlighted in this report.

(B) Coastal Marine Spatial Planning and Tourism

3.6 The Working Group deliberated upon two distinct subjects - Coastal Marine Spatial Planning and the potential and approach to tourism in the coastal and marine economy. Accordingly, the Group formed two sub groups and gave its recommendations on each which are discussed below.

Adopt and Adapt the UNESCO-IOC Guide

3.7 The Group felt that India needs to adapt the Coastal Marine Spatial Planning (CMSP) approach of the Intergovernmental Oceanographic Commission (IOC) - UNESCO (2009) guidelines, as has been done by many other marine-based economies that modified this guide to meet their local and national needs.

3.8 The Group stressed on the necessity of establishing a national level authority to define the scope and nature of CMSP. The national level body would be responsible for achieving integration between various sectors of Blue Economy, between local communities, private players and the government at all levels.

3.9 As a first step, this national authority will need to establish an Expert Group to set clearly defined goals and objectives of CMSP. Therefore, it was recommended that an Expert Group should be tasked to present a plan within a period of one year from date of its formation. Such a plan should be a dynamic one, and thus subject to review and revision every 4-5 years.

Mapping and Data Policy

3.10 Mapping of ocean resources is needed to develop a functional CMSP. India has made considerable progress in terms of mapping its coastal regions and EEZ. This sub group emphasized that all existing data and mapping policies should be streamlined and dovetailed with CMSP requirements under the suggested national level authority, covering the relevant coastal areas, offshore areas and the EEZ and Continental Shelf. Therefore, formulation of a new National Map and Data Policy was recommended balancing emerging requirements of data security and transparency.

Enhance Domestic Capacity and International Cooperation

3.11 The Group opined that India needs to proactively expand domestic human resource capacities needed for the implementation of the CMSP. This can be achieved by providing impetus to Blue Knowledge in higher educational institutions. International cooperation with global leaders in CMSP and Indian Ocean Rim Association (IORA) countries needs to be encouraged to adopt best practices and the transfer of technology.

Tourism and Development

3.12 The Group noted that while there is significant potential for tourism, it is imperative to curb uncontrolled and unplanned tourist activities that cause stress on the carrying capacity of coastal ecosystems, especially those in our fragile island territories. The principle of carrying capacity needs to be adhered to while developing coastal tourist destinations and marine activities. For man and nature to thrive, it is vital to link tourism with the Coastal Marine Spatial Planning (CMSP) under the effective oversight of the proposed national level authority.

Impact Assessment

3.13 To assess the impact of tourism, it is necessary to periodically initiate studies to map the tourist

arrivals, tourism infrastructure, major attractions/products in India's coastal areas and island territories and measure their impact on environmentally sensitive and ecologically fragile areas. This will enable evidence-based policy making. The sub group recommended that the Ministry of Tourism should initiate this exercise expeditiously in coordination with the Ministry of Environment, Forest and Climate Change (MoEF&CC) and the MoES, starting with the most ecologically vulnerable coastal areas.

Beach Benchmarking Standards

3.14 Since beaches are important tourist attractions, the Group emphasized that it is necessary to promote beach benchmarking standards using eco-labelling, sustainability procedures, and waste management systems, In accordance with the Blue Flag Standards. The MoEF&CC has already rolled out 'Blue Flag Certification' in 13 nominated pilot beaches across coastal States/UTs in India. The certification scheme aims to improve beach clean-up and sustainable development to attract more tourists and make beaches pollution-free. It is recommended that this exercise be pushed vigorously and be extended to other beaches which are under environmental threat from human activity.

Development of a Plastic Elimination and National Marine Litter Policy

3.15 The Group also noted that marine pollution has grown to be a major concern today globally, dominated by plastic waste. The United Nations has also called for the prevention and significant reduction in marine pollution of all kinds by 2025, particularly from land-based activities which are the main source of plastics and micro plastics. India is also committed to phase out single use plastics by 2022. The Plastic Waste Management Rules introduced in 2016 and further amended in 2018 provide the regulatory framework for management of plastic waste generated in the country.

The Group underlined that India needs a far more robust waste management strategy and effective extended producer responsibility in place to effect the behavioral changes needed to counter the rising ocean pollution. In this context, the development of a comprehensive Plastic Elimination and National Marine Litter Policy (PENMLP) becomes an imperative. MoEF&CC, MoES and Ministry of Housing and Urban Affairs (MoHUA) should accordingly take the lead in framing and completing the draft PENMLP within a period of one year. The MoES through National Centre for Coastal Research (NCCR), with its long-term data on Coastal Ocean Monitoring and Prediction System (COMAPS), should be closely involved in this exercise. Such a policy should aim at the phased elimination of plastic waste and other marine pollutants to meet the SDG 14.1 by 2025 by working in close coordination with state governments and local bodies.

(C) Marine Fisheries, Aquaculture and Fish Processing Sector

3.16 The Working Group examined all facets relating to fisheries development, management, processing, marketing and finance and made detailed recommendations which are summarized below.

Increasing Sustainable Marine Capture Fisheries

3.17 In order to increase the sustainability of marine fishing, this Group recommended the following actionable suggestions with clear objectives:

- Develop a new national policy for the marine capture fisheries sector, putting in place legal and institutional frameworks for the effective management of marine fisheries.
- Prevent significant adverse impacts on Vulnerable Marine Ecosystems (VMEs) to achieve Potential Yield Estimates (PYE).
- Explore the deployment of a dedicated satellite system for management and regulation of fisheries and allied activities.
- Ensure mandatory data input availability from primary stakeholders (fishermen) via log sheets; integration of marine resource survey data and commercial landings data.
- Assess commercially valuable stocks by a body designated by Department of Fisheries (DoF).
- Strengthen the Fisheries Survey of India (FSI) with state-of-art fisheries resource survey vessels.
- Strengthen Monitoring Control and Surveillance such as the Vessel Monitoring System (VMS) to track the movement of fishing vessels in order to know where and when the fish are caught, how, and by whom.
- Regulate fisheries practices and revisit fishing closure seasons
- Undertake patrolling in high seas and Areas Beyond National Jurisdiction (ABNJ).

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Enhancing Mariculture Production

3.18 Maricuture is a subset of aquaculture and is the farming of marine organisms in salt water for food and other products such as pharmaceuticals and Jewellery items like pearls. This is an important emerging subsector of the Blue Economy. In order to encourage sustainable mariculture production, the Group suggested the following steps:

- Form a new implementing agency which will be called the 'Mariculture Authority of India'.
- Develop a comprehensive National Mariculture Policy
- Develop and commercialize mariculture, including brood banks, nucleus breeding centers, hatcheries and nurseries and feed supply through approaches such as sea cage farming for finfish, bivalve farming, seaweed farming, Integrated Multitrophic Aquaculture (IMTA) and Recirculating Aquaculture System (RAS) and encouraging marine ornamental fisheries.
- Prevent aquatic diseases and create health management infrastructure by technological backstopping.
- Promote R&D for long term sustainable development of mariculture.

Monitoring, Assessment and Management of Ocean Health

3.19 Ocean health needs effective monitoring and management, for which the following steps were recommended:

- Use of technology to monitor, prevent and mitigate marine pollution, including from plastics and micro plastics.
- Encourage low carbon fisheries to improve water quality near coral reefs and put in place integrated tracking-map-based information systems to indicate closed and protected areas.
- Develop innovative technologies which will be critical for the restoration of the deteriorated

sensitive ecosystems like coral reefs, mangroves and wetlands.

Marine Biotechnology and Bio Prospecting

3.20 There is an urgent need to control marine bio-prospecting, an input into marine biotechnology. To do so, the following steps are necessary:

- Map the genetic biodiversity of the oceans and generate a germplasm inventory. This will facilitate well-informed decisions on the conservation of oceanic resources.
- Pursue interventions in mariculture by selective breeding, Qualitative Trait Loci (QTL) analysis, trait manipulation etc. to enhance productivity of mariculture activities.
- Create a separate National level institution for "Marine Biotechnology" that focuses on the non-food sector for generation of new technologies to tap the immense potential for commercialization.

Marketing and Financial Inclusion for Marine Fishery

3.21 In order to improve the marketing of marine products and ensure financial inclusion of the communities involved, it is necessary to:

- Reform fish auctioning by introducing IT based automated/ electronic auctioning systems. The latest developments in secure block chain technology need to be explored in this regard.
- Enhance end-to-end traceability of fish consignments by installing computerized bar-coding, systems for forward and backward tracking of consignments and alert mechanisms.
- Introduce a Market Intervention Scheme (MIS) in marine fisheries to insulate fishermen and fish vendors against extreme price fluctuations.
- Earmark 10% of the total priority sector lending for fishermen. The funding needs of the fish processing industry should be addressed outside the purview of the priority sector lending.
- Evaluate interest subvention and credit subsidy programmes to encourage sustainable fishing and fish marketing practices.
- Introduce financial incentives to attract technology and investment in deep sea fishing and value chain development.
- Develop innovative insurance products to cover multiple risks faced by the fishermen, including loss of life, loss of craft and gear, other assets or means of livelihood.
- Popularize micro-insurance among fisher folk by involving Self Help Groups (SHGs) Micro Finance Institutions.

Legal and Regulatory Reforms

3.22 The Group felt that there are several legal and regulatory measures that need to be taken to facilitate many of the actionable points given above. These are given below.

- Ensure management and regulation of fisheries and fisheries related activities for sustainable use of resources beyond territorial waters by enacting a comprehensive central legislation by

expanding and revising the scope of the Marine Fishing Regulation Act (MFRA).

- Establish Fishery Management Regions (FMRs) and an Ecosystem Approach to Fisheries Management (EAFM).
- Aim to increase the Marine Conservation Areas to meet India's commitments to the SDG 14 goal of increasing the areas of conservation to 10%.
- Introduce a comprehensive central legislation for management of aquatic diseases and health along with quarantine and certification services.

Harvest, Post-Harvest Processing

3.23 The Group recommended that in order to improve harvest and post-harvest processing, it will be necessary to:

- Adopt a Code of Conduct for Responsible Fisheries (CCRF).
- Upgrade fishing fleets to match the behavioral responses of targeted species.
- Enable capital intensity in infrastructure development as per international standards, especially modern landing facilities, refrigeration and centralized vending centers to minimize post- harvest losses.
- Ensure quality control in value chains from harvest to delivery.
- Dovetail ongoing and future schemes of Department of Fisheries with Ministry of Food Processing Industries (MoFPI) and Ministry of Shipping schemes on cold chain development and modernization of fishing harbors.
- Introduce a cluster-based approach for the development of post-harvest and processing infrastructure.

(D) Manufacturing, Emerging Industries, Trade, Technology, Services and Skill Development

3.24 This Group looked at a wide range of interconnected economic development issues. The Group felt that the "Blue" aspect of manufacturing, trade, technology services and skills has to be identified carefully but should remain integrated with the larger interconnections within the national economy. Some of the key recommendations are given below.

Capital Infusion

3.25 The Group felt that the regulations to enhance Ease of Doing Business (EODB) and the flow of private investment while applying time-tested paradigms of public-private-partnerships should be also geared to Blue Economy investments specially where mobilization of FDI is involved.

The Group suggested creation of coordination mechanisms between Municipalities/Panchayats, Coastal State Governments and the Union Government to enable investments in Blue Economy sectors and to put in place appropriate monetary and non-monetary incentives for high-employment generation sectors.

Promoting Manufacturing in MSMEs

3.26 The MSME sector can play a catalytic role in unlocking the potential for growth in blue manufacturing by augmenting product value addition, wage employment and income generation. Therefore, the Group stressed that it is vital to develop manufacturing in MSMEs relating to the Blue Economy in coastal areas by using existing schemes to access finance.

Constitution of Expert Group

3.27 In order to achieve the convergence and synergies between various sectors related to Blue Trade and Blue Manufacturing the Group recommended the constitution of a task force or expert group with relevant industry participation to examine the issues involved. Deep-sea capture fishing, hatcheries, aquaria products, and processed fish products are part of Blue Trade. Biotechnological products from biopharma, food additives, cosmetics and biofuel, offshore petroleum and gas from shallow water will also be very significant in the future.

Sector Specific Policies

3.28 It was felt that activity specific policy initiatives in building of merchant and military ships, boats, dredging equipment, fishing ships/boats, trawler, spare parts and repair services are needed. Shipbreaking, sea cabling and its servicing, ice-making, rope, net, gear, marine equipment, etc. can be important avenues for manufacturing firms to tap into. To overcome the constraints related to market access for Blue Trade products, technology based solutions need to be evolved. Innovations, technology, product development and product quality would pave the way for rapid expansion in Blue Trade.

Blue Economy Focus

3.29 The Group recommended to include a separate chapter on Blue Industry in the industrial policies of Government of India and State Governments. Further, it was proposed that a separate chapter on Blue Trade should be included in the Export-Import policy.

R&D and Innovation

3.30 The setting up R&D Hubs in the nine coastal states to promote use of Artificial Intelligence (AI) and other new technologies in marine sectors such as deep-sea mining, marine logistics and shipping will further catalyze development of the Blue Economy.

Human Resource Planning

3.31 The Group proposed to classify human resource requirements into six categories - operative grades, administration, skilled trades, associate professional & technical, professional, and management and accordingly

- Offer Blue Economy related educational programs on various technical and managerial skills in universities and engineering/technical institutes of the coastal states.
- Give on-the-job industrial training at the Industrial Training Institutes (ITIs) for existing workforce and devise awareness programs to sensitize youth about Blue Economy jobs with state level chambers of commerce and industry.

(E) Logistics, Infrastructure and Shipping (Including Transshipments)

3.32 The Working Group studied the entire spectrum of shipping and port infrastructure and logistics sectors along with issues pertaining to the maritime domain. The major recommendations have been summarized below.

Shipbuilding

3.33 Government should formulate a 30-year holistic shipbuilding plan to be implemented across existing and future greenfield indigenous shipyards under the Atmanirbhar initiative to give a boost to shipping and shipbuilding sector.

Ships should be designed and built to Energy Efficient Design Index Standards under the following categories:

- Very Large Crude Carriers (VLCC), Liquefied Natural Gas (LNG) Carriers, Container Carriers,
- Cruise ships, Ro-Ro ships,
- Medium size ships for coastal shipping,
- Dredgers, yard craft,
- Deep Sea Fishing Vessels,
- Research ships,
- Solar powered fishing boats, and
- Electric driven passenger ferries operating in inland waterways.

Sagarmala & Maritime Clusters

3.34 Sagarmala will be a key to comprehensive port led coastal development. To promote port-led industrialization, the Govt. has identified 12 major ports and 14 Coastal Employment Zones (CEZs) as part of the National Perspective Plan under the Sagarmala program. Each CEZ comprises Coastal Economic Units (CEUs), with single or multiple industrial clusters where there will be manufacturing units.

The Group recommended that similar port led maritime clusters should also be built with government support on the West and East coasts with shipbuilding industry as the nucleus of the maritime clusters and supporting skill development centers for the coastal communities. This will promote ancillary manufacturing under MSMEs and services activities and employment generation. Enhanced focus and funding for the Sagarmala scheme was also recommended by the Group.

Establishment of a Maritime Development Fund

3.35 The Group recommended the establishment of a Maritime Development Fund with fund mobilization from stakeholders in Public Private Partnership ventures. Such a Maritime Development Fund would comprise sub-funds catering to requirements of following sub sectors:-

- Shipbuilding, ship repair and ship recycling
- Maritime infrastructure
- Port equipment and services
- Cruise terminals and Marinas
- Technology development to cater for industry in the maritime sector.

Enhancing Logistics & Connectivity

3.36 The Group stressed that development of road, rail and inland waterways infrastructure as last mile connectivity for ports is extremely important to achieve efficiency in logistics, time and costs. Accordingly, the following recommendations were highlighted:-

- Adopt the concept of hub and spoke for gateway and feed exports.
- Build warehousing, freight aggregation and cargo consolidation infrastructure for efficient catchment.
- Implement a cost-effective national multimodal network integrated on a digital grid to reduce logistics and transportation costs.
- Coordinate and integrate the monitoring process of infrastructure projects under implementation, including Sagarmala, Industrial Corridors, Coastal Economic Zones, Dedicated Freight Corridors, Bharatmala etc. This will ensure complementarity in various projects so as to develop overall national maritime infrastructure capacity.
- Develop multi-modal logistics parks and create value-added services (packaging, tagging, crating) in a single location.

Development of Transhipment Hubs

3.37 A focus on the development of an entire eco-system for trans-shipment hubs, with provision of competitively priced services, bunkering facilities and standardization of procedures emanating from customs regulations was recommended. The issue pertaining to taxation also needs hormonisation.

Sustainable Port Development

3.38 To ensure sustainable development of the coastal areas, both the ports as well as the shipping traffic therein should be made fully compliant with current environmental regulations. The use of renewable energy, water conservation, modern waste management and energy efficiency should also form critical components of the sustainable development model. A zero waste and circular economy approach was recommended to be adopted and implemented.

National Maritime Policy and Apex Body

3.39 The extremely complex and strategic maritime sector has multiple stakeholders with conflicting interests. Therefore, a National Maritime Policy for integration and coordination within and between various stakeholders in central and state governments for more effective management of maritime regions, resources, economy, ecology and security is a necessity.

Currently there is no overarching national authority that coordinates and integrates maritime initiatives and programmes of the Ministries and states and creates 'common cause' with all stakeholders. There is therefore, an urgent need to institutionalize maritime affairs in an organized manner that maximizes the potential of the Blue Economy. Such an organization should be at the Apex Level in Government drawing various stakeholders on a single platform to debate, discuss and balance conflicting interests, prevent duplication of efforts and optimize utilization of maritime resources for the sustainable development of India's Blue Economy.

(F) Coastal and Deep-Sea Mining and Energy

3.40 The Group deliberated upon the possibilities of value extraction through the mineral and metal resources present in the oceans and generation of renewable energy through offshore wind, waves, tidal and geo-thermal sources. It also examined the areas for future scientific research and development. The key recommendations are discussed below.

Technology Development for Exploration & Mining

3.41 For scientific exploration of the oceans, substantial investments in engineering and technology need to be prioritized along with deployment of human resources. The technologies related to developing deep ocean mining, deep ocean platforms, drilling rigs, pipeline network, launching and recovering systems, power sources, navigation and guidance, positioning system, etc. are critical and should be prioritized. The development of manned submersibles is a major requirement before mining is commenced and undertaking a manned submersible mission by 2023 is recommended.

Mission Offshore Wind Energy

3.42 In order to develop viable offshore wind energy projects, it is recommended that various national institutions should be bought on a common platform through a Mission Mode project under the Ministry of New & Renewable Energy, Government of India. For example, the Institute of Engineering and Ocean Technology (IEOT) of Oil and Natural Gas Corporation at Panvel, Maharashtra, in association with IIT Madras, National Institute of Ocean Technology (NIOT)and National Institute of Wind Energy(NIWE) and other national research institutions can contribute in various areas of structural engineering and designing of facilities for offshore wind farms. The Mission can also explore suitable international partnerships while optimizing indigenization under Atmanirbhar Bharat.

National Placer Mission

3.43 A placer deposit or placer is an accumulation of valuable minerals formed by gravity separation from a specific source rock during sedimentary processes. India is rich in coastal and offshore Placer minerals including strategic ones such as nickel, uranium, copper, thorium, titanium, poly metallic sulphides, poly metallic manganese nodules, coastal ilmenite, garnet and zircon among others.

There is a need to put in place a National Placer Mission to give the requisite thrust to R&D, to create classification and flow sheets etc. for workable deposits and data base of onshore and offshore placers, value-added products, skill maps, develop indigenous mining technologies including equipment manufacturing.

Suitable policies for issuing the prospecting and mining licenses (PLs & MLs) in a timely manner, assessing environmental impact and audit would also need to be fine-tuned. The current provisions under Coastal Zone Regulation Act do not permit mining of placers, except of atomic minerals and should be appropriately revisited.

Financial and Human Resources

3.44 For India to emerge as a leader in future oriented areas like ocean energy or ocean mining accelerated investments in R&D, building necessary infrastructures, research vessels and technology development is required.

Further, a pool of human resource personnel-scientists, engineers and other scientific personnel needs to be built up and engaged on priority. This human resource requirement will increase with India's growing capabilities regarding the Blue Economy and requires medium and long-term planning at the higher technical education levels.

Exploration Rights for Cobalt

3.45 The Group recommended that India needs to assume a lead role in exploration of cobalt-rich Seamount Ferro Manganese Crust (SFMC) in the Indian Ocean as it is necessary that potential areas be identified and exploration rights are obtained in the Indian Ocean at the earliest.

Indian Representation in the Commission on the Limits of the Continental Shelf (CLCS)

3.46 Almost ten years have elapsed since India made its first partial submission to the Commission on the Limits of the Continental Shelf (CLCS). The Group recommended that a new presentation including recently available additional information should be made. It also recommended to make a fresh presentation to the new Commission as the Opening Statement made by the Head of the Delegation is the very foundation of the claim. Accordingly, a presentation was made in 2019 before the sub-commission constituted to examine India's submission in western offshore region. The Indian submission is under active consideration of the Commission.

The present Commission will hold office till 2022. It is for the first time since the Commission was established in 1997, that India is not represented in the Commission. India has contributed significantly to

the work of Commission and it is important that we continue to share our expertise and add value to the work. The next election will be in 2022 and the Group strongly recommended that India should have an expert elected to the Commission.

Further, India is yet to make its claim in the Bay of Bengal Fan. Sri Lanka has already made its claims under the Statement of Understanding and its claims are under consideration. In order to avoid any possible adverse effect, it is imperative that India makes its submission concerning the Bay of Bengal without any further delay and provides a strong presentation to CLCS.

Protecting Marine Biodiversity

3.47 With respect to marine organisms and related issues of biological diversity, the provisions of the Convention of Biological Diversity (CBD), 1993 need to be taken into account. In areas within national jurisdiction, The United National General Assembly (UNGA) has decided to develop an internationally legally binding instrument on conservation and sustainable use of marine biological resources in areas beyond national jurisdiction (in short called 'BBNJ'), under UNCLOS. It is suggested that India examine the same and enhance its participation in BBNJ keeping in mind its own national concerns on development and sustainability.

Protection of Marine Environment and Creating Natural Marine Resources Database

3.48 Activities related to marine minerals, such as prospecting, exploration and exploitation need to address the protection of marine organisms. Currently, exploitation regulations are being discussed in the International Seabed Authority (ISBA) and it is likely take a few years before finalization, depending on which India would evolve its own stand.

However, it is crucial at this juncture to carry out an inventory of our marine resources – both living and non-living. Therefore, it is proposed that a National Marine Resources Database including sea bed resources mapping be developed expeditiously.

(G) Security, Strategic Dimensions and International Engagements

3.49 The strategic, security and geo-political dimensions of the Blue Economy both globally and specially in the context of our maritime neighborhood were studied by the Group and the salient recommendations are highlighted below.

Need for Apex and Multitier Planning Body

3.50 The Group recommended to set up a multi-sectorial and well integrated high level institutional mechanism for policy formulation, implementation and monitoring of various aspects of Blue Economy (BE) to ensure greater synergy between sectors and higher budgetary allocations. The establishing of subordinate mechanisms at the level of various partner ministries, state governments and other similar bodies for monitoring implementation of BE initiatives was also recommended. This would encourage convergence of appropriate policy and operational measures at all relevant levels.

Maritime Domain Awareness

3.51 The Group stressed that developing a three-dimensional marine domain awareness would be a vital part of the approach. This would include integrating national geo-intelligence framework and space applications, which could also be put to greater use for marine spatial planning. The importance of continuous review, adaptation and enhancement of maritime security capabilities and infrastructure for threat mitigation and avoidance along with regional and international cooperation was emphasized.

International Cooperation

3.52 It was felt that India should carefully identify international partners with common interests, proven capabilities and know-how in the Blue Economy for technology sharing, adaptation and transfer which will have long lasting benefits. In this context, India should recognize an important emerging economic and strategic axis that spreads from the East Coast of Africa to the Western Pacific Ocean, which can be called the Seychelles-Singapore-Samoa (SSS) axis.

India, in turn, should share its own capabilities with other maritime partners and neighbors for enhanced goodwill and inter-dependence. This includes using development partnership assistance for implementing blue projects in the maritime neighborhood. A comprehensive plan to understand the requirements of our maritime neighbors and offer focused assistance for their capacity development through supply of hardware, training, joint operations, data gathering/sharing for better marine domain awareness, and disaster relief should be evolved.

It was recommended that the government should initiate development of an effective plan of action for raising financing for blue growth, including closer coordination with multilateral and global financial institutions to expand our access to funding through green and blue bond markets.

Blue Diplomacy

3.53 The Group highlighted that it is important to develop a well calibrated approach towards the evolving global legal framework for ocean governance and to prepare a properly qualified and trained pool of negotiators for adequately defending Indian interests in the long run. Accordingly, for achieving this, suitable courses at relevant educational and training institutions should be introduced along with imparting the highest level of training and skill upgradation to officials currently connected with these processes.

4. THE WAY FORWARD - A DRAFT POLICY FRAMEWORK FOR INDIA'S BLUE ECONOMY

Introduction

4.1 India has a unique maritime position. Its 7517 km long coastline is home to nine coastal states and 1382 islands. The country has 12 major ports and 187 non-major ports which handled about 633.87 million tons of cargo in the year 2019. 95% of India's trade by volume transits by sea. India's Exclusive Economic Zone of over two million square kilometers is rich in living and non-living resources and holds significant recoverable resources of crude oil and recoverable natural gas. It can potentially enhance value addition in coastal manufacturing and services, in trade, in shipping, in deep sea minerals, aquaculture and fisheries and marine-related technologies. The coastal economy also sustains over 40 lakhs fishermen and other significant populations of coastal communities.

4.2 These vast maritime interests of India, therefore, have a vital relationship with the nation's economic growth and national security. India's Blue Economy is a subset of the national economy comprising of the entire system of ocean resources and man-made economic infrastructure in marine, maritime and the onshore coastal zones within India's legal jurisdiction which aid in the production of goods and services and have clear linkages with economic growth, environmental sustainability and national security.

In order to reap the benefits of India's Blue Economy, the following draft policy framework is proposed after analyzing the rich inputs given in the detailed sub-group reports.

Global Status

4.3 The economic philosophy of the Blue Economy was first introduced in 1994 by Professor Gunter Pauli at the United Nations University (UNU) to reflect the needs of future growth and prosperity, along with the threats posed by global warming. Thereafter, the Blue Economy assumed greater importance after the Third Earth Summit Conference - Rio+20 in 2012. The conference focused on expanding the concept of Green Economy to the Blue Economy. The United Nations' Sustainable Development Goal 14 sought to "conserve and sustainably use the oceans, seas and marine resources for sustainable development" as a guiding principle for global governance and use of ocean resources. Several member nations have evolved their own definitions and paradigms of the Blue Economy.

4.4 The world-over different national and global initiatives are being undertaken to harness the Blue Economy. Countries like Australia, Brazil, U.K., U.S., Russia, and Norway have developed dedicated national ocean policies with measurable outcomes and budgetary provisions. Countries like Canada and Australia have enacted legislation and established hierarchal institutions at federal and state levels to ensure progress and monitoring of Blue Economy targets.

4.5 India was among the first in the world to create a Department of Ocean Development in 1981. Based on the experience of more than three decades, India has come a long way with the launch of new programmes such as "Deep Ocean Mission," "Oceanography from space" and "Launching of the data buoys" along the Indian coastline. The successor Ministry of Earth Sciences (MoES) has joined United

Nations on the "Clean Seas Programme" to develop strategies for estimating and reducing Marine Litter/Plastic in the oceans, which is also a part of SDG-14. India also has exclusive rights of exploration in 75000 square kilometers in area and 10000 square kilometer area for polymetallic nodules and polymetallic sulphides in the international water of the Indian Ocean.

Vision

4.6 The Government of India's Vision of New India by 2030 enunciated in February 2019 highlighted the Blue Economy as one of the ten core dimensions of economic growth. The Blue Economy was mentioned as the sixth dimension of this Vision stressing the need for a coherent policy. An earlier Draft Policy on the Blue Economy was initiated by the Ministry of Earth Sciences (MoES) in 2015 but was never finalized. This policy framework has built upon several ideas incorporated in that policy paper.

4.7 India's approach to harness the Blue Economy's socio-economic potential should focus on: -

- A framework for proper measurement of Blue Economy activities and their contribution to the national income;
- Spatially oriented planning along with scientific assessment of Ocean resources and their - sustainable use
- Investment in financial capital, physical capital, natural capital and human capital to harness the potential of the Blue Economy and optimize GDP and employment growth;
- Ensuring welfare, safety and livelihood of fishermen in the coastal areas
- Innovation to ensure zero waste, low carbon technologies that yield economic dividend for large sections of the population,
- Ocean security measures and balanced international engagements.

Title and Enforcement

4.8 This Draft Policy could be called the "National Policy for India's Blue Economy - 2020". The Government of India should evaluate, analyze, review and change this draft policy as it deems fit. For the purpose of this chapter, it will be referred to as the "Policy". The Ministry of Earth Sciences will be the Nodal Ministry for the administration of the Policy

Objectives & Approach

4.9 The final Policy as and when approved will be the primary policy and decision-making document for matters relating to India's Blue Economy.

The essential components of the Policy will cover the following subjects in its ambit.

(A) A National Accounting Framework for the Blue Economy

4.10 A new robust mechanism to generate and collect reliable data pertaining to the Blue Economy would be developed. Periodical studies on specific sectors of the Blue Economy to assess the composition, growth and trajectory would be undertaken.

4.11 An Expert Group would be constituted to identify the sectors and sub sectors relating to the Blue Economy and to evolve a framework for measurement. The existing industrial classification protocols and weightage assignment would be re-visited to this end. Scientific collaborations with leading countries/institutions for developing scientific tools and technologies relevant to blue economy measurement and management will be pursued.

(B) An Environmentally Sustainable National Coastal Marine Spatial Planning Framework

4.12 Scientific and accurate mapping of India's coastal zones will lead to integrated coastal and marine Spatial plans. India would adopt and adapt the UNESCO-IOC guide. An Expert Group would be constituted to suggest modifications required for our national and local needs. This would require close coordination between the Ministries of Earth Sciences and Environment, Forests & Climate Change and other related departments/institutions. The CMSP would form the basis for the future development of the Blue Economy in India's EEZ including India's islands territories and in terms of planning ecotourism in island areas and increasing the number of Blue Flag beaches . Since CMSP is based upon availability of data to a wider user base, a new National Map and Data Policy will be formulated balancing the interests of data security, transparency and accessibility.

4.13 The growing menace of marine pollution specially from plastics and micro-plastics will be addressed by a robust Plastic Elimination and National Marine Litter policy involving Ministries of Environment, Earth Sciences and Urban Development, state and local governments and coastal communities in a time bound manner. The National Coastal Mission, being proposed by Ministry of Environment and Forests and Climate Change will be integrated with the Blue Economy activities. Also the implementation of Sustainable Development Goal (SDG-14) will be a part of Blue Economy Policy.

(C) A Vision to Develop Marine Fisheries, Aquaculture and Fish Processing.

4.14 In the last five years, the fisheries sector has shown the highest growth within the agriculture and allied sectors. The Blue Revolution would be further expanded by promoting aqua culture, cage culture, seaweed and algae harvesting and sustainable marine capture by adopting an eco-system approach to fisheries management. Extensive use of technology, tele-communication, digital and remote sensing applications would be mainstreamed in all aspects of fisheries and ocean management. However, emphasis will be given for sustainable use of fishery resources in the coming years.

4.15 The lives and livelihoods of fishermen will be protected and enhanced with the last mile communication connectivity, financial inclusion, upgraded post-harvest management and marketing interventions. Mariculture such as production of algae will be promoted by enunciating a comprehensive National Mariculture Policy. The potential of marine bio-technology with focus on the non-food sector of

fishery resources will be harnessed. Setting up a national level "Institute for Marine Biotechnology" focusing on non-food sector for generation of new technologies to tap the immense potential for commercialization would be expedited. Suitable steps including legislation, if required, will be taken for comprehensive management and regulation of marine fisheries and for management of aquatic diseases and ocean health.

(D) A Vision to Enhance Domestic Manufacturing, Emerging Industries, Trade, Tourism, Technology, Services and Skill Development connected with the Blue Economy

4.16 There is a vast potential for economic growth and employment through development of ports with improved logistics, fisheries, ship building and coastal and cruise tourism (including island tourism and development). A quantum and qualitative boost to all of these would be given by suitable schematic initiatives and by encouraging the private sector to invest in new business opportunities. The new and emerging areas such as marine biotechnology, deep sea mining and ocean energy will be promoted. Innovative financing and business models will be explored for these emerging sectors since they are capital intensive.

4.17 R&D and innovation hold the key to efficiency gains and leadership by India for which R&D hubs with forward and backward linkages between scientific institutions and industry would be created in the coastal states. Blue Trade and Blue Manufacturing will be pursued to maximize employment generation and export potential for which suitable skilling courses and conducive regulatory regimes will be devised. Environmental impact assessment studies would be carried out periodically in environmentally sensitive tourist areas so as to limit infrastructure and footfalls to 'carrying capacity' of the ecosystem.

(E) An Integrated Plan for developing Logistics, Infrastructure and Shipping (including transshipments)

4.18 Marine clusters that are pivotal for port led development as already conceptualized in the Sagarmala programme would be given impetus through enhanced focus and funding. The ship building industry in India would be promoted and modernized with a 30-year plan with a thrust on Make in India and Atmanirbhar Bharat.

4.19 A holistic approach to enhance logistics and connectivity will be taken so as to further improve the ease of doing business and efficiency including the harmonization of tax regimes. A National Master Plan for a Multi Modal Network and Digital Grid to reduce logistics costs will be launched. Telecommunications and digital infrastructure would be strengthened for coastal and island areas. A National Maritime Policy would also be enunciated for integrated planning of the complex and strategic maritime sector.

(F) A Framework for Coastal and Deep-Sea Mining, New and Renewable Offshore Energy and Research & Development

4.20 The oceans hold tremendous potential to provide renewable energy, hydrocarbons, precious minerals and metals. Several contracts have been awarded for exploration of hydrocarbons in the EEZ and in this regard, there is need for inter-ministerial coordination for issue of clearances, data sharing etc. Investments will be prioritized with appropriate financial outlays as well as deployment of human resources to carry out research and develop technologies. The scientific collaborations between domestic institutions as well as international ones would be integrated and strengthened. It is envisaged to launch a National Placer Mission to explore workable deposits and evolve a roadmap for their extraction. India will also take a lead role in exploration of cobalt rich Sea Mount Ferro Manganese Crust (SFMC) in the Indian Ocean. Suitable policies for prospecting and mining along with environmental impact audit would also be evolved. India is committed to explore the EEZ by 2023 and, to this end, the launch of a manned submersible vehicle going to the deepest ocean levels, in collaboration, if necessary, with other partners is envisaged. India's pool of technical and scientific personnel would be further strengthened with curriculum focus on Blue Economy and Blue Research in higher technical education. India should continue to carry exploration activities in international waters in the areas allotted for minerals.

4.21 An inventory of our marine resources both living and non-living and including seabed resources is proposed to be undertaken so that a National Marine Resources Database is created expeditiously.

(G) An Integrated Framework for Ocean Security, Strategic Dimensions and International Engagements

4.22 India will engage holistically with all relevant international parties and platforms to further blue growth, protect marine bio-diversity and safeguard its strategic interests. India acknowledges an important emerging economic and strategic axis that spreads from the East Coast of Africa to the Western Pacific Ocean, which can be called the Seychelles-Singapore-Samoa (SSS) axis.

4.23 A well calibrated approach would be taken to ensure that India continues to contribute significantly to the work of Commission of the Limits of the Continental Shelf (CLCS), International Seabed Authority (ISBA), International Tribunal on Law of the Sea (ITLOS) set up under the United Nations Convention on the Law of the Sea (UNCLOS),and other important negotiations such as Biological Biodiversity Beyond National Jurisdictions(BBNJ) etc and other multilateral fora viz. Intergovernmental Oceanographic Commission of UNESCO. Strong presence in these bodies is therefore imperative. Marine domain awareness would be strengthened along with international partnerships with key partner countries. India will continue to work for a safe Indian Ocean as envisaged in the Security and Growth for All in the Region (SAGAR) in 2015 that will deepen Blue Economy partnerships with maritime neighbors. A medium-term plan highlighting the needs of various maritime neighbors would be drawn up so that development assistance is targeted and in line with mutual priorities. Another area where India will engage is in the ongoing trade negotiations on Fisheries Subsidies at the WTO.

4.24 Multilayer surveillance and security in the Indian Ocean would be enhanced specially through domestic manufacturing and procurement. Coastal and marine security would also be strengthened for which a comprehensive plan will be formulated and implemented in partnership with the states.

(H) Ocean Governance

4.25 All the constituent aspects of the Policy rest upon a cohesive ocean governance framework that ensures coordination, communication and clarity between multiple stakeholders and multiple levels of administrative authorities and coastal communities. There is a need to take forward and operationalize the draft policy in a coherent manner. This will avoid work in silos, duplication of efforts and will achieve policy harmony. Accordingly, an Apex body called the National Blue Economy Council (NBEC) is proposed to be set up so as to bring all the existing expertise and schemes under one oversight agency for holistic planning and implementation.

Blue Economy Governance Framework

4.26 It is proposed that the National Blue Economy Council be embedded, bringing together all relevant stakeholders. The NBEC framework proposes to include, while keeping in view the principal of consistency, all other authorities, sectoral frameworks and policies in force relating to the subjects mentioned above. This would result in an integrated approach while addressing interconnected issues and optimal use of financial resources. This Council would facilitate in the following tasks:-

i) Overall evaluation and monitoring of the Blue Economy schemes, projects and targets for timely implementation.
ii) Provide guidelines/directives for promoting the objectives of the Policy.
iii) Provide guidelines/directives to the Ministries/Departments in development of international cooperation, capacity building in Blue Economy.
iv) Provide guidance/directives towards tariff setting, fisheries subsidy negotiations, and regulatory issues, wherever required.

Further, India does not have a specific organizational framework or complete/comprehensive regulations relating to granting of permissions, leasing, evaluation and monitoring of offshore activities such as exploration, transport, storage, etc. Some ministries like MNRE have attempted to do this. Therefore, there is an urgent need to evolve a seamless governance structure for the environmental management of all ocean resource-minerals, deep sea fishery resources, offshore energy development etc. in India. This will enable coordination across ministries and state governments and take into consideration international experiences with different regulatory and governance approaches. This would be an important responsibility of the proposed NBEC.

4.27 This body would be the Apex body that would integrate planning process between various stakeholders in the Central, State and local Governments. It would also include representatives from industry, research organizations and policy advocacy groups.

The Council members could be the Ministers of Earth Sciences, External Affairs, Environment, Forests & Climate Change, New & Renewable Energy, Mines, Petroleum and Natural Gas, Fisheries, Science & Technology, Tourism, Defence, Commerce, Shipping, Finance and NSA. Further, the Chief Ministers of coastal States would also be members along with Vice Chairman of NITI Aayog. The Presidents of FICCI, ASSOCHAM and CII could also be invitees and the Secretary, Ministry of Earth Sciences could be the Member-Secretary.

The Council would be required to meet at least once a year to discuss key issues, approve plans and strategies as well as review achievements.

4.28 The implementation of the various action points would require an Executive Committee that would be responsible for undertaking planning, co-ordination and oversight of projects being executed by Ministries and State governments. Accordingly, the Council would operate through its Executive Committee which may be chaired by the Minister, MoES with CEO of NITI Aayog as Vice Chair and Secretary, Ministry of Earth Sciences as Member-Secretary. The Secretaries of Ministries of Finance (Department of Expenditure), External Affairs, New & Renewable Energy, Environment, Forests & Climate Change, Petroleum & Natural Gas, Fisheries, Science & Technology, Tourism, Defence, Shipping, Commerce, and concerned Chief Secretaries of the coastal states, representative of NSA and senior representatives of Industry Associations concerned could be Members.
The executive committee may have the following terms of reference:

(i) Facilitate and support Ministries/Departments in implementation of the recommendations of the National Blue Economy Council
(ii) Undertake planning, co-ordination and oversight of projects being executed by Ministries and State governments
(iii) Provide support to Ministries/Departments in development of international cooperation, capacity building in Blue Economy
(iv) Facilitate Ministries/Departments in tariff setting, fisheries subsidy negotiations, and regulatory issues, wherever required

The Committee would be expected to meet as and when required, subject to a minimum of, say, three times a year The Council would have a designated Chief Executive Officer (CEO) of suitable seniority rank and experience. However, the requirement of the suggested Council and the Executive Committee could be evaluated in consultation with MoES before finalizing the policy framework.

National Blue Economy Fund (NBEF)

4.29 A Blue Economy Fund to implement various initiatives under NBEC would be set up either through an administrative arrangement from participating ministries/departments or as stand-alone budgeted item under the administrative control of the Governing Council of the NBEC. Its objective would be to initiate and support cross cutting projects of strategic importance to India.

Objectives for the Medium Term

Issues will evolve over time, however, the following actionable points are tentatively envisaged in the medium term.

Blue Economy Legislation

4.30 There will be a need to enact an appropriate legislative framework for the Blue Economy in the

medium term. Based on a needs assessment, a broad overarching legislation and/or specific laws linked to relevant ministries may be reviewed, amended or enacted to ensure development, regulation and compliance. However, in the near term, the proposed policy framework should be sufficient to allow the institutionalized functioning of a body like the NBEC. Future legislation may be considered for CMSP for which the NBEC could be the administrative body.

Enhanced Capacities

4.31 The Blue Economy should be viewed as an important growth and employment multiplier. This creates the need to generate requisite capacities in a talent pool to cater to its constituent sectors. This would require orienting higher educational courses towards the blue economy. At the same time, linkages need to be established with universities and research and development institutes like the National Institute of Ocean Technology and the National Institute of Oceanography in order to employ the talent pool in different sectors of the Blue Economy. A plan to develop the needed human resource skills in the country for different areas of Blue Economy, and at different levels, would need to be formulated, along with evolving a new curriculum on Blue Economy within the framework of the New Education Policy. This could be carried out jointly by the Ministries of Education, Skill Development and Earth Sciences.

Swachh Bharat to Swachh Prithvi, Swachh Sagar

4.32 The Swachh Bharat Mission (SBM) launched by Hon'ble Prime Minister on 2nd October 2014 is the world's largest sanitation, waste management and behavior change programme. It already has made a significant impact in both rural and urban areas.

Today, marine pollution is the greatest threat to the health of the oceans. About 80% of marine pollution emanates from land based sources specially from coastal cities and communities. Therefore, it is the need of the hour to expand the approach and implementation of Swachh Bharat to the concept of 'Swachh Prithvi, Swachh Sagar'. This will bring a unique and holistic vision to human and industrial waste management strategies especially in coastal areas achieving convergence between land and water based interventions. It will also make India the first nation globally to enunciate such a vision. The Ministries of Environment, Forests & Climate Change, Urban Development and Earth Sciences will need to partner with state and local governments and coastal communities to implement this unique approach.

CONCLUSION

4.33 The draft Policy aims to significantly enhance the contribution of the Blue Economy to India's GDP in the next five years, improve lives of coastal communities, preserve our marine biodiversity and maintain the security of our marine areas and resources. Today, the Blue Economy holds the promise of being the next multiplier of economic growth and well-being, provided that the strategy places sustainability and socio-economic welfare at the centre stage. Therefore, the proposed roadmap for evolving a Blue Economy Policy would be a crucial step towards unlocking the potential of economic growth and welfare.

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Annexures

Annex I

Government of India
Economic Advisory Council to the Prime Minister
NITI Aayog Bhawan, Parliament Street, New Delhi - 110 001
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No. EAC-PM/Blue Economy/2018 **30th July 2018**

OFFICE MEMORANDUM

Subject: Constitution of Steering Committee on National Blue Economy and Sustainable Ocean Development Policy under the Chairmanship of Shri Ratan P. Watal, Member Secretary, EAC-PM

Blue Economy is emerging as the key growth driver of littoral countries in the near future. It covers all ocean related activities including direct and indirect supporting activities required for functioning of those economic sectors while adjusting to the costs of environmental damage and ecological imbalance caused due to exploitation of ocean resources for consumption. The ocean can unleash colossal opportunities but, sustainability norms need to be adhered to access such opportunities. As an evolving development strategy, Blue Economy can promise high growth with sustainable use of resources for economic development and it has the potential to generate employment opportunities with a low investment.

2. Several programmes have been initiated by the Government of India with regard to ocean and coastal management. Various departments have been working in silos in this regard. Three important projects such as "Sagarmala", "Sagar" and "Mausam" have also been launched focussing on port development, maritime security and development & cultural connectivity respectively. While the process of initiating Blue Economy strategy is already taken off, there is an urgent need for most coherent policy to integrate the efforts being made by various stake holders. Hence, it has been decided to constitute a Steering Committee on National Blue Economy and Sustainable Ocean Development Policy under the Chairmanship of Shri Ratan P. Watal, Member Secretary, EAC-PM. Following is the composition of this Steering Committee:

1) Shri Ratan P. Watal, Member Secretary, EAC-PM	Chairman
2) Shri K.V. Eapen, Secretary, Ministry of Statistics & Programme Implementation (MoSP) (E-mail : secymospi@nic.in)	Member
3) Shri M. Rajeevan, Secretary, Ministry of Earth Sciences (E-mail : secretary@moes.gov.in)	Member
4) Dr. Mohan Kumar, Chairman, RIS	Member
5) Admiral R.K. Dhawan, PVSM, AVSM, YSM (Retd)., Chairman, National Maritime Foundation (E-mail: nmf.chairman@gmail.com; maritimeindia@gmail.com)	Member
6) Shri R.H. Khwaja, Former Secretary to Government of India (E-mail : rh.khwaja1976@gmail.com)	Member
7) Dr. Vishwapathi Trivedi, Former Secretary to Government of India	Member

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(E-mail: drvtrivedi@gmail.com)	
8) Dr. Shailesh Nayak, Director, National Institute of Advanced Studies, Bengaluru (E-mail : director@nias.res.in; shailesh@nias.res.in)	Member
9) Former Ambassador K.V. Bhagirath and Former Secretary General, IORA (Email: hq@iora.net)	Member
10) Former Ambassador Anup K. Mudgal, Member, FICCI Task Force on Blue Economy (E-mail: anupmudgal@gmail.com)	Member
11) Dr. George John, Former Vice Chancellor, Birsa Agricultural University, Ranchi and former Sr. Adviser/Scientist-H, Deptt. of Biotechnology (E-mail: gjohn@nic.in)	Member
12) Dr. S.K. Mohanty, Professor, RIS (E-mail: skmohanty7@gmail.com; skmohanty@ris.org.in)	Member
13) Dr. Sumita Misra, JS, EAC-PM	Convenor
14) Prof. Sachin Chaturvedi, DG, RIS (E-mail : dg@ris.org.in)	Co-Convenor

3. As already communicated, first meeting of the above Steering Committee will be held on 3rd August 2018 (Friday) at 1500 hrs in Room No. 134, NITI Aayog, Parliament Street, New Delhi.

30/7/2018

(K. Rajeswara Rao)
Adviser (EAC-PM)

Distribution:

To the Chairman and all the Members of the Steering Committee listed above

Annex II

Government of India
Economic Advisory Council to the Prime Minister
NITI Aayog Bhawan, Parliament Street, New Delhi - 110 001
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F.No. JS/EAC-PM/BE/2018/04 **30th August, 2018**

OFFICE MEMORANDUM

As discussed during the Steering Committee meeting held on 3rd August 2018, the following Working Groups have been constituted on National Blue Economy and Sustainable Development Policy:

S. No.	Working Group	Composition	Convener of the Working Group
1.	National Accounting Framework for Blue Economy and Ocean Governance	1. Dr. M. Rajeevan, Secretary, M/o Earth Sciences (CHAIRMAN) 2. Shri K.V. Eapen, Secretary or his nominee, M/o S&PI 3. Shri Pravin Srivastava, Addl Director General (NAD), MOSPI 4. Shri S.V. Ramana Murthy, Dy. Director General (NAD), MOSPI 5. Prof. S.K. Mohanty, Research and Information System for Developing Countries (RIS) 6. Shri Amey Sapre, Consultant, NIPFP	Shri K. Rajeswara Rao, Adviser, assisted by Ms Aparajita Gupta, YP
2.	Coastal Marine Spatial Planning, Tourism and Wellness	1. Shri R.H. Khwaja, Former Secretary to Government of India (CHAIRMAN) 2. Secretary or his nominee, Ministry of Tourism 3. Secretary or his nominee, Ministry of Earth Sciences 4. Secretary or his nominee, M/o MoEF 5. Vice Admiral Vinay Badhwar NM, Chief Hydrographer, National Hydrographic Office, Dehradun 6. Prof. V.N. Attri, Chair in Indian Ocean Studies, Indian Ocean Rim Association (IORA) 7. Dr. K. Somasundar, Scientist – G, Ministry of Earth Sciences 8. Prof. Ramchandra Bhatta, Emeritus Scientist (Economics), Indian Council of	Dr. Sumita Misra, JS, assisted by Ms Ritika Singh, YP

		Agricultural Research 9. Shri Satyajeet Rajan, Director General, Tourism, Ministry of Tourism, GOI 10. Shri Subhash Goyal, Chairman, STIC Travels Group; Past President, IATO and Member, CII Expert Committee on Tourism 11. Dr. Sudheeshna Babu. S, Nodal Officer, National Institute of Watersports	
3.	Fisheries, Aqua Culture and Fish Processing	1. Dr. George John, Former Vice Chancellor, Birsa Agricultural University, Ranchi and Former Sr. Adviser/Scientist-H, Deptt of Biotechnology (CHAIRMAN). 2. Secretary or his nominee, Department of Animal Husbandry, Dairying & Fisheries, Ministry of Agriculture 3. Secretary or his nominee, Ministry of Food Processing Industries 4. Dr. A. Gopalakrishnan, Director, CMFRI 5. Dr. Ravi Shankar, Director, Central Institute of Fishery Technology, Kochi 6. Vice-Admiral Pradeep Chauhan, Director, National Maritime Foundation	Shri K. Rajeswara Rao, Adviser, assisted by Ms Aparajita Gupta, YP
4.	Manufacturing, Emerging Industries, Trade, Technology, Services and Skill Development	1. Dr. Vishwapati Trivedi, Former Secretary to GOI (CHAIRMAN) 2. Secretary or his nominee, Department of Science & Technology, Ministry of Science and Technology 3. Secretary (HI) or his nominee, Department of Heavy Industries, M/o HI&PE 4. Commerce Secretary or his nominee, Department of Commerce, M/o Commerce and Industry 5. Secretary (FS) or his nominee, Department of Financial Services, M/o Finance 6. Dr. Nitya Nanda, Associate Director, The Energy & Resources Institute 7. Dr. S.K. Mohanty, Research and Information System for Developing Countries (RIS) 8. Prof. Rupa Chanda, Economics & Social Sciences, Indian Institute of Management 9. Dr. H. Purushotham, Chairman &	Shri B.N. Satpathy, Sr Consultant, assisted by Ms Shri Diwakar Jhurani, YP

		Managing Director, National Research Development Corporation 10. Dr. Satyaki Roy, Associate Professor, Institute for Studies in Industrial Development (ISID) 11. Dr. Bala Pisupati, Research and Information System for Developing Countries (RIS) 12. Ms. Madhura Roy, Deputy Director, M/o Skill Development & Entrepreneurship	
5.	Logistics, Infrastructure and Shipping (including transhipments)	1. Admiral R.K. Dhowan, PVSM, AVSM, YSM (Retd.), Chairman, National Maritime foundation (CHAIRMAN) 2. Secretary or his nominee, Ministry of Shipping 3. Shri Alok Chaturvedi, IAS, Director General of Foreign Trade 4. Mr. Sujeet Samaddar, Senior Consultant, NITI Aayog 5. Dr. Vishwapati Trivedi, Former Secretary to GoI 6. Dr. Malini Shankar, Director General and Spl. Secretary, M/o Shipping, Mumbai 7. Professor Sachin Chaturvedi, Director General, Research and Information System for Developing Countries (RIS) 8. Shri R.C.M. Reddy, Managing Director and CEO, IL&FS Education and Technology Services Limited, 9. Shri Saibal De, Whole Time Director and Chief Executive, IL&FS Maritime Infrastructure Co. Ltd. 10. Shri Anant Swarup, Joint Secretary, M/o Commerce and Industry Logistics and Social Media	Shri V. Appa Rao, Director, assisted by Shri Venkatesan Seeralan, RA
6.	Coastal & Deep Sea Mining and Offshore Energy	1. Dr. Shailesh Nayak, Director, National Institute of Advanced Studies (CHAIRMAN) 2. Secretary or his nominee, M/o Mines 3. Secretary or his nominee, M/o New and Renewable Energy 4. Secretary or his nominee, M/o Petroleum	Shri Kishore Desai, OSD, assisted by Ms Phalasha Nagpal, YP

		& Natural Gas 5. Vice Admiral Vinay Badhwar NM, Chief Hydrographer, National Hydrographic Office, Dehradun 6. Dr. M.A. Atmanand, Former Director, National Institute of Ocean Technology, M/o Earth Sciences 7. Dr. Rahul K. Sharma, Chief Scientist, Geological Oceanography, CSIR-National Institute of Oceanography 8. Dr. Loveson, V.J., Senior Principal Scientist, National Institute of Oceanography Headquarters, Goa 9. Prof. H.P. Rajan, Dy. Director (Retd.), Division for Ocean Affairs and Law of the Sea, UNITED NATIONS, New Delhi 10. Shri Bhanu Pratap Yadav, Joint Secretary (Wind Energy), M/o New & Renewable Energy 11. Dr. K. Balaraman, Director General, National Institute of Wind Energy (NIWE) (formerly known as "Centre for Wind Energy Technology" under the M/o New and Renewable Energy)	
7.	Security, Strategic Dimensions & International Engagements	1. Ambassador K.V. Bhagirath, Secretary General, Indian Ocean Rim Association (IORA) (CHAIRMAN) 2. Foreign Secretary or his nominee, M/o External Affairs 3. Defence Secretary or his nominee, M/o Defence 4. Secretary or his nominee, Deptt, of Science & Technology 5. Ambassador Anup K. Mudgal, Member, FICCI Task Force on Blue Economy (CHAIRMAN) 6. Admiral R.K. Dhowan, PVSM, AVSM, YSM (Retd.), Chairman, National Maritime Foundation 7. Vice-Admiral Pradeep Chauhan, Director, National Maritime Foundation 8. Dr. Pankaj Jha, Assistant Professor, International Cooperation for	Ms Deepika Shrivastava, Sr Consultant, assisted by Shri Himanshu Arora, YP

		Development, Assistant Professor & Assistant Dean for Global Engagement, O.P. Jindal University School of International Affairs 9. Dr. Ruchita Beri, Senior Research Associate, Institute for Defence Studies & Analyses (IDSA) 10. Prof. V.N. Attri, Chair in Indian Ocean Studies, Indian Ocean Rim Association (IORA), University of Mauritius	

2. The above Working Groups are expected to undertake the following activities and expected to submit their reports within 2-3 months' time:-

- Identify key issues and challenges related to each sector underpinning the Blue Economy;
- Examine the existing schemes and policy initiatives of the Government which are in place to address these challenges;
- Study the global best practices, standards and guidelines that are essential to develop a sustainable Blue Economy and promote doing business in the country;
- Suggest actionable policy measures which may cover initiatives involving multiple Ministries. Timelines for implementation of the reforms in terms of short, medium and long term are to be laid down along with the department responsible for implementation of such measures.
- Special focus on integrating flagship schemes of Government of India

30/8/2018

(K. Rajeswara Rao)
Adviser

Distribution:

1. Chairpersons and Members of all Working Groups
2. Convenors of all Working Groups and YPs assisting them

Copy for information to:

i) Chairman, EAC-PM
ii) Member Secretary, EAC-PM

Annex III

Links to the Reports of the Working Groups

1. **National Accounting Framework and Ocean Governance**
   https://eacpm.gov.in/index.php/reports-papers/eac-reports-papers/
   Blue Economy Working Group: 1 Report

2. **Coastal Marine Spatial Planning and Tourism**
   https://eacpm.gov.in/index.php/reports-papers/eac-reports-papers/
   Blue Economy Working Group: 2 Report

3. **Marine Fisheries, Aquaculture and Fish Processing.**
   https://eacpm.gov.in/index.php/reports-papers/eac-reports-papers/
   Blue Economy Working Group: 3 Report

4. **Manufacturing, Emerging Industries, Trade, Technology, Services and Skill Development**
   https://eacpm.gov.in/index.php/reports-papers/eac-reports-papers/
   Blue Economy Working Group: 4 Report

5. **Logistics, Infrastructure and Shipping (including transshipments)**
   https://eacpm.gov.in/index.php/reports-papers/eac-reports-papers/
   Blue Economy Working Group: 5 Report

6. **Coastal and Deep-Sea Mining and Offshore Energy**
   https://eacpm.gov.in/index.php/reports-papers/eac-reports-papers/
   Blue Economy Working Group: 6 Report

7. **Security, Strategic Dimensions and International Engagement**
   https://eacpm.gov.in/index.php/reports-papers/eac-reports-papers/
   Blue Economy Working Group: 7 Report