

Blue Economy Insight

March 2021

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From Editor's Desk

The Blue Economy embraces numerous ocean sectors which are traditionally known to humankind for several centuries but the modern Blue economy distinguishes itself from the past. The difference is because of advancement of the state-of-the-art technologies deployed for harnessing immense maritime resources sustainably with attempting to restore ocean health. Footprints of Blue Economy are seen in all economic activities of an economy and, therefore, innovations and experimentations of Blue technology are of immense need for rapid maritime sectoral development. After years of global efforts, vast endowments in the marine sector are yet to be explored or not yet exhausted fully on account of lack of enough technology to support them. Indigenous creation of marine technology is the only recourse left with the littoral countries under Industry 4.0 to respect balancing of ocean natural resources with human consumption needs.

Innovations in marine technologies can cover diverse sectors such as fishery, coastal management, placer and deep-sea mining, desalination of water, marine renewable and non-renewable energy, ports and harbours, ship repair, marine manufacturing, marine biotechnology, marine travel, marine transport, marine ICT, etc. Advancements in fish aggregation methods with moored open sea cages have opened up new opportunities for mariculture in the realm of aquaculture. Wide range of fish processing technologies is required to enhance shelf life of products. Technology requirements for isolation of coastal placers from sand and processing for production of rare earth materials are becoming important.

Creation and innovation of technologies in other sectors assume paramount importance. Development of mining equipment for collecting polymetallic nodules from soft deep seabed at a water depth of 6000 metre commercially is a technology challenge. Technology developments for the production of hydrocarbon and gas hydrate from deep waters, deep-water wells or collecting samples from 100 metre below the sea floor involves major challenges. Necessities for Blue technologies in key areas, such as early warning system for natural disasters, weather forecasting, sensor technology, use of robotics, IOT, big data, 3-D, blockchain, etc. in the ship and boat building; development of low content nitrogen and sulphur in bunker; containerisation; marine cyber security; various simulation modelling software for production and forecasting in the marine sector etc. are of critical importance for littoral economies. Regional cooperation in Indian Ocean Rim Association (IORA) for creation of Blue technology through specific projects can meet specific aspirations of the regional economies.



OCEAN THERMAL ENERGY CONVERSION

Ocean Thermal Energy Conversion (OTEC) technology is one of the most commercially feasible renewable sources of energy from the ocean sector. The game-changing technology, leveraging on the temperature difference at the surface of the ocean and cold seawater below the depth of 800–1000 metres, can generate electricity in an environmentally sustainable manner. Apart from generation of affordable electricity, this technology can generate several by-products and services in sectors like agriculture and aquaculture including desalination of purified water, air conditioning, refrigeration and cooling to make this technology cost effective. It is surveyed that 68 countries and 29 territories can effectively harness this technology in the world.



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BLUE ECONOMY OF MALDIVES

Being an island nation, Maldives has geo-economic advantages to promote the sector which is expected to trigger faster economic growth

The Maldives archipelago has embarked on the Blue Economy paradigm to shape its development strategies in order to put the economy on the high growth path. As a Small Island Developing State (SIDS), Maldives advanced its development journey from a poor state of less than \$100 per capita income in the early 1970s to an Upper-Middle income country of \$12,500 per capita income in 2020 on account its strong adherence to Blue Economy sectors. Since the beginning of the 1970s, fishery and coastal tourism remained its twin-engines of growth. Despite intermittent crisis, Maldives maintained consistently high growth, seizing opportunities from the ocean resources, and graduated from LDC to the status of a developing country in 2011 by the UN and further to an Upper-Middle income country by the World Bank in 2015. Since the days of independence, fishery sector was the key driver of its growth story. Recognition of tourism as a growth-promoting sector was somewhat late to the country and the first tourist resort came in to existence in 1972. At present, tourism is the main stay of the economy. Shipping sector is gradually coming up and contributing to the overall activities of the country. The Government of Maldives has recognised the importance of the Blue Economy in steering the economic activities and is working closely with the World Bank for promoting Blue Economy in the country.

Thriving Tourism Sector

Tourism sector in Maldives expanded manifold during the past five decades despite periodic upheavals noticed on account of intermittent endogenous and exogenous shocks. The government is all set to develop the tourism sector keeping in mind the balance between economic development and environmental sustainability. Being an island nation, it has geo-economic advantages to promote the sector which is expected to trigger faster economic growth. The earning of the industry contribute to over one-third



Since the beginning of the 1970s, fishery and coastal tourism remained Maldives' twin-engines of growth.

of government's revenue and one-fourth of GDP in recent years. It is one of the largest employment generating sectors, offering nearly one-tenth of the total jobs in the country.

Most attractive features of the Maldivian tourist sector are its white sand beaches, turquoise blue lagoons and large reserve of flora and fauna. It has 250 coral species and home to several species because of wetland ecosystem. The country has evolved a unique "one resort, one island" strategy to develop its tourist base. As per the government plans, about 155 ex-

clusive tourist island resorts are expected to be operational by 2020. Apart from expensive island resorts, the tourism sector has evolved affordable guesthouses in habitat islands. The government is collaborating with the World Bank on "Coastal Protection project" to protect coastal erosion along with boosting tourism sector.

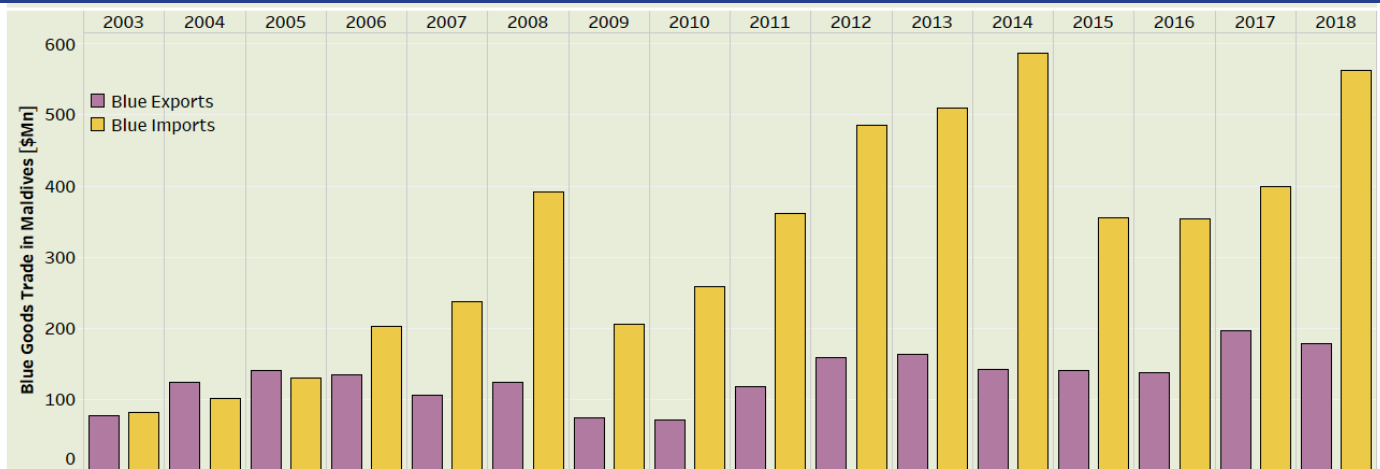
Staggering Fishery Sector

As a SIDS country, the major source of securing growth and livelihood of the country was the fishery sector which contributed close to one-fourth of country's GDP until late 1970s. Though tourism continued to be a source of exports and employment generation, substantial revenue is generated from the exports of raw and processed Tuna to destinations like the EU, North America, Sri Lanka and Thailand. Fishery exports touched \$196.2 million and \$178.4 million in 2017 and

Country/Region: Maldives



Figure 1: Trade in Blue Goods



2018 respectively. Declining productivity in the sector is a key concern for the country where average production declined from 169,000 tonnes (2002-06) to 127,000 tonnes (2012-16), at the rate of 5 per cent per annum. The country has implemented various policies and plans of action to boost fishery sector.

Trends in Blue Goods Trade

The Maldivian economy is critically engaged with the Blue trade sector and has benefitted immensely as an import-dependent country. Large imports are required to service the large and expanding domestic tourism sector. Moreover, a sizable export proceed is needed to finance country’s import bill in order to contain the unsustainable trade deficit. Conceptually, Blue goods trade is different from trade in goods for a country. Blue goods trade may be defined as “any product, embedded with inputs which are either coming or going into the oceans, is a blue product.”

Blue goods trade posted a quantum jump of five-fold rise between 2003 and 2018 where imports expanded much faster than exports as shown in Figure 1. While growth of blue exports was better or similar to the overall export growth performance during recession, growth performance of blue imports slowed down substantially, exerting relatively less pressure on trade deficit of the blue trade sector. Country’s exports could finance 6 to 10 per cent of its imports during recession whereas blue exports covered 24 per cent to 43 per cent of its imports. Blue trade has large share in its total trade, but

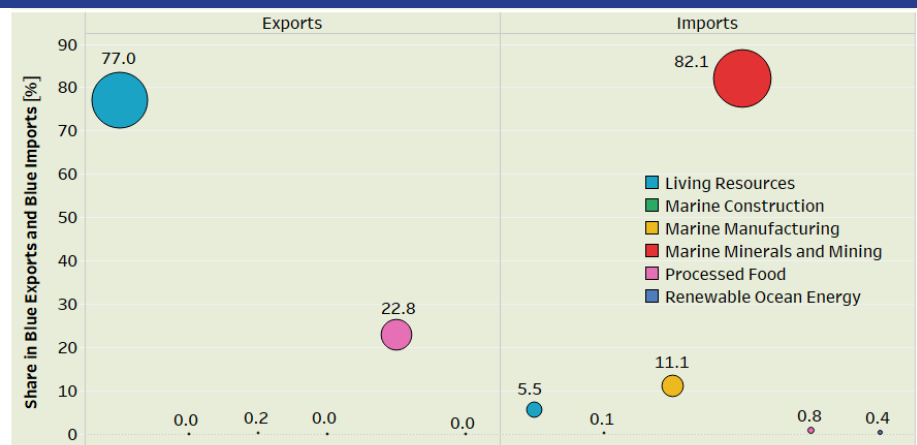
not in the trade deficit of the country. In short, Blue goods trade is holding back overall trade deficit to explode for the country. Moreover, addition of services sector in Blue trade of Maldives makes it a trade surplus economy in Blue trade, as the economy is highly dependent on services like tourism.

Sectoral Performance

Performance of Blue goods trade is grouped in to six specific sectors in Maldives namely: (i) Living Resources, (ii) Marine Construction, (iii) Marine Manufacturing, (iv) Marine Minerals and Mining, (v) Processed Food, and (vi) Renewable Ocean Energy. Sectorally, Blue imports are more diversified than Blue exports. In the import segment, there have been activities in all sectors, though marine non-living and marine manufacturing sectors took the lion’s share of more than 90 per cent of blue imports in recent years as shown in Fig-

ure 2. Sub-sectors like living resources, processed food and others have minor contribution to the Blue imports. Blue exports are not only smaller than blue imports but also concentrated in sectors like living resources and processed food, mostly processed Tuna. In the early years of the global buoyancy there was substantial exports from the marine mineral sector, but it disappeared completely since 2006. Because of several sectoral measures taken up by the government, rapid progress in the export of processed Tuna was observed in the Blue export sector. Since September 2020, the Cargo Ferry Vessel MCP Linz has started its operation by connecting ports of Tuticorin and Cochin in India and Kulhudhuffushi and Male in Maldives with a turnaround time of 10-12 days. Such initiatives have empowered Maldives to emerge as a vibrant Blue Economy to boost its growth profile when buoyancy would return to the world economy.

Figure 2: Sectoral Distribution of Blue Trade in Maldives, 2018





Sectoral Issue: **Blue Services**

Blue Services in IORA

Blue Services are ubiquitous in almost all services sectors in the IORA and the Member countries are critically dependent on Blue Services as importers and exporters

The surge in services trade has been unprecedented in the global trade, benefitting both developed and developing countries in contributing to their growth process. Blue Services in a similar vein play an important role in the Blue Economy in steering the growth profile of littoral countries. Blue Services are omnipresent in almost all major services sectors including international, coastal and inland river shipping, tourism, port and ship building, storage and warehouse, insurance and financial services, marine ICT, engineering services, etc. among others. Several countries in the Indian Ocean Rim Association are critically dependent on Blue Services as importers and exporters.

Empirical evidence shows that trade in Blue Services has grown from \$ 53.8 billion in 2003 to \$ 179.4 billion in 2019 in IORA. It has shown a robust growth for the entire period of buoyancy, where im-

ports of Blue Services grew at the CAGR of 21.6 per cent in average for the period of 2003-07. While blue exports covered 16 per cent of the region's total services exports, the corresponding figure for blue imports stood at 21 per cent in 2003.

With the onset of the global financial crisis, growth of the Blue Services exports started falling at the rate of 4.7 per cent per annum and imports by 2.6 per cent per annum during the first phase of recession for the region.

Even though Blue Services trade growing faster than that of Blue goods trade, the region could not avert negative trade balance in the sector throughout the period of 2003-19. Trade deficit was high during the period of buoyancy to reach \$ 25.7 billion in 2007, but declined unprecedentedly to touch \$ 8 billion in 2009 with the continuation of recession.

However, during the second phase of recession, the growth of blue services im-

ports was more than that of exports, leading to doubling of the size of trade deficit to \$ 16.3 billion in 2018. The adverse impact of the prolonged recession was felt in terms of reduction of the share of services trade in total trade of the region.

The composition of trade in Blue Services has been lopsided in the IORA region. The Blue services exports are highly concentrated in three sectors, namely transport, telecommunications, computer and information services and travel, whereas more than 90 per cent of Blue services imports are in the transport services.

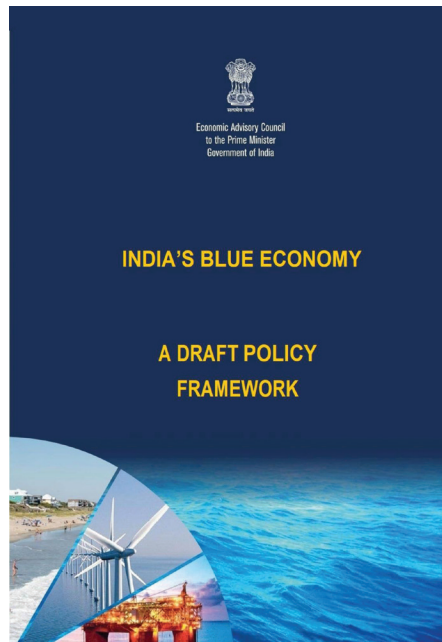
With various policy interventions including liberalisation of services sector, regional cooperation and capacity building initiatives among the member countries, the region will boost its intra-regional blue services trade and will enable the member countries to harness synergies of the region in the sector.



Draft Blue Economy Policy of India

The prominence of Blue Economy (BE) as an emerging development paradigm received the global attention following conclusion of the Earth Summit and inclusion of a standalone goal in the Sustainable Development Goals (SDGs) 2030 by the UN. Several littoral countries recorded considerable level of economic accomplishment from BE. India with more than 7516.6 km of coastline with nine coastal states and 1382 islands can drive large benefits from its vast marine and coastal resources. Besides, significant section of population is dependent on their livelihood security through diverse activities associated with the oceans. The 'Draft Blue Economy Policy of India' has presented that BE contributes 4 per cent to India's GDP, which is comparable with many other countries. Though Blue GDP of India received minor setback following onset of the global recession in 2008, it demonstrated sector's resilience in mitigating the adverse effects of economic slump and resuming recovery sharply in the second phase of recession. The importance of BE in the country is well documented in the government's 'Vision of New India 2030'. This could improve lives of coastal communities, accelerating skills and employment, ocean governance, maritime security for promoting inclusive economic growth with use of new and innovative technologies.

Taking in to account booming macroeconomic implications of BE in other countries, India took a considered view to evolve an integrated policy approach on Blue Economy. In this regard, "India's Blue Economy- A Draft Policy Framework" was in the public domain for wider consultation since September 2020, based on a comprehensive report submitted by the Blue Economy Taskforce which was constituted by the Economic Advisory Council to the Prime Minister in August 2018. Recognising the fact that there has been no commonly agreed definition of Blue Economy globally, India has defined it 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" in the Report. The committee set up seven working-groups with several priority areas concerning sectors like Accounting Framework of Blue Economy, Marine Manufacturing and Mining, Services, Fisheries, Spatial Planning, Logistics and Infrastructure and Security, Strategic Dimensions and International Engagement. All these working-groups have identified existing as well as new challenges and have provided a series of recommendations to tap potentials existing in various sub-sectors of Blue Economy.

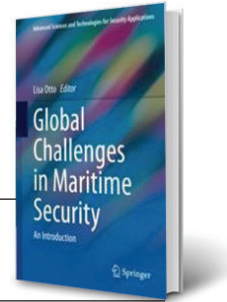
The report highlighted Blue technology as the core in promoting Blue Economy, and therefore, creation of the state-of-the-art technology indigenously and/or collaboratively can provide a big boost to the sector. For understanding India's specific sectoral economic interest, it is recommended that a national accounting framework for Blue Econo-

my has to be evolved with reliable data collection mechanism to be undertaken by an official agency and also amending national industrial classification based on next round of UN classification of industries. Development of Coastal Marine Spatial Planning is proposed along with the coastal tourism sector. In this regard, a new National Map and Data Policy may be framed to map India's coastal regions and EEZ. The draft policy lend support to issue like 'Blue Flag Certification' to develop cleaned and pollution free beach to attract tourists. A National Marine Litter Policy is suggested to eliminate plastic litters and micro plastics with use of advanced technology. For efficient management of capture marine fisheries, appropriate legal and institutional frameworks are to be evolved under a new national policy in the marine sector. It is also proposed to encourage mariculture through establishment of a new authority. The committee has felt that several age-old legislations need to be abrogated and replaced with new legal and regulatory reforms. Besides, the draft report has several recommendations to promote marine manufacturing, encourage high-tech marine MSMEs, marine R&D development, human resources planning, ship and port building, development of marine clusters, establishment of a maritime development fund for marine infrastructure, development of blue diplomacy, etc. among others. The Report suggested a Blue Economy governance framework for India in which the apex body – the National Blue Economy Council – is to be headed by the Union Minister of Ministry of Earth Sciences, accompanied by ministers from several key Ministries as members, Chief Ministers of the Coastal provinces and heads of three Industry Association Bodies. The governing structure of the Council should be strong enough to keep the political balance of the council and also able to mobilise resources effectively to implement numerous technology intensive projects.

Book Reviews: Global Challenges in Maritime Security

Lisa Otto

Springer, 243 pp., ISBN: 9783030346294



Maritime security has become a key issue of interest to policymakers and academicians. Countries are increasingly drawing on their rights to exploit sea resources for economic development. Traditionally, countries used their access to the sea and ability to travel its length and breadth as a means to expand their empires and spheres of influence. This book is a modest attempt to highlight the importance of security of the seas in order to protect both the economic and political interests of the states.

Maritime security has largely been understood from realist and liberalist points of view, which perceived the sea or ocean as a theatre for power rivalries and projections. Many academicians have argued that sea power and the success of navies provides an explanation for how

some powers had risen and commercial presence at sea was crucial for dominance on the international stage. This sentiment continues to ring true today as the sea remains linked to economic and security imperatives for many countries.

The book draws attention to numerous challenges associated with maritime security. Maritime safety and security, which are strongly linked to ocean economic development are often defined in relation to perceived or potential threats in the maritime domain. Such threats include boundary disputes, terrorism, piracy, human and illicit goods trafficking, arms trafficking, maritime accidents and disasters, etc. Among these threats, the Illegal, Unregulated and Unreported (IUU) fishing has gained prominence in current debate on fisheries management and conservation.

IUU fishing is increasingly recognized as a security concern by individual states and international organizations. New security responses to IUU fishing include increasing emphasis on electronic surveillance and port-based controls, in addition to traditional responses like presence of navies and inspections. The protection of ports against security incidents is crucial as they are essential nodes in the global supply chains.

It is worth noting here that the maritime safety and security services are essential to the adequate functioning of any economy. Further, it is to be highlighted that maritime security is not merely a concern for littoral states or the international community at large, but is also of concern to landlocked states given the transnational nature of threats to the maritime domain.



Technology and the Blue Economy: From Autonomous Shipping to Big data

Nick Lambert, Jonathan Turner, and Andy Hamflett

Kogan Pages, 228 pp., ISBN: 9780749483951

Technologies have a vital role to play in achieving the balance between the commercial desire to capitalize natural resources and the need to protect the health and diversity of the oceans. This book provides insights on growing opportunities and unique challenges in the technology sector of the emerging Blue Economy. These innovative technologies have the potential to be a force multiplier in the traditional and emerging Blue Economy industries.

The application of AI within the shipping industry and the promotion of data-driven, condition-based monitoring are two interesting examples of the profitable use of new information in the

digital age. Moreover, sensors, digital connectivity, and machine learning are being put to use for enhancing the customer experience in the cruise industry. These ground-breaking technologies are showing potential to achieve real value in several Blue Economy sectors.

The convergence of the SmallSat Revolution, providing remarkable new quantities of earth observation data with the continued rise of computer processing power and new analytics capabilities, leads to an entirely new arena of fisheries management, especially as it applies to countering IUU fishing. Countries setting ambitious targets to double fish farming output must also embrace the challenge

of sustaining their status in the long term through research and innovative implementation of technologies as well as developing a thorough understanding of socio-environment impacts.

It is evident throughout this book that Blue Economy solutions, when implemented efficiently, ensure sustainable use of ocean resources while engaging local societies in the process and guaranteeing fair distribution among the economic players. With the technology becoming proven to ever-more reassuring levels, this book could be a useful guide for policymakers and practitioners in the field of emerging Blue Economy technology sector.

Blue Economy News

Economic Times, Dec 24, 2020

Shipping Ministry to develop product specific warehouses near ports to ease logistics

To minimize logistics cost and reduce storage losses, Ministry of Shipping, India is developing product specific warehouses at various ports in the country. Products like electronics, auto spare parts, cement, liquids and chemicals are among the few products identified for these specific warehouses. The infrastructure of the storage facilities will be created at both major and non-major ports which will immensely benefit the small traders and logistics players. Moreover, the facility would be based on 'pay and use' model wherein the smaller players would have an option of paying nominal fees to make use of the infrastructure.

Economic Times, Jan 17, 2021

JNPT SEZ plans to attract Rs 4,000 crore investment, generate 72,600 direct jobs

Jawaharlal Nehru Port Trust (JNPT) plans to attract Rs 4,000 crore investments for its special economic zone (SEZ), under 'Sagarmala' national flagship policy of Ministry of Shipping. JNPT is one of the 12 major ports in the country and identified as largest container port for cargo handling in the country. The JNPT SEZ, with an estimated cost of the infrastructure of Rs 500 crore, is expected to generate 72,600 direct jobs, and an additional 77,400 employment opportunities through multiplier effect, investment from public and private players and enhance JNPT Port traffic. This would facilitate commerce through ease of doing business for investors.

Economic Times, Jan 7, 2021

Connectivity to Southeast Asia enhanced with addition of China-East India Service: DP World

DP World, global logistics services provider, has enhanced connectivity to the Southeast Asia with an addition of a new service – China-East India Service – which was started from January 5, 2021 at Chennai Container Terminal. This service is the first-ever service from Chennai providing direct connectivity to Pasir Gudang, Malaysia and Kaohsiung, Taiwan. It is operated by a consortium of five vessel operators – Wan Hai Lines, Interasia Lines, KMTCC, Goldstar Lines and BTL. This would facilitate customers with faster and reliable option to link the cargo directly to various global markets.

Economic Times, Dec 17, 2020

U.S. warns Pacific islands about Chinese bid for undersea cable project

The U.S. has cautioned Pacific island nations about security threats posed by a Chinese company for bidding for an undersea internet cable structure. Undersea cables have emerged as a sensitive area of diplomacy, as they play a critical role in international communications with far greater data capacity than satellites. Chinese firm – Huawei Marine – with French-headquartered Alcatel Submarine Networks (ASN), and Japan's NEC, have proposed this project for \$72.6 million backed by the World Bank and Asian Development Bank, which would improve communications to Nauru, Micronesia and Kiribati. However, the U.S. has raised strategic concerns as Chinese firms are required to cooperate with Beijing's intelligence and security services.

Economic Times, Nov 22, 2020

Automation of cargo clearance processes to improve trade facilitation: ADB

According to Asian Development Bank (ADB), timely adaptation of digitisation in cargo clearance with minimum physical interface would facilitate South Asian trade to improve amidst national lockdowns in the pandemic. This would provide an efficient supply chain facility to these countries. The rising COVID-19 cases have raised the difficulties of the staff at the clearance locations to operate normally, which has affected the business as usual. Automisation at clearance facilities, with minimum human contact, would play a critical role in the pandemic for seamless movement of goods across the borders and enhance the trade facilitation in the country.

BLUE ECONOMY FORUM BEF

About BEF

Blue economy has emerged as a commonly acceptable development paradigm which has effectively blended economic growth with sustainable development. Since the early 1990s, the global debate has enabled the world community to acknowledge the efficacy of the idea of Blue Economy. The concept has been accepted and promoted by both developed and developing countries as a new development model for littoral countries, including small, medium, large, LDCs and Small Island Developing States (SIDS). This development model started with the basic premise that the oceans and ocean-related activities are important for economic and social development of the coastal nations, and these activities form the core of the Blue Economy. Maritime fishing, shipping, maritime trade, etc. are not only part of Blue Economy as construed traditionally, but several other activities, deeply entrenched in almost all sectors of the economy, are also forming part of blue economy. In order to provide a holistic perspective on the role of blue economy for the societies and economies and help aid policy making in the coastal nations, RIS has initiated Blue Economy Forum (BEF) as a dedicated pillar of its work programme.

Blue Economy Forum (BEF) aims to serve as a dedicated platform for fostering dialogue on promoting the concept in the IORA and other regions. The forum focuses on conducting studies on the potential, prospects and challenges of Blue Economy; providing regular inputs to practitioners in the government and the private sectors; and promoting advocacy for its smooth adoption in national economic policies. Research findings of the forum are disseminated in the form of reports, monographs, policy briefs, statistical profiles and newsletter. In addition, the forum undertakes studies on cross-cutting issues including role of SMEs, women empowerment, vulnerabilities of Small Island Developing States and private sector participation. The forum facilitates linkages between the policymakers, academicians and business community in the IORA and other regions.

Our Publications



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