

# POLICY BRIEF

August 24, 2020

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## **Blue Economies of the Indian Ocean Region: Japan's Role in Transition to Sustainable Development and Growth**

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The Blue Economy concept was first articulated in 2012 by the Small Island Developing States (SIDS) at the 2012 Rio+20 Summit on Sustainable Development. This novel idea was coupled with a concurrent approach that sought to transform traditional ocean economies into an ecosystem harnessing oceanic resources for better conservation of the marine environment. Ever since, the Blue Economy concept and its implementation has remained an evolving one. The broad consensus is that diminishing land resources have induced greater pressure on ocean assets to feed faster growth. At the same time, realization of the dangers of unsustainable approaches is equally compelling. The oceans remain the foremost climate stabilizers as they directly absorb heat and recycle an overwhelming share of greenhouse gases. Rising sea levels are causing submergence of valuable land, and extreme weather conditions and rising temperatures will eventually disrupt the water cycle, and hurt agriculture, fisheries and the rich marine biodiversity.<sup>1</sup> The need to find mitigating solutions ensuring that future economic growth and development be more sustainable remains more pronounced than ever. As per few estimates, in many sectors, the ocean-based productivity will exceed the corresponding land-based production both in terms of value and employment generation by 2030. However, these benefits would likely accrue only in case of the oceans remaining healthy.<sup>2</sup>

1 For further details see, *Blue Economy Vision 2025: Harnessing Business Potential for India Inc. and International Partners*, Task Force on Blue Economy, Federation of Indian Chambers of Commerce and Industry (FICCI), April 2017.

2 Ibid.

### ***Indian Ocean Rim Association: Blue Economy Blueprint***

Harnessing Blue Economy resources that serve as a key catalyst for sustainable development throughout the Indian Ocean and the Indo-Pacific encourage regional-level Blue Economy initiatives to guide regional co-operation. The major Blue Economy resources include fish (and other living organisms), genetic resources, minerals and other non-living substances, offshore energy and a host of marine services, namely, transport, tourism and communications. Blue Economy incorporates not just traditional maritime industries cited above, but also developing industries like aquaculture, renewable energy technologies for wind, wave and tidal power, bio-products (pharmaceutical and agrichemicals), blue carbon (carbon sequestration) and desalination.

The intergovernmental Indian Ocean Rim Association (IORA) established in 1997 envisions the Indian Ocean as the third largest ocean woven together by trade routes, commanding control of major sea-lanes carrying half of the world's container ships, one third of the world's bulk cargo traffic, and two thirds of global oil shipments. Home to nearly 2.7 billion people of the world, the Indian Ocean Region is divided into a number of diverse sub-regions, namely, Australasia, Southeast Asia, South Asia, West Asia and Eastern & Southern Africa, which are bound together by the Indian Ocean. The current 22 IOR Member States are: Australia, Bangladesh, Comoros, India, Indonesia, Iran, Kenya, Madagascar, Malaysia, Maldives, Mauritius, Mozambique, Oman, Seychelles, Singapore, Somalia, South Africa, Sri Lanka, Tanzania, Thailand, United Arab Emirates and Yemen. Besides the members, the IORA also has nine Dialogue Partners, namely: Japan, Egypt, France, Germany, Korea, China, Turkey, the UK and the US.

Several IORA countries have been taking steps to reduce the degradation of the marine

resources, plastic pollution, unsustainable fishing, extraction of non-renewable marine resources, and rising water salinity from desalination. For instance, India uses marine plastic waste as raw material for road building. Indonesia has set up a waste insurance clinic offering healthcare in exchange for garbage. The UAE follows modular farming practices repurposing brine from desalination. Sri Lanka is host to community-based mangrove conservation projects. Seychelles balances economic and conservation objectives through its Marine Spatial Planning (MSP) efforts, and Kenya has adopted plastic ban. Evidently, sustainability has been accepted as the core principle of Blue Economy. The focus is on enhancing Blue Economy investments, ensuring capacity-building and sharing technologies through mutual collaborations among Member States and with IORA's Dialogue Partners.

The Indian Ocean Rim Association adopted 'Blue Economy' as a major goal during the Council of Ministers meeting held in Perth in October 2014. The priority areas of cooperation identified herein were:

- Fisheries and Aquaculture
- Renewable Ocean Energy
- Seaports and Shipping
- Seabed Exploration and Minerals
- Marine Biotechnology
- Research and Development
- Tourism
- Ocean Knowledge Clusters in Small Island Developing States and Least Developed Countries (LDCs)

Subsequently, the First IORA Blue Economy Ministerial Conference (BEC) was held in Mauritius in September 2015, which adopted the Blue Economy Declaration reflecting global trends. The need to connect oceans and maritime resources to drive economic growth, job creation and innovation, while safeguarding sustainability and environmental protection based on evidence-based sustainable

management of marine resources was underscored.<sup>3</sup> Subsequently, in May 2017, Indonesia hosted the Second IORA Blue Economy Ministerial Conference on “Financing the Blue Economy”.<sup>4</sup> The resultant Jakarta Declaration called for optimizing the use of existing financial instruments in the IORA region to stimulate the development of Blue Economy among Member States. The need for new and innovative financing mechanisms and strengthening collaboration between public and private sectors as well as with dialogue partners was highlighted. Further strengthening was initiated with a Blue Economy Working Group preparatory meeting for its establishment held in September 2018 in Port Elizabeth, South Africa. This emanated from the 2017-2021 IORA Action Plan adopted during the Jakarta Summit mentioned above.<sup>5</sup>

With a total 18,000 participants from 184 countries, the biggest-of-its-kind Sustainable Blue Economy Conference was held in Nairobi in November 2018, hosted by Kenya, in collaboration with Canada, Japan and others. The key themes for an inclusive Blue Economy that were deliberated upon were as follows:

- Smart shipping, ports, transportation, and global connectivity
- Employment, job creation and poverty eradication
- Cities, tourism, resilient coasts, and infrastructure
- Sustainable energy, mineral resources, and innovative industries

- Managing and sustaining marine life, conservation, and sustainable economic activities
- Ending hunger, securing food supplies, and promoting good health and sustainable fisheries
- Climate action, agriculture and fisheries, waste management and pollution-free oceans
- Maritime security, safety, and regulatory enforcement
- People, culture, communities, and societies

The conference primarily concluded<sup>6</sup> that the global community should intensify investments and harness the full potential of the oceans, seas, lakes and rivers to accelerate economic growth, create jobs and fight poverty. Second, the world can “simultaneously” work to improve the health of the oceans and their ecosystems that are under increasing threat. Third, the development of Blue Economy requires “the full and effective participation” of all relevant actors in the international community for attaining Sustainable Development Goals. Fourth, the public sector has limited capacity to finance required initiatives, and therefore, the private sector should “step in to bridge the financing gap”. Fifth, respective governments should offer “the right incentives” by crafting policy mechanisms that encourage marine activities and support “a pipeline of projects for willing investors”. Sixth, science and research are crucial for policy development, implementation, and evaluation. An inter-disciplinary approach to science and technology, law and policy, and

3 Indian Ocean Rim Association Declaration, *Enhancing Blue Economy Cooperation for Sustainable Development in the Indian Ocean Region*, Mauritius, September 2015, available at <https://www.iora.int/media/8216/iora-mauritius-declaration-on-blue-economy.pdf>

4 For more details see, *Blue Economy*, IORA Priority & Focus Areas, available at <https://www.iora.int/en/priorities-focus-areas/blue-economy#:~:text=Indonesia%20hosted%20the%20Second%20Ministerial,to%20enhance%20Blue%20Economy%20development>

5 For related details on the IORA Leaders’ Summit, see <https://www.iora.int/en/about/leaders-summit>

6 *The Nairobi Statement of Intent on Advancing the Global Sustainable Blue Economy* 2018, available at <http://www.blueeconomyconference.go.ke/wpcontent/uploads/2018/11/Nairobi-Statement-of-Intent-Advancing-Global-Sustainable-Blue-Economy.pdf>

human geography and finance should inform policy. Finally, the “survival of humanity, bio-diversity and ecosystems” indicated the conference consensus would “depend on bold, innovative and collective vision and action”.<sup>7</sup>

Following this, the Third IORA Blue Economy Ministerial Conference was held in Dhaka (Bangladesh) in September 2019 under the theme *Promoting Sustainable Blue Economy: Making the Best Use of Opportunities from the Indian Ocean*. In her inaugural speech, Prime Minister of Bangladesh, Sheikh Hasina highlighted the “... intricate relation between peace, security and sustainable development... and keeping in mind that we cannot sacrifice the marine environment in pursuing economic growth...”<sup>8</sup> In addition to sustainably harvesting blue opportunities, exploration of resources from seabed, enhancing maritime opportunities and logistic facilities and governance, the *Dhaka Declaration on Blue Economy* encouraged Member States to undertake research in new emerging Blue Economy sectors, including oyster culture, mariculture and marine flora.

In order to review the implementation of its trade and investment Work Plan, the IORA held a meeting in Mauritius in January 2020 to assess investment opportunities existing in several economic sectors of the region, including infrastructure development, recycling, pharmaceuticals, fisheries, aquaculture and ocean energies. Among the key focus areas were studying trade integration dynamics in the region, projects to promote implementation

of the WTO’s Trade Facilitation Agreement, reduce Non-Tariff Barriers, promoting Small and Medium Enterprises (SMEs) and supporting the value chains.<sup>9</sup>

### ***Blue Carbon Ecosystems***

During the Third IORA Blue Economy Ministerial Conference in Dhaka, the launch of the IORA Indian Ocean Blue Carbon Hub was announced by Australia.<sup>10</sup> Blue carbon ecosystems (i.e. mangroves, tidal marshes and seagrasses) support livelihoods, stabilize and protect coasts, and play a vital role in climate change mitigation and adaptation. Efforts to enhance blue carbon ecosystem protection and restoration address multiple Sustainable Development Goals, thus underpinning a resilient Blue Economy. However, the finance mechanisms and policy frameworks that are needed to facilitate investment into protection and restoration of these remain poorly developed. Coastal ecosystems including mangroves, seagrasses and tidal marshes remain indispensable to mitigating climate impacts. These ecosystems remove carbon from the atmosphere and oceans, storing it in plants and sediment, where it is known as “blue carbon.” Coastal ecosystems are some of the most carbon-rich ecosystems on Earth. Coastal blue carbon refers to carbon stored in shallow and coastal marine ecosystems, including mangrove forests, seagrass meadows, and saltwater marshes. These coastal blue carbon ecosystems accumulate and store a significant amount of carbon in plant biomass

7 Ibid; also see, International Institute for Sustainable Development *IISD-ARFSD Bulletin*, April 21, 2019, available at <http://enb.iisd.org/download/pdf/sd/enbplus208num31e.pdf>; and see, *Report on Global Sustainable Blue Economy Conference*, November 2018, Nairobi, available at, <http://www.blueeconomyconference.go.ke/wp-content/uploads/2018/12/SBEC-FINAL-REPORT-8-DECEMBER-2018-rev-2-1-2-PDF2-3-compressed.pdf>

8 For further details see, *Third IORA Ministerial Blue Economy Conference*, Dhaka, September 2019, available at <https://www.iora.int/en/events-media-news/news-updates-folder/third-iora-ministerial-blue-economy-conference>

9 “Trade Experts Meet in Mauritius to Review Trade and Investment Progress,” IORA *Press Release*, Mauritius, January 31, 2020.

10 *Third IORA Ministerial Blue Economy Conference*, n. 8.

and sediments.<sup>11</sup> It is a known fact that healthy coastal blue carbon ecosystems can store many times the volume of carbon stored in terrestrial forest ecosystems.<sup>12</sup> Since blue carbon ecosystems are highly efficient at carbon capture and storage, their preservation, protection, and restoration comprises being an important tool in climate change mitigation and adaptation.<sup>13</sup> However, they also remain the most endangered. Once degraded or destroyed, their blue carbon stores are released in large amounts as carbon dioxide into the atmosphere, thus adversely contributing to global climate change.<sup>14</sup> Conserving and restoring coastal blue carbon ecosystems provides additional local benefits of water filtration, shoreline stabilization, storm and flood protection, and habitat and sustenance for fish and other marine organisms, including commercially and locally important food species.<sup>15</sup> For human populations, these ecosystems sustain livelihoods, providing cultural value for the local communities as well as tourists.

The Indian Ocean contains a lop-sided amount of the world’s blue carbon ecosystems, and the Indian Ocean Region (IOR) nations hold the potential of being global leaders in blue carbon protection and restoration. However, owing to coastal development issues, these blue carbon ecosystems have degraded and eroded the natural capital that these ecosystems are capable of providing. The Indian Ocean has records of the highest rates of degradation occurring in the IOR. The Blue Carbon Hub aims to build knowledge and capacity to protect

and restore blue carbon ecosystems throughout the Indian Ocean Region in order to enhance livelihoods, reduce risks from coastal hazards, and help mitigate climate change. A key activity of the Hub will be on blue carbon finance<sup>16</sup> –the key objectives of which are:

- to convene experts and representatives from IORA Member States and Dialogue Partners to present innovations and successes in blue carbon finance, and engage in discussion about promising avenues forward
- to identify the barriers to effective and sustainable blue carbon finance, and potential solutions
- to provide a forum where potential investors, policymakers, and practitioners can engage in discussions on opportunities to support the conservation and restoration of blue carbon ecosystems
- to build blue carbon finance capacity in IORA
- to discuss practical applicability of the options discussed among IORA Member States
- to exchange information about finance mechanisms and policy frameworks to launch the IORA Blue Carbon Hub ‘think tank’ series<sup>17</sup>

The Blue Economy dialogue has been taken up majorly at the policymaking levels. In order to co-opt the business community, which would eventually implement these measures, the Federation of Indian Chambers of Commerce

11 For further details see, “Coastal Blue Carbon Ecosystems,” available at <https://bluecsolutions.org/coastal-blue-carbon-ecosystems/>

12 As cited in “Coastal Blue Carbon Ecosystems,” op. cit. n. 11.

13 Ibid.

14 Ibid.

15 Ibid.

16 “IORA Indian Ocean Blue Carbon Hub Inaugural Think Tank: Blue Carbon Finance,” Mauritius, February 26, 2020, available at <https://www.iora.int/en/events-media-news/events/priorities-focus-areas/blue-economy/2020/iora-indian-ocean-blue-carbon-hub-inaugural-think-tank-blue-carbon-finance>

17 Ibid.

and Industry (FICCI) set up a Task Force to carry the message and merits of the blue growth directly to the business community for better appreciation of this challenge.<sup>18</sup> As per the 2017-2021 Action Plan, the IORA seeks to move forward in a more outcome-orientated manner. The Action Plan articulates the establishment of an IORA Working Group on Blue Economy (WGBE) as a short-term target. The First Preparatory Meeting for the establishment of the WGBE was held in Port Elizabeth, South Africa in September 2018. The Work Plan the following priority pillars:

- Fisheries and Aquaculture
- Renewable Ocean Energy
- Seaports and Shipping
- Seabed Exploration and Minerals
- Marine Biotechnology Research and Development
- Coastal and Marine Tourism

With the finalized WGBE Work Plan, the Republic of South Africa (Department of Environment, Forestry and Fisheries) and the IORA Secretariat, in collaboration with Germany as a Dialogue Partner, through GIZ (Deutsche Gesellschaft fürInternationale Zusammenarbeit) hosted the First Meeting of the IORA Working Group on the Blue Economy, in Mauritius during December 2019. The meeting focused on the modalities for implementation of the Work Plan on Blue Economy, consider emerging issues related to climate change and marine pollution, deliberate on the engagement of IORA Dialogue Partners in the implementation of this Work Plan, and discuss potential resourcing of initiatives in the Work Plan.<sup>19</sup>

***The Blue Economy Agenda of Japan: Lessons and Future Collaboration with IOR Nations***

Building a Blue Economy in real terms is finding solutions to the challenges facing the seas, while harnessing ocean resources for economic growth, protecting the environment, and ensuring social equity.<sup>20</sup> Being the world’s foremost maritime nations with a long history with the ocean, the sea has played a pivotal role in defining Japan’s economy. The ocean frontiershold immense promise and potential of resource wealth, boosting economic growth, trade, employment and innovation. Simultaneously, it is equally obligatory for addressing global challenges including food security, climate change, and provision of energy, water, oil, gas, minerals and other natural resources. The 2012 Changwon Declaration on Blue Economy highlighted the sustainable use of ocean resources for economic growth, livelihoods and jobs, while preserving the health of oceans and ecosystems. Signed during the Fourth Ministerial Forum on the Sustainable Development Strategy for the Seas of East Asia in July 2012, the Changwon Declaration reflected over the progress made since 2009 and ensured the continuing progress towards a sustainable future, including the development of an ocean-based Blue Economy. Responsible, sustainable, and inclusive approaches to its economic development are required for realizing the ocean’s full potential. For the IOR’s future transformation to becoming model Blue Economies, a focused approach is needed on the emerging industries that include among others:

18 *Blue Economy Vision 2025*, FICCI Task Force Report, n. 1, p. 17.

19 “First Meeting of the IORA Working Group on Blue Economy,” December 2019, available at <https://www.iora.int/en/events-media-news/events/priorities-focus-areas/blue-economy/2019/first-meeting-of-the-iora-working-group-on-the-blue-economy>

20 “Why the World Ocean Summit is going to Japan in 2020,” *The Economist*, World Ocean Initiative, August 22, 2019.

- Renewable energy
  - Ocean energy
  - Offshore and coastal wind power
- Desalination
  - An instance: The population of southern Indian city, Chennai Metropolitan Area is projected to exceed 15 million by 2035. Two desalination plants of 100,000 m<sup>3</sup>/d capacity based on reverse osmosis (RO) Nemmeli plant built by a joint venture led by water technology firm, Wabag, are already operating in Chennai, and a third 150,000 m<sup>3</sup>/d capacity out for tender. The fourth plant expected to be of 400,000 m<sup>3</sup>/d capacity, scheduled to be completed by March 2025, is said to receive a loan of JPY 30 billion (\$ 283 million) from Japan’s premier overseas aid body, the Japan International Cooperation Agency (JICA).
- Marine biotechnology
- Climate resilient infrastructure
- Green ports: In the area of ports and shipping, Blue Economy transformation initiatives include, joint oil spill prevention and response; solar-powered boats; clean ships initiative; and shore-based power supply using renewable energy

The agenda of the first United Nations Ocean Conference held in June 2017 was to implement the United Nations’ Sustainable Development Goals 14 (SDG14). The Ocean Conference, meant to serve as a foundation for the steady implementation of SDG14. During this conference, Japan identified marine debris, ocean acidification, sustainable fisheries, and support for Small Island Developing States as high-priority issues, announcing 11 voluntary commitments.<sup>21</sup> In addition

to the Japanese government, the Nippon Foundation, in collaboration with the United Nations Division for Ocean Affairs and the Law of the Sea (DOALOS) registered a new capacity-building project. The Ocean Policy Research Institute registered the Islands and Oceans Net (IO Net) – an international collaborative network of various stakeholders from SIDS and the international community to promote sustainable development of SIDS and sustainable management of surrounding oceans.<sup>22</sup> An International Environmental Education Program on Micro-plastic Pollution has also been registered by the Japan Agency for Marine Earth Science and Technology (JAMSTEC). The Nippon Foundation is involved in the NF-GEBCO Seabed 2030 – a joint project with General Bathymetric Chart of the Oceans (GEBCO) that aims to complete 100 percent mapped topography of the world’s oceans by 2030.<sup>23</sup> The Ocean Conference established a flexible and transparent framework to support specific identified measures to achieve SDG14 of all stakeholders by combining the Call for Action and Voluntary Commitments. Under the principles and guidance stipulated in the Call for Action, each entity registers and implements voluntary commitments and discusses the progress and outcome of the measures together.

The risks to the oceans are rising owing to climate change, overfishing, plastic pollution, and myriad other challenges. Japan’s engagement on Blue Economy discussions stand out in form of the 2018 High-Level Panel for a Sustainable Ocean Economy, which seeks to establish a new global contract between the sea and humanity and develop solutions for ocean health and wealth. During the June 2019 G20 meeting in Japan, the member countries agreed to implement a framework to tackle marine plastic pollution through innovative solutions

21 Mai Fujii, “Japan’s Participation,” in *White Paper on the Oceans and Ocean Policy in Japan*, Ocean Policy Research Institute, Sasakawa Peace Foundation, Tokyo, October 2018, pp. 12-14.

22 Ibid.

23 Ibid.

including product design, resource efficiency and circular economy approaches.<sup>24</sup> Japanese companies and investors have been moving towards incorporating environmental, social and governance considerations into their activities in line with businesses globally, according to the World Business Council for Sustainable Development. They have disclosed a higher than average number of climate-related risks and opportunities to the CDP annual carbon disclosure survey of the 500 largest listed global businesses.<sup>25</sup>

During the Third IORA Blue Economy Ministerial Conference discussed earlier in this paper, Michael W Lodge, Secretary-General of International Seabed Authority laid emphasis on the importance of sharing knowledge on ocean resources and marine life. Japan's ocean industry expertise could be a useful connecting bond for the shared promotion of IORA's Blue Economy agenda. The potential avenues of Japanese collaboration being: capacity-building programs in fisheries and aquaculture; maintaining seafood products' safety and quality; seafood handling, post-harvest processing and storage of fisheries and aquaculture products; banking and artisanal fisheries; sustainable management and development of fisheries resources; fish trade; seaport and shipping; maritime connectivity; port management and operations; Marine Spatial Planning; ocean forecasting/observatory; blue carbon; and, renewable energies.

Additional innovation methods include switching to electrification and alternative fuels to decarbonize the shipping sector, efforts to cut plastic pollution by developing circular economy solutions, and prospects for valuing natural coastal infrastructure to channel finance towards ecosystem restoration through blue bonds<sup>26</sup> need to be approached in a systemic manner for

coastal nations across the Indo-Pacific, especially the Indian Ocean Region. Japan's collaboration with the IORA in these sectors can come through in the form of sharing of information, best practices, experience, promoting transfer of technology, research and development, and exploring financing strategies. The increasing shipping activities in the Indian Ocean Region have encouraged sharing knowledge related to efficient processes and operations.

Owing to the spread of the deadly global pandemic COVID-19 that originated in Wuhan, China, most of the crucial events in 2020 pertaining Blue Economy stand cancelled or postponed including events such as the UN Ocean Conference that was to be convened in Lisbon to review progress towards achieving Sustainable Development Goals 14 to conserve and sustainably use the ocean and marine resources. The UN was also expected to launch its *Decade of Ocean Science for Sustainable Development* this year. Besides, the World Ocean Summit was to convene from 9-10 March in Tokyo, Japan, but was cancelled owing to the COVID-19 pandemic. The event was scheduled to have brought together a global group of policymakers, business and civil society leaders, investors, scientists, and entrepreneurs to debate and develop new ideas on how to decouple economic growth from ocean degradation. Japan's Blue Economy agenda is an amalgamation of increasing economic growth and social well-being while protecting the marine environment. Capitalizing on Japanese superiority in technology and innovation to achieve a more sustainable ocean economy around the world would be a welcome step for the Indian Ocean Rim Association while it collaborates with Japan as an IORA Dialogue Partner.

US-based nonprofit environmental advocacy

<sup>24</sup> *The Economist*, n. 20.

<sup>25</sup> *Ibid.*

<sup>26</sup> *Ibid.*



group, the Environmental Defense Fund (EDF) commended Tokyo for enacting the most significant reforms in its fisheries' laws in nearly 70 years – that seeks to ensure sustainability of important fish stocks that are vital to the Japanese economy, culture and cuisine.<sup>27</sup> The EDF commended the Abe Administration as Japan's legislature enacted the most significant reform regarding Japanese fisheries' laws. The reforms hold the potential to signal a meaningful and transformational shift in how other countries across the Indo-Pacific (including in the Indian Ocean Region) can manage their fisheries. This can usher in a new era of sustainability in the region with far-reaching positive impacts. The passage of the reform legislation through the Japanese Diet (Japan's bicameral legislature) was a landmark moment in fisheries' reform, which has been a priority for the Abe administration as it looks to restructure Japan's economy.<sup>28</sup> The legislation's goal is to ensure long-term productivity of important fish stocks that are at the heart of the Japanese economy, thereby impacting seafood markets across the globe. The reform package incorporates several recommendations from the EDF including expanding stock assessments to cover all commercial stocks and increasing the percentage of the catch managed with science-based catch limits.<sup>29</sup>

In addition, the reforms include requiring recovery plans for overfished stocks within 10 years and establishing a system of individual vessel quotas with some transferability.<sup>30</sup> While the reforms being passed by the Diet are a meaningful step forward on the road to creating sustainable fisheries in Japan,

the implementation phase will be equally important, according to the EDF.<sup>31</sup> During this crucial phase, regulations known as cabinet and ministerial ordinances drafted by Japan's Fishery Agency will shape how the legislation is put in place on waters. The EDF is particularly focused on helping refine the reforms during the implementation phase to include a transition financing plan that does not undercut sustainability, including stakeholders more broadly in the management process and improvements in monitoring and accountability.<sup>32</sup> Greater sustainability in Japan's fisheries can be a lesson that should be shared for the larger environmental wellbeing of people, their communities and oceans including in the IOR. This can be implemented in the form of public debate, policy action, and crafting a comprehensive strategy to leverage opportunities that bring sustainable benefits for the people of the Indian Ocean Region.

The new ocean agenda likely to be resumed and developed post the pandemic beyond 2020 should aspire to devise Blue Economy strategies that boost economic development while protecting the environment and welfare of coastal communities. According to the Organization for Economic Co-operation and Development (OECD) the ocean economy accounts for 2.5 percent of global GDP, which by 2030, is projected to double up to approximately US\$ 3 trillion. Innovation in technology and business processes will therefore be an important theme.<sup>33</sup>

Coastal economies demand an advanced port, shipping, and marine transport system.

27 Ibid.

28 "Environmental Defense Fund Applauds Progress of National Fishing Reform in Japan," December 8, 2018, available at <https://www.edf.org/media/edf-applauds-progress-national-fishing-reform-japan>

29 Ibid.

30 Ibid.

31 Ibid.

32 Ibid.

33 *The Economist*, n. 20.

For instance, along its over 3,200 kms coastline, Thailand has eight major deep sea ports in addition to four private ports permitted to handle container cargo. In this reference, Bangkok is working with Myanmar to develop the 250-million-ton capacity Dawei Special Economic Zone in Myanmar, with a significant volume of Japanese assistance.<sup>34</sup> Similarly, Mozambique has identified developing Blue Economy as one of its national priorities, thereby, requiring massive investments in basic infrastructure and capacity-building, in which Japan's Mitsui & Co. is one of the major players in the gas sector.<sup>35</sup> In essence, a clear national and regional vision that ushers the "Blue Revolution" has become a pronounced priority for the IORA nations. Sustainable development of the Blue Economy will be an integral part of this "Blue Revolution."

In the field of near-to-market technologies to solve technical challenges in offshore renewables, carbon capture, and storage and oil and gas, industry body Subsea UK and its technology arm NSRI recently announced a close working equation between Scottish Enterprise and Japan's Nippon Foundation by means of investing £ 20.9 million into six R&D projects being developed by 20 companies from Scotland and Japan.<sup>36</sup> The latter will contribute £ 4.1 million to the joint projects. An additional £ 10.6 million will be contributed by the Scottish companies into six projects with eight Japanese partners.<sup>37</sup> Under the six projects, collaboration will be carried out to develop innovations in mooring, installation systems, geoscience and artificial intelligence. As per Neil Gordon, chief

executive of Subsea UK, "Globally, the Blue Economy is forecast to be worth £ 140 billion by 2035... To capitalise on this opportunity... and engage with ... Japan, renowned for their development of innovative technology."<sup>38</sup> Striving for growth opportunities in Blue Economy that are fully aligned to low carbon targets will accelerate economic growth. The £ 50 billion global subsea market is primarily based around oil and gas.<sup>39</sup> The future focus lies on the potential to deliver technology solutions in a range of sectors lying beyond oil and gas.

Tokyo's growing role and presence in the Indian Ocean with a strategic interest in Sri Lanka's Hambantota Port reflects its "free and open seas" policy that calls for a rules-based maritime system to ensure stability and prosperity. Japan has been reportedly discussing potential infrastructure investment with Sri Lanka in the key northeastern port of Trincomalee – the world's second-deepest natural harbor. For Japan, closer cooperation with Sri Lanka helps in securing its vital sea lanes used to import oil from West Asia. The Trincomalee port holds immense potential as a natural port. Infrastructure development in this part was delayed due to the prolonged civil war that gripped Sri Lanka for a quarter of a century until 2009. Japan's premier overseas aid body, the Japan International Cooperation Agency has been working on this since.<sup>40</sup> Moreover, the announcement by Japan to open an Embassy in the Seychelles (an archipelago of 115 islands in the Indian Ocean, off East Africa) is another testament of growing Japanese presence and

34 *Blue Economy Vision 2025*, FICCI Task Force Report, n. 1, p. 40.

35 *Ibid.*, p. 41.

36 "Japan and Scotland invest £21million into research and development for the Blue Economy," *Oil & Gas Technology*, London, October 9, 2019, available at <http://www.oilandgastechology.net/news/japan-scotland-invest-21million-research-development-blue-economy>

37 *Ibid.*

38 *Ibid.*

39 *Ibid.*

40 "Japan, Sri Lanka exploring port infrastructure deals to counter reliance on China," *The Japan Times*, August 26, 2016.

commitment to the IOR at large.<sup>41</sup> In Nov 2019, Japan officially opened its Embassy in Seychelles' capital city Victoria. The Vice President of Seychelles, Vincent Meriton, who also holds the Foreign Affairs portfolio, said that the opening of the embassy in Victoria marks a new chapter, "representing our commitment despite our geographical distances to bring closer our frontiers to share a common vision and through friendship to make a difference in this highly polarised and globalised world."<sup>42</sup> Seychelles and Japan established diplomatic relations in 1976 and "over the years ... collaboration has flourished to cover fields such as fisheries, education, tourism, disaster management and maritime security."<sup>43</sup> Seychelles expressed its commitment to further engage with Japan in exploration of newer avenues for cooperation such as technology transfer, innovation, cultural exchanges and entrepreneurship. Japan has actively been engaged with Seychelles in providing facilities for the fishery industry – thereby reaffirming Japan's steadfast partner status in the implementation of Seychelles' Blue Economy Strategy which brings together sectors in the sustainable use of its ocean resources.

In conclusion, Japan's excellence in technology and innovation directed at achieving a sustainably rising ocean economy is well acknowledged globally. Supporting innovation for promoting a sustainable Blue Economy in the IOR through related governmental agencies, local governments and private corporations shall likely provide optimal utilization of the IOR sea routes, and development of the region's natural resources. Tokyo's technical assistance can prove beneficial in promoting coastal tourism

initiatives that are compatible with conservation of the IOR's marine environment. Japan's proficiency can also be extended to support for business models, economic activities, and innovation on the utilization of the Indian Ocean and its sea route, including demonstration projects conducted by the government and utilizing public funds. Creation of cross-sectoral innovation support in the field of oceans, and improvements in research and development of ocean technologies and joint innovation is another key focus area.<sup>44</sup>

The rising water levels owing to climate change shall likely create more opportunities for use of the Indian Ocean sea route, including development of resources and expansion of accessible areas for marine scientific research. Furthermore, as economic activities in the Indian Ocean Region expand, the maritime transport on its sea route will likely become more congested. And resultantly, appropriate support and responses for addressing maritime casualties and maritime disasters also need to be accounted for. Furthermore, Japan should also undertake hydrographic surveys in this region and maintain observation data collected by satellites through cooperation with the IOR coastal states, as Tokyo takes proactive measures to improve and expand infrastructure, including new/upgraded harbors in the IOR nations. Ensuring that rule of law is crucial for safety and security in the Indian Ocean, the IORA nations and Tokyo need to work closely, build diplomatic trust, and actively contribute to the maintenance of order on the seas, and craft a Blue Economy blueprint that is mutually beneficial, and marine health friendly.

41 Cited in, "As Japan makes its move in the Indian Ocean power play, what will be the future of the Blue Economy?" available at <http://blueeconomyseychelles.org/item/130-japan-indian-ocean-blue-economy>

42 "Japan opens an embassy in Seychelles, upgrading relations between longtime partners," *Seychelles News Agency*, November 8, 2019, available at <http://www.seychellesnewsagency.com/articles/11924/Japan+opens+an+embassy+in+Seychelles%2C+upgrading+relations+between+longtime+partners>

43 Ibid.

44 *White Paper on the Oceans and Ocean Policy in Japan*, October 2018, n. 21.