



## Sustainable blue economy and prospects of seafood market in India

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### Abstract

Oceans cover nearly three-quarters of the Earth's surface and underpin global ecological balance, climate regulation, and economic activity. With over 85% of global trade transiting through maritime routes and hundreds of millions of people dependent on coastal and marine resources for livelihoods, the sustainable management of oceans has become imperative. In response to escalating challenges such as marine pollution, climate change, overfishing, and ecosystem degradation, the concept of the Blue Economy has emerged as a framework that promotes economic growth, social equity, and environmental sustainability through responsible use of ocean resources. Recognised internationally since the Rio+20 Conference and aligned with Sustainable Development Goal 14 (Life below Water), the Blue Economy offers an alternative pathway for sustainable development.

India, with its 7,500 km coastline, extensive Exclusive Economic Zone, rich maritime heritage, and strategic location in the Indian Ocean, holds immense potential to leverage the Blue Economy as a driver of national growth. Government initiatives such as Sagarmala and the Draft Blue Economy Policy Framework 2020 highlight fisheries, aquaculture, fish processing, logistics, inland waterways, and port-led development as priority areas. Among these, the marine fisheries and seafood sector represents a significant yet underexploited opportunity. Despite being the world's second-largest fish producer, India's marine seafood market remains largely confined to coastal regions, with limited penetration into inland states where non-vegetarian consumption is high and demand is steadily increasing.

This article examines the scope of a sustainable Blue Economy in India with particular emphasis on the prospects of expanding the marine seafood market to non-coastal and inland states. By improving supply chains, cold storage, processing infrastructure, and market access, marine fisheries can generate employment, enhance nutrition security, and contribute substantially to GDP growth. The study concludes that a cohesive, region-specific, and sustainability-oriented Blue Economy strategy can position India as a global leader in ocean-based development while ensuring inclusive growth and long-term ecological resilience.

**Keywords:** Blue economy, sustainable development, marine fisheries, seafood market, fisheries and aquaculture, sagar mala, ocean governance, maritime trade

### Introduction

Our blue planet, the Earth, contains a large maritime domain. The oceans cover approximately 72 percent of the earth's surface and make up about 95 percent of the whole biosphere<sup>[1]</sup>. Over 600 million people (around 10 percent of the world's population) live in coastal areas that are less than 10 meters above sea level. Nearly 2.4 billion people (about 40 percent of the world's population) live within 100 km (60 miles) of the coast.

Oceans are central to life on Earth. They are rich in oil and natural resources, suppliers of oxygen, absorbers of CO<sub>2</sub>, a virtual heat sink and rich in biodiversity. They have emerged as the global economic highways for the transit of trade. 85% of global trade transit through the oceans. Oceans provide us with revenue through various sectors like fisheries, aquaculture, ports and infrastructure, shipping industry, ocean energy, marine tourism, seabed mining etc.

In the last few decades human interference in the ocean has increased which affects the health of the ocean, marine habitat and climate such as Pollution of our ecosystems, plastics pollution, ocean acidification, overfishing, coral bleaching, sea temperature rise etc. Considering the importance of the ocean and to prevent such negative impact, a new paradigm "Blue Economy" emerged.

### Blue Economy

The concept of "Blue economy" was first introduced by Gunter Pauli in his book "The blue economy 10 years 100

innovations hundred million jobs in 2010"<sup>[2]</sup>. But the importance of the blue economy has been recognized at the Rio+20 United Nations Conference on Sustainable Development (UNCSD) held in Rio de Janeiro in June 2012. Where the blue economy was viewed as an ocean economy that aims at the "improvement of human well-being and social equity, while significantly reducing environmental risks and ecological scarcities".

According to the World Bank, the blue economy is the "sustainable use of ocean resources for economic growth, improved livelihoods, and jobs while preserving the health of ocean ecosystem."<sup>[3]</sup> Blue Economy encompasses many activities. Some major activities are shown in the picture.

The Blue Economy concept has since been presented in many forums and is seen as an alternative economic model for sustainable development that puts the ocean at the heart of this approach.

Blue Economy is related to Sustainable Development Goal 14 "Life below Water". The main objective of SDG 14 is "to conserve and sustainably use the world's oceans, seas and marine resources for sustainable development"<sup>[4]</sup>. This maritime-based economic development will reduce environmental risks and mitigate environmental problems. As a result, the optimized and responsible use of ocean resources will help in balanced socio-economic development. We are so close to 2030 and many of the SGD- 14 targets are still not met, and we are not close

enough. So, we have to adopt a cohesive and integrated approach to address climate and environmental challenges in both manner within a country and among countries.

### India's Blue Economy Scope

States that have dominance over their oceans strategically, economically, and politically do not lose their importance in the international system. Even when terrestrial resources are completely depleted, the ocean supports the race for survival and regeneration. History shows that the nations that ruled the sea also ruled the land. Unfortunately, India has never attempted to dominate the seas around it (except for a few years on the east coast by the Cholas).

The Indian Ocean region is rich in resources, especially in the fisheries, aquaculture, subsea mining, marine energy and minerals sectors, providing enormous economic opportunities for marine tourism and shipping development. So, building a Sustainable Blue Economy requires significant investment in research and development and have to build and execute detailed region specific Blue Economy model.

India has a rich maritime heritage dating back over 9000 years. Its oldest docks ever discovered is at Lothal and date to 2400 BC. Cross-sea trade between India and the Persian Gulf and Western Asian countries was very common. Trade also took place across the regional seas to the eastern coast of India. Trade with China and Vietnam was common<sup>[5]</sup>.

India has a unique maritime location in the Indian Ocean. It has a coastline of more than 7500 km spread across nine coastal States, 12 major and about 200 minor ports with over 2 million km<sup>2</sup> of Exclusive Economic Zone are available here. Approximately 95% of the country's trade by volume and 68% by value are moved through Maritime transport. 6 Nine Indian states and 4 Union Territories touches the coastline i.e. Gujarat, Maharashtra, Karnataka, Goa, Kerala, Tamil Nadu, Andhra Pradesh, Orissa and West Bengal Andaman & Nicobar Islands, Lakshadweep, Daman & Diu and Puducherry.

India needs to unlock the huge potential of its ocean based Blue Economy to put the country on a higher growth trajectory. The development of the Blue Economy will serve as a growth catalyst to realize the vision of becoming \$10 trillion Economy. Moreover, the Indian Ocean region is strategically importance for India's economic growth as most of the country's petroleum and logistics are imported through the sea.

We are seeing that there is immense potential for the development of the Blue Economy and it can play an important role in the overall development of India, but it seems that India is not exploring and exploiting its full potential in the development of the Blue Economy. India was among the first in the world to create a Department of Ocean Development in 1981, now the Ministry of Earth Sciences (MoES) but we do not progress as much as we should to be. However, several countries have undertaken initiatives to utilize their blue economy. For instance, Australia, Brazil, the United Kingdom, the United States, Russia, and Norway have developed national ocean policies. In sync with UN sustainable development, India needs to enhance its maritime capabilities and skills to increase employment and prosperity while making efficient and sustainable use of marine resources.

The Government of India's Vision of New India by 2030 announced 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 to improve the lives of the coastal communities and accelerate development and employment.

The Government of India has published India's Blue Economy: A Draft Policy Framework 2020. The draft Policy aim is to significantly enhance the contribution of the Blue Economy to India's GDP, improve lives of coastal communities, preserve our marine biodiversity and maintain the security of our marine areas and resources<sup>[7]</sup>. In this draft policy framework seven priority areas are identified for the Blue Economy.

- **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

### Inland waterways

Water transportation is one of the oldest means of transport. India is gifted with variety of waterways by nature like river, canals, creeks, tidal inlets. About 59 percent of total freight is transported by road, 6% by waterways, 35% by rail, 1% by air. Shipping generally has lower fuel costs and lower pollution rates than other modes of transport. Unlike other modes of transport, waterways do not need to be built but rather need to be maintained and expanded<sup>[8]</sup>.

Inland waterways play a significant role in the development of the Blue Economy. Therefore, inland waterways will have to be included in the scope of the Blue Economy.

### Sagarmala Project

The Sagar Mala Project is considered a landmark government Initiatives to steer the country towards Blue Economy. The Sagar Mala Programme program is an initiative of the Ministry of Shipping, Govt. of India to improve the performance of the country's logistic sector. It aims to harness the potential of waterways and coastline potential to minimize the infrastructure investment and improve the performance of the logistic sector. Sagar Mala Project was approved by the Union Cabinet on 25th March 2015.

The Sagar Mala Program has identified over 574 projects for implementation between 2015 and 2035 in the areas of port modernization and new port development, port connectivity improvement, port-based industrialization and coastal area development. As of September 30, 2019, a total of 121 projects has been completed, and 201 projects have been implemented<sup>[9]</sup>.

Sagar Mala project is going to be a boost for the development of Blue Economy because it will modernize India's ports, transformed existing ports into modern world class ports and build an efficient communication system

through road, rail, inland and coastal waterways. As a result, the Ports will become the drivers of economic activities. Complementing the Sagar Mala project of port development has the potential to drive economic transformation. There are four main pillars of Sagar Mala showing below. Here we look at the prospects of the marine fish market in India under Priority Area 3: Marine Fishery Aquaculture and Fish Processing.

#### **Possibilities of Marine Fisheries Sector in India States**

The fishery in India emerged as a sunrise sector that provides food, nutrition, employment, income and livelihood. India is the second largest fish producing country in the world after China and accounts for 7.58 percent of the global production. Total 14.16 MMT of fish is produced during 2019-20 with a contribution of 10.44 MMT from the Inland sector and 3.78 MMT from the Marine sector <sup>[10]</sup>. India produced 14% of Inland fish and 4% of marine fish of the world while China produces 16% of inland fish and 15% of marine fish <sup>[11]</sup>. So, it's clear that India has a tremendous potential in the fresh and marine fisheries sector. But if we look at the reach of the marine food market, it does not have access to the interior parts of India. Marine fish market is not available despite its potential in various states of India, although it is available in coastal states like Gujarat, Maharashtra, Goa, Kerala, Tamilnadu, Andhra Pradesh etc. Gujarat, Tamil Nadu and Andhra Pradesh together account for about 50% of the total Marine fish production in India <sup>[12]</sup>. If we extend the reach of the seafood market to the remotest part of India, it will not only increase the fisheries sector status but will also contribute to the country's economy.

If we look in terms of consumer availability about 70% of the people in India are non-vegetarian <sup>[13]</sup>. Therefore it is highly likely that there will be many consumers for the seafood market in Indian inner states. Seafood market can be developed on a commercial scale in Indian states, which can provide job opportunities to the people of India.

As per the Bihar Annual Budget 2019-20, Bihar produced 6.41 lakh tones of fresh fish during 2019-20. While the estimated demand for fish is around 8.5 lakh tonnes <sup>[14]</sup>. To meet the demand of fish, fish is imported from Andhra Pradesh, West Bengal and Nepal. Considering all these circumstances, it appears that if a seafood market is made available in inner states, there is every possibility that there will be many seafood consumers and possibility to develop a huge market of marine food <sup>[15]</sup>. There has been a significant increase in the production of fish in Bihar especially after the considering these facts, it appears that Indian States has immense potential to have seafood consumers and has immense potential for the growth of the seafood market.

Conclusively we can say that Blue Economy is the most progressive form of economic development for contemporary civilization because it is a circular form of economy which does not have any wastage. The waste generated at each stage becomes the raw material for the next stage. This is the only form of economic development that categorically lays emphasis on inclusive growth and sustainable development. India will be a pioneer nation in terms of Blu Economy Potential.

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