Manuscript ID:
IJEBAMPSR-2025-020411

Volume: 2

Issue: 4

Month: August

Year: 2025

E-ISSN: 3065-9140

Submitted: 12-July-2025
Revised: 26 -July-2025
Accepted: 20- Aug-2025
Published: 31-Aug-2025

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DOI: 10.5281/zenodo.18137202
DOI Link:
https://doi.org/10.5281/zenodo.18137202

A Review of Maharashtra's Blue Economy

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Abstract

Blue economy refers to the sustainable use of ocean resources to promote economic growth. The concept is gaining global prominence. India's marine environment provides significant economic opportunities and plays a vital role in people's lives. The paper examines the contribution of the blue economy to promoting economic growth by providing job opportunities and fostering technological advancements through the leveraging of coastal resources. Blue economy would reinforce and strengthen the efforts of the Indian government as it strives to achieve the Sustainable Development Goals (SDG) of hunger and poverty eradication, along with the sustainable use of marine resources by 2030. Climate change, overfishing, pollution, and weak regulations are some of the major challenges faced, and these need to be solved to ensure the long-term viability of India's Blue Economy. This paper focuses on the contribution of the blue economy in generating and sustaining livelihoods and analysing the opportunities and challenges. The paper delves into how the blue economy generates livelihood and explores opportunities in Maharashtra, which contains a long coastline along the Arabian Sea, with a focus on ocean tourism

Keywords: *Blue Economy, Food security, employment generation, opportunities & challenges*

Introduction

The blue economy, also called as sustainable ocean-based economy, includes various economic areas and policies. The main goal of it is to help in the growth of the economy and society, ensuring the health of the oceans and coasts (IBEF, 2022). The economic philosophy of the Blue Economy was first introduced in 1994 by Professor Gunter Pauli at the United Nations University (UNU), and later he also published the book named "The Blue Economy: 10 years, 100 innovations, 100 million jobs" in 2010. Oceans cover three-quarters of the Earth's surface and contain 97 per cent of the Earth's water. Blue economy, through the sustainable use of oceans, has great potential for boosting economicgrowth by providing opportunities for income generation and jobs, etc. It can support food security and diversification to address new resources for energy, new drugs, valuable chemicals, protein food, deep-sea minerals, and security, etc. It is the next sunrise sector. Oceans are increasingly recognised as undervalued powerhouses capable of significant contributions to sustainable development goals through the judicious management of existing assets and exploration of new economic frontiers (Choudhary, 2021). The ocean has the capacity to contribute more to humankind.

The oceanic food industry supports around 237 million people around the world. It provides various important nutrients and proteins to more than 3 billion people (Juneja, 2023). The food from the ocean is the main source of food for over half of the population living in the less developed countries (Juneja, 2023). They contribute around 11.5 billion USD each year to global tourism. They provide us with important services like protection from storms and floods, are a home for a variety of species, act as a carbon sink and can clean the pollution (UNDP, 2023)90% of goods are traded between countries through sea routes. The total value of marine and coastal resources and the industries is around 3 trillion USD per year, which accounts for 5% of the global gross domestic product (Juneja, 2023).

Maharashtra, with its large coastline along the Arabian Sea, is strategically positioned to take advantage of the ocean tourism. This research paper explores the various opportunities andchallenges associated with the development of ocean tourism in Maharashtra, highlighting howthe state can make use of its coastal assets in addressing the crucial environmental and socialissues. It is imperative to ensure that economic growth and the protection of marine resources occur simultaneously through sustainable ocean tourism.

How to Cite this Article:
Bawane, P. P. (2025). A Review of Maharashtra's Blue Economy. International Journal of Economic, Business, Accounting, Agriculture and Management Towards Paradigm Shift in Research, 2(4), 59–62. https://doi.org/10.5281/zenodo.18137202

This shift requires countries to move awayfrom extractive business models and integrate conservation, protection, and rehabilitation into the equation. Ocean tourism contributes significantly to the economies of countries with marine resources, and proper management of tourism in marine environments can help developingcountries achieve several of the Sustainable Development Goals.

According to the World Bank, "the blue economy refers to the sustainable use of ocean resources to support economic growth by providing better livelihoods and job creation while ensuring the ocean ecosystem remains healthy."

According to the National Maritime Foundation, "Marine-based economic development that leads to improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities."

Objectives

1. To know about the blue economy.
2. To analyse the economic contribution of the blue economy in India
3. To study the problems and challenges faced in Maharashtra's blue economy

Components of the Blue Economy

1. Fishery and Aquaculture
2. Maritime Transport
3. Marine Tourism
4. Seawater desalination
5. Deep Sea Mining
6. Marine Biotechnology
7. Renewable Energy
8. Maritime Construction

Fisheries and Aquaculture Sector in India

Traditional sectors like fishing, aquaculture, and fish processing have a major role in the blue economy, evolving from subsistence to commercial practices. These sectors support food security, employment, and income, accounting for 1% of national GDP and 5% of agricultural GDP, while providing support to 16 million fishers and farmers, particularly marginalised communities. The blue economy encompasses India's ocean and marine ecosystem opportunities for livelihoods. Following COVID-19's impact, India must ensure adequate employment. Ocean sectors like fisheries, shipping, tourism, and offshore energy provide millions of jobs. New sectors, including marine biotechnology and shipbuilding, are expanding.

Fisheries can be sub-categorised into two categories: marine fisheries and inland fisheries. Fisheries have contributed Rs. 46,663 crore to the economy through exports in 2019-20. In the past decade, aquaculture production has evidenced tremendous growth. In 1950-51, fish production amounted to 0.75 MMT (million metric tonnes), and in 2019- 20, it was 14.2 MMT. Out of 14.2 MMT production, marine fish production was 3.7 MMT, and inland fish production was 10.4 MMT (Annual Report of the Ministry of Fisheries, Animal Husbandry and Dairying, 2021). There is a fear of depletion of the natural reserve of major fish species due to growing demand for consumption and increased capture due to technological advancements.

China produced 65.70 million metric tonnes of fish in 2020, making it the world's largest fish producer. This is mostly due to government policies that encourage large-scale fish farming, which is aided by advanced technology, to meet the growing demand for fish-based feed. India is the second largest producer of fish in the world, contributing 8.10 per cent to global fish production. India is also a major producer of fish through aquaculture and ranks second in the world after China. India is the fourth-largest fish-exporting nation in the world after China, Canada, Vietnam, and Indonesia.

Table 1: Employment generation in brackish water aquaculture in India during 2020

Sr. No.	Activity	Number of people engaged (in thousands)
1	Fry collection	154000
2	Fry trading and transportation	1500
3	Farming	50,000
4	Shrimp depot workers	1500
5	Shrimp van/boat operators	1500
6	Processing factory workers	1500
	TOTAL	2,10,000

Source: www.ciba.res.in

The table above indicates that 210,000 individuals participate in brackish water aquaculture, with 154,000 involved in fry collection and 50,000 in farming activities. The majority of individuals engaged in brackish water aquaculture are involved in fry collection, which represents the largest segment at 154,000 people. Farming activities also play a significant role, with 50,000 individuals contributing to this sector. Smaller groups, such as those involved in fry

trading, transportation, and processing, each consist of 1,500 people, highlighting the diverse range of activities supporting the aquaculture industry.

Table 2: Population dependent on fisheries for livelihood in India

State	Fishing Villages	Fishing Families	Fisherfolk Population
Andhra Pradesh	555 (16.2)	1,63,427 (18.7)	605,428 (14.9)
Gujarat	247 (7.2)	62,231 (7.1)	336,181 (8.3)
Tamil Nadu	573	(16.7) 1,92,697	8,02,912 (19.8)
Odisha	(23.7)	1,14,238 (13.1)	6,05,514 (14.9)
Karnataka	144 (4.2)	30,713 (3.5)	167,429 (4.1)
Kerala	222 (6.5)	1,18,937 (13.6)	6,10,165 (15.0)
Goa	39 (1.1)	2,189 (0.3)	10,545 (0.3)
Maharashtra	4,56(13.3)	81,492 (9.3)	3,86,259 (9.5)
West Bengal	188 (5.5)	76,981 (8.8)	3,80,138 (9.4)

Note: Figures in brackets show the shares in percentage. Source: Blue Economy Working Group Report, 2020

The table above displays the population dependent on fisheries in India's coastal states. Andhra Pradesh has the highest number of fishing families, while Tamil Nadu has the most fishing villages and fisherfolk near major ports.Fishing, as a sector, is now moving from subsistence to commercial production through practices such as aquaculture, which require technical skills at every level of the value chain.

Government Initiatives:

India has launched major initiatives to enhance the fisheries sector. The Blue Revolution integrated development and management of fisheries program was started in 2015-16, having a total budget of Rs. 3,000 crore, approximately US $ 384.3 million, to increase productivity in both marine and inland fisheries. In 2018-19, the Fisheries and Aquaculture Infrastructure Development Fund (FIDF) was established with initial funding of Rs7,522.48 crores, approximately US$93.5 million, to strengthen fisheries infrastructure. A National Fisheries Policy has been initiated to support sustainable management. It aims to ensure the sustainable use of marine and inland fishery resources while boosting the overall productivity. It focuses on promoting responsible fishing practices, enhancing the welfare of fishers, and encouraging the development of aquaculture by improving market access and infrastructure to increase the income of people involved in this sector. In May 2020, the Pradhan Mantri Matsya Sampada Yojana (PMMSY) was launched with a budget of Rs. 20,050 crore to enhance the development and management of the blue economy. The PMMSY aims to enhance fish production, improve productivity, and create employment opportunities in the fisheries sector. It focuses on modernising infrastructure, promoting sustainable fishing practices, and supporting aquaculture development. These initiatives collectively aim to boost India's fisheries sector, contributing significantly to the economy and livelihoods.

Conclusion

The global community is exploring ocean opportunities for growth and innovation. However, the success of the marinesectors relies on ocean health and ecosystem sustainability. Enhancing the blue economy and balancing economic growth with environmental protection is essential. A healthy marine ecosystem supports biodiversity, which is crucial for maintaining the balance of ocean life. It also provides essential services such as carbon sequestration, which helps mitigate climate change, and supports industries like fishing and tourism by ensuring sustainable resources. Preserving ocean health not only benefits the environment but also boosts economic resilience and food security for communities worldwide.By prioritising sustainable practices, such as reducing pollution, regulating fishing, and protecting marine habitats, we can ensure the long-term viability of ocean resources. This approach not only safeguards marine biodiversity but also strengthens the resilience of coastal economies, fostering a balance between development and environmental stewardship. Governments and industries must prioritise sustainable practices and invest in ocean conservation. Collaborative international efforts can create policies that protect marine biodiversity while supporting economic activities. These efforts require a commitment to innovation, education, and public awareness to ensure widespread adoption of sustainable practices. By fostering partnerships between governments, industries, and local communities, we can create a global movement to protect and restore the health of our oceans for future generations.

Acknowledgment

I would like to express my sincere gratitude to all those who have directly or indirectly contributed to the completion of this research paper titled “A Review of Maharashtra’s Blue Economy.”

I am deeply thankful to my institution B. Y. K. (Sinnar) College of Commerce, Nashik, for providing a supportive academic environment and

necessary facilities to carry out this study. I extend my heartfelt thanks to my colleagues and senior faculty members for their valuable suggestions, encouragement, and constructive feedback during the preparation of this manuscript.

I also acknowledge the support and guidance received from various scholars, policymakers, and researchers whose published works, reports, and data sources have significantly contributed to shaping the conceptual and analytical framework of this study. The reports and data published by government agencies, international organizations, and research institutions have been particularly helpful in understanding the dimensions of the blue economy and its relevance to Maharashtra and India.

Finally, I express my sincere appreciation to my family and well-wishers for their constant moral support, motivation, and encouragement throughout the research process.

Financial support and sponsorship

Nil.

Conflicts of interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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