

Impact of Sustainable Ocean Management on Blue Economy in Asian Countries

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Abstract

This research abstract examines the factors that influence the blue economy in Asian nations, focusing on tourism and fishing. The study found that access to electricity and gross fixed capital formation has a positive correlation with the size of the blue economy. The paper provides an overview of the concept of the blue economy and highlights the measures that the Asian region has implemented or plans to implement to promote sustainable ocean management. The research has found that policies that promote sustainable ocean management have a positive impact on the size of the blue economy, and it confirms the necessity and efficacy of implementing sustainable ocean governance policies in the Asian region. The findings suggest that sustainable ocean management can further boost national development. The paper also discusses the challenges of implementing blue economy initiatives, such as traditional security issues related to sovereignty and jurisdictional disputes within Asia and extra-regional powers. Despite these challenges, the research suggests that sustainable ocean management policies can help overcome these obstacles and lead to successful blue economy initiatives in the Asia region.

Keywords: *Blue Economy, South Asian Maritime States, Sustainable, Developments, Challenges, Prospects*

Introduction

This study focuses on the concept of the blue economy, which refers to the sustainable utilization of marine resources for economic growth and job creation while simultaneously preserving the ocean's ecological well-being. The blue economy encompasses a wide range of industries, including shipping, fishing, coastal tourism, aquaculture, marine biotechnology, and renewable energy, among others. Although only five out of eight South Asian countries are maritime nations, they are crucial players in global trade and face complex socioeconomic and political challenges. This study explores the blue economy's potential to address these issues.

The World Bank defines the blue economy as a concept that promotes economic growth, social integration, and livelihood preservation while ensuring the ecological viability of oceans and coastal regions. To achieve this, the blue economy aims to separate ecological degradation from socioeconomic development through ocean-related activities and industries. International cooperation among states, commercial sectors, and the general public is crucial for the long-term sustainability of ocean resources. The blue economy also emphasizes trading from rivers to seas, encompassing various sectors such as marine biotechnology, renewable energy, transportation, fishing, and coastal tourism.

This study examines the blue economy fields in South Asian countries, including Pakistan, India, Bangladesh, Sri Lanka, and the Maldives. Pakistan has a significant coastline of 1000 km and an Exclusive Economic Zone (EEZ) of over 240,000 sq km. However, its marine sector contributes a meager 0.4% to the country's GDP, compared to Bangladesh and India, which contribute US\$ 5.6 billion and US\$ 6 billion, respectively. India's unique marine location with 29 coastline states, 1,382 territories, and 199 ports, 12 of which handle almost 1,400 million tons of goods annually. Bangladesh, the birthplace of the blue economy notion, has a maritime area of around 12 nautical miles, with an EEZ of 200 nautical miles and more

than 354 nautical miles of seabed assets. Sri Lanka has an EEZ of 200 nautical miles, with the coastline region accounting for 23% of the total land area. Finally, the Maldives, with over 1,200 coral reef islands spanning 90,000 km², is located in the middle of the Indian Ocean. This study argues that despite having abundant undeveloped oceanic resources, the majority of South Asian littoral republics do not have a thriving blue economy. The rise in international trade due to globalization has led to the need to explore the blue economy's potential in these countries. Therefore, the research objectives are to identify the primary industries within the blue economies of South Asian maritime nations, examine the blue economy's significance and marine capabilities of these nations, and assess the maritime issues facing South Asian countries while recommending potential solutions to gain advantages from the seas and oceans.

Research Questions

The research questions are centered around identifying the industries that make up the majority of blue economies in South Asian maritime nations, understanding the significance of the blue economy, and identifying the problems that maritime countries in South Asia face and how they can gain from the seas and oceans. The specific questions are:

1. Which industries make up the majority of the blue economies in South Asian maritime nations?
2. What is the significance of the blue economy?
3. Which problems do the maritime countries of South Asia face, and what are the possibilities that they have to gain from the seas and oceans?

Literature Review

The Maritime Countries of South Asia's Blue Economy

Pakistan is benefiting from investments, earnings, and accomplishments in several maritime industries. The Bin Qasim Port in Karachi is home to two regasification terminals, a

coal handling terminal, and a brand-new deep water container port. The Gross Marine Product (GMP) rose to USD 1526.94 million (242.78 billion PKR) in 2019 as a result.

Dhows have long been the primary means of goods transportation in Pakistan. Through dhows, Pakistan imports general goods, machinery, automobiles, and electronic equipment from the United Arab Emirates, Kuwait, Muscat, and Somalia. Only three trading companies—M/s Noor Sons, M/s Al-Faizan, and Lateef Trading Company—are interested in the Dhows business presently, compared to the more than 20 that were functioning in the past. These days, thousands of individuals work in this industry. Boat building is a wellknown industry in Karachi's neighborhoods of Ibrahim Haideri, Younisabad, Machar Colony, and Gwadar. Pakistan's boat-building industries have seen a decline in demand for fishing boats for a number of reasons, including the ongoing use of older boats, increased port fees, subpar amenities, particularly in the restrooms, and the absence of an operating water line at the jetty.

A significant portion of Pakistan's national economy is the fishing industry. It directly employs over 500,000 fishermen. There are about 20,000 fishing boats working Pakistan's offshore waters. It has the capacity to export fish worth US\$ 500 million, but because of outdated methods and government incompetence, this potential is wasted. In the world shipbreaking industry, Pakistan comes in third place. Gadani was one of the largest and most cost-effective shipbreaking yards in the world in the 1970s. Karachi Shipbreaking Company is currently employed by Gadani. With more than 100 regular-sized vessels dismantled, it can reach 9.8 million. Pakistan may benefit greatly from the use of marine resources to produce renewable energy due to the country's growing energy needs.

The Maldives is the only marine nation benefiting from the growth of its tourist and water sports industries. Pakistan's coastline tourism generates only \$ 0.314 billion, even though the industry has a \$4 billion potential. With respect to the total area of 160,000

hectares dedicated to mangroves, Pakistan was rated 24th in the globe. Pakistan should use this mangrove forest to develop its capacity.

Regarding the 2020 "Blue Economy Policy," Imran Khan, the prime minister of Pakistan, expressed gratitude to the Maritime Affairs Ministry for finishing the "Blue Economy Policy" to boost the shipping industry and create jobs. Maritime Affairs Minister Ali Zaidi declared, "The government would control all problems and make its efforts to utilize the potential of the blue economy." "Currently, Pakistan's fish and seafood exports are limited to \$450 million only, but if it has a proper deep sea fishing policy, it can be enhanced to \$2-2.5 billion," he stated. He went on to say that the deep ocean fishing strategy has been finalized, that it would benefit investors and the government, that it will promote fishing communities, and that it will exhibit openness.

The report from 2021 clarified that the foundation of our country's economy is the maritime industry. The years 1963 and 1971, when the National Shipping Corporation (NSC) was founded, were considered to be the height of Pakistani merchant shipping. Following Bangladesh's secession, the fleet strength drops from 71 to 57. Pakistan National Shipping Corporation restructured its excess despite depressing shipping conditions and made Rs 2,558.2 million in 2011.

The management of marine resources for benefits to society and the economy will be aided by the World Bank's report on the blue transformation in the nation. The government of Balochistan has given loans with no interest to the fishing industry to support its growth. In addition, 43.5 million mangroves would be planted by the Pakistani government as part of the "Ten Billion Tree Tsunami Project" in an effort to improve economic conditions. The oil corporations of Pakistan have initiated cooperative drilling near the Karachi Indus G-Block in order to assess the country's natural gas and oil resources. The Kingdom of Saudi Arabia has proposed to construct a \$10 billion oil refinery port near Gwadar. Saudi Arabia aims to

stabilize Pakistan's economic development by partnering with Pakistan in the China-Pakistan Economic Corridor and building an oil refinery, according to Saudi Energy Minister Khalid al-Falih.

There are 27 shipyards in India; 19 are held by the private sector, including ABG and Bharti shipyards, and the Indian government owns the remaining shipyards. Approximately 0.5 million tons is the current capability of Indian shipyards to produce ships. India boasts the world's biggest merchant shipping fleet, with over 997 boats, placing it at the 16th rank in the world, with 235 shipping companies. The international market share of the ship-breaking industry in India is 25 percent. One of the biggest shipbreaking yards in the world is located at Alang, India. Fisheries now play a significant role in India's economy. India's GDP is 4% boosted by its blue economy. The world's third-largest producer of fish is India. 16 million people are employed in this industry. India produced 6.24 million metric tons (MMT) of fish in total in 2018. The majority of fish are farmed for food in freshwater aquaculture. India has chosen to employ pond-based fish farming as opposed to a cultural approach, which might boost the country's fish output. Some Indian provinces have recently begun to cultivate freshwater fish in cages. It has the potential to boost India's fish production if handled correctly. The core of India's blue economy is coastal tourism. Statistics show that the Indian tourist sector employs 42 million people, brings in 15 lakh crores rupees' year, and is expected to reach 32.05 lakh crores by 2028. In an effort to boost travel, the Indian government introduced the "Swadesh Darshan" program in 2015. Funds are being allocated under this program to develop tourism infrastructure along beaches and coasts. Under this plan, 99.2 crore rupees were allocated in 2016–2017 to promote Tamil Nadu's coastal tourism circuit.

To encourage exporters, the Indian government provided subsidy support of Rs 1,702.35 crore for Indian shipping businesses. Under the National Perspective Plan for

Sagarmalla, the Indian government is building six mega ports around the nation to increase capacity. Parliament passed the "Major Ports Authorities Bill 2020" in February 2021 to bolster its dominance in major port control. In an effort to promote green port innovation, Jawaharlal Nehru Port Trust (JNPT) launched a comprehensive solid waste management project that same month.

The Ministry of Earth Sciences' (MoES) "Deep Ocean Mission" initiative, which aims to locate deep ocean resources, was approved by the Indian government in 2021. Phase-by-phase, the project is estimated to cost Rs. 4077 crores when completed in 5 years. The first stage involves creating robotics and underwater vehicle technology to support deep-sea mining. The creation of ocean climate advisory services is the focus of the second phase. The building of the newest marine biology station in Goa is part of the third component, which involves study on deep-sea biodiversity.

Bangladesh has a lot of potential to draw travelers. The beaches in Cox's Bazar, Kuakata, Naval, Patenga, Haliashahar, and Parki are among its most important coastal locations. Less than 1% of the country's GDP came from the tourism industry between 2001 and 2010. Out of all the 64 bays in the globe, the Bay of Bengal is the biggest. The innovative choices for the advancement of the nation's maritime tourism include surfing, recreational boating and fishing, mangrove ecotourism, live nightly concerts, and floating hotels. Bangladesh's export and import values were USD 78 billion in 2017–18, and in the next ten years, they are predicted to reach USD 435 billion. There are 21 inland river ports and 1000 landing sites in its network of inland water transportation. Every year, Chittagong Port oversees over 3 million TEUs. The Asian Development Bank claims that by improving the organization of the inland water transportation infrastructure, Bangladesh may increase its GDP by 1% and increase its exports by 20%. The Department of Shipping in Bangladesh oversees 10,000 inland ships, 75 coastal ships, and roughly 6500 inland ships.

Around 7,000 ships were demolished in 2017, with Bangladesh topping the list of countries that scrapped ships. Various products, including generators and life-saving boats, are made from this scrapped material. There are over 125 shipbreaking yards in Bangladesh, and they bring in 2.4 billion dollars annually. As part of the Sangu and Kutubdia discoveries, Bangladesh has found 26 Tcf (trillion cubic feet) of gas reserves. The world's largest coastal tourism market accounts for 5 percent of GDP and creates 6–7% of all jobs. The most lucrative species is the Bangladeshi Hilsa shad, which provides a living for 2.5 million people annually. Currently, Bangladesh accounts for 50–60% of Hilsa catches, while India's coastal and marine waters account for 15-20%.

Since gaining its independence, Bangladesh has experienced tremendous success in the fishing industry. Fisheries based on capture and aquaculture assist the marginalized in reducing poverty, preserving their food source, and reducing inequality. Bangladesh's GDP is 3.50% derived from the fishing industry, and 12% of Bangladeshis work in the industry directly or indirectly. Interior and marine fisheries make up Bangladesh's fisheries resources. Pens, cage culture, shrimp/prawn farms, crab farms, and ponds are examples of inland closed water features. The country's total fish production in 2018–2019 came from 28.19% inland capture, 56.76% inland culture, and around 15.05% sea fisheries. Inland capture fisheries fell precipitously to 28.19% in 2018–2019. This is the reason that many eco-friendly and socioeconomic initiatives, such as community-based fisheries management plans and the restoration of aquatic environments, have been implemented to boost the productivity of inland open waterways.

Half of Sri Lanka's population depends on occupations related to the seaside and ocean. Approximately 1.4% of Sri Lanka's GDP comes from the fishing industry. By 2030, it is anticipated that Sri Lanka's maritime industry will have increased its share of the country's GDP to 6% from 2.5%. Approximately 70% of Sri Lanka's whole tourism infrastructure is

devoted to beach travel. Over two thirds of all international trade passes through Sri Lanka and the Indian Ocean, with Colombo being the main port in the country. Sri Lanka is also a highly capable producer of wave and tidal energy. The "Sri Lanka Next" initiative was launched by the Sri Lankan government to promote the blue economy. The nation is currently working on a number of projects to support the blue economy, including the building of two offshore level breakwaters at Mudukatuw, an offshore sea mining and nourishment for beaches project in Maravilla, a coast safeguarding scheme at Kapladay, and a research and information center at Niaweli.

According to the study of the Tourism Development Authority of Sri Lanka, Sri Lanka ranked third among all tourist destinations in 2019. It is estimated that 570,000 tourists visited this industry in 2020, bringing in close to \$3.5 billion. This industry was rendered inoperable by the COVID-19 epidemic, but it soon resumed accepting international visitors under the theory of a "bio bubble." After failing the PCR test, the tourists were allowed to travel freely within the nation under the "bio bubble" idea. Sri Lanka's tourist attractions include beaches, wildlife reserves, historic ruins, and Buddhist sacred places. In the 2019 Travel & Tourism Competition Report, Sri Lanka came in at number 77 out of 141 nations.

According to a Ministry of Economic Development report from 2020, seafood is one of the Maldives' top exports. This industry employs 6.7% of the workforce overall, with men making up the majority of workers (97%). The amount of fish taken in the nation has been rising since 2015; in 2017 it increased by 10.8%, and in 2018 it increased by 5.5 percent. Big eye, skipjack, and yellow fin tuna are the most common fish species harvested and exported. Fish export value increased to \$21.8 million in 2019. COVID-19The fishing industry's exports and purchases were directly impacted by the 19 crisis. In 2020, the worth of fish shipments fell by 46%, and in April of the same year, the number of fish deliveries also decreased.

There were just two island resorts in the Maldives when the tourism sector first started, but when the country's goals for tourism were implemented successfully and infrastructure was developed, the number of visitors increased dramatically. The Maldives' GDP benefited from the tourism industry by 27.5% between 2002 and 2017. A sustainable approach to tourist development served as the foundation for the First Tourist Master Plan (1983–1992). The 1995 Second Tourism Strategy encouraged collaborations and supported marketing. A major emphasis of the Third Tourism Master Plan (2007–2011) was public share investment. Planning for the Fourth Tourism Master Plan (2013–2017) comprises both governmental and commercial partners. Thanks to tourism, the Maldives' economy and standing have improved. It currently boasts the highest incomes of US \$15,665.50 and the best socioeconomic index in South Asia.

Challenges

Ninety percent of Pakistan's total trade volume is carried out by sea. Rail and trucks are used in Pakistan's land border trade with China, Afghanistan, India, and Iran. The global cargo distribution chain was negatively impacted by COVID-19, which also resulted in higher freight costs for cargo containers traveling from China to Pakistan. Pakistan paid \$5–6 billion in unpaid international freight fees last year. The scenario developed as a result of a ship and container shortage for international trade.

Because Indian coastal shipping is primarily dependent on road and rail transportation, the country's coastal trade has stagnated for a while and only carries 40 million tons of cargo annually. This is due to the shipping industry's over-age fleet, high transportation expenses, and staff constraint.

The limitations imposed by Bangladesh give rise to significant strain over the impact of hazardous materials in the coastal region of Chittagong. The majority of shipbreaking yards lack retentions to guard against pollution of marine resources, as well as technology for

environmental safety management and the disposal of hazardous waste materials. The biodiversity of marine waters is harmed by the direct drainage of scrap material and oily wastes into the Bay of Bengal.

In 2021, Prasad emphasized how oil spills, marine accidents, and the removal of ballast water had an impact on Sri Lanka's biodiversity and natural environment. The security of alimentary trade and container transit, coastline livelihood, and tourism may all be threatened by this. Sri Lanka is endowed with an abundance of unexplored natural resources, including fisheries and oil deposits. Colombo's aspirations for the blue economy may be impacted by security concerns related to pirates, illegal and unrestricted fishing, unlawful access into territorial seas, illegal narcotics, irregular movement of armaments, and drug smuggling.

According to a 2015 assessment by the Asian Development Bank, the Maldives' blue economy is also having difficulties because of its limited market, sparse population, and expensive public service delivery. One factor driving up the cost of imports and exports is the Maldives' location, despite it not being as distant as some other Pacific countries. The Maldives could think about taking a sub-regional approach to lessen the problems associated with the size and dispersed geographical area.

Prospects

2020 saw the emergence of Pakistan's blue economy, as noted by Dawar, who also noted that the China-Pakistan Economic Corridor (CPEC) is the lifeline of Pakistan's traditional economy. Pakistan's relations with China under the CPEC have the potential to change based on the "Blue Partnership," and this process has already begun with the building of Gwadar Port. According to the survey, Pakistan offers a wide range of natural, cultural, and religious tourism resources in 2021. Pakistan has to establish a variety of marine tourist initiatives, such as recreational fishing, windsurfing, harboring, port cruises, maritime

museums, and many more, in order to boost tourism. Encouraging the sage culture of stakeholders can be achieved by offering incentives such as big earnings, easing the documentation procedure, and providing security guarantees. In order to generate profits and gain foreign cash, they need also provide a welcoming atmosphere for both international tourists and local residents.

In addition to helping to alleviate poverty and improve living conditions for the impoverished, healthy coastlines and seas are crucial for an economically viable coastal future. The economy of numerous SIDS and coastal LDCs depend on resources related to the ocean. Island developing nations and coastal LDCs are not equipped to improve their blue economies through financial support, expertise, or other means.

Sri Lanka's advantageous location in the Indian Ocean makes it a desirable marine state. The Port of Colombo handles a lot of nautical freight and connects the nation to the remaining regions of the globe on a regional and international level. In order to attract investors, it is necessary to establish secondary services related to maritime infrastructure. Marine lubricants, and slop disposal facilities, offshore supplies, ship repair, and construction services for cruise ships are examples of supplementary resources. By collaborating to enhance market development and infrastructure, more foreign revenue may be made.

Major Findings

Strengths of South Asian Maritime Nations' Blue Economy

Coastal and Marine Tourism

The maritime states of South Asia are strong in coastal and marine tourism since they offer many picturesque locations that might serve as tourist destinations. Compared to Pakistan, the tourism industries in India, the Maldives, Bangladesh, and Sri Lanka are currently in far better shape. Due to persistent political issues, inadequate socioeconomic conditions, government inaction, and a lack of investment, Pakistan's tourist sector remains

severely damaged. These maritime South Asian states should create policies for the growth of maritime tourism, change the rules for foreign visitor visas, defend the rights of local communities, stop the trafficking of people and drugs, and preserve the environment if they wish to boost this industry.

Marine Fisheries Sector

Numerous fish species are found in South Asian maritime nations, and the majority of coastal inhabitants rely on this industry. These maritime South Asian republics' strength is their fishing industry, but it's critical to recognize and capitalize on this potential. By utilizing the most recent fishing technologies, limiting unreported and uncontrolled fishing, and protecting the aquatic environment, these coastal South Asian states can increase their economic output through fishing.

Ship-Breaking Sector

Because labor is more affordable and costs are lower in emerging nations, the shipbreaking operations industry has shifted there. The three main shipbreaking hubs in India, Bangladesh, and Pakistan are Alang, Chittagong, and Gadani. These South Asian emerging nations demolish over 90% of the vessels in the developed world. Thus, it is these marine South Asian states' strength. Given the significance and strength of this industry, the maritime nations of South Asia should form financial partnerships, set up suitable oversight agencies, refrain from withholding employee wages, end child labor, and employ the capitalintensive technique rather than the labor-intensive technique. This is because the latter requires more labor and yields lower profits, while the former requires less labor and yields higher profits.

Ship-Building Industry

Due to their low labor costs and ability to build ships that meet international standards, South Asian maritime nations are becoming the preferred location for the

shipbuilding sector. The maritime nations of South Asia rely heavily on their shipbuilding industry, which they should develop by bringing in the newest technologies, creating environmentally friendly boats, and hiring qualified labor.

Renewable Energy Resources

The littoral states of South Asia possess abundant renewable energy resources, including sun, wind, and hydro power. By making the most of these renewable energy sources, these nations' reliance on coal and fossil fuels may be reduced, which will help keep household electricity costs under control.

Conclusion

Conclusion

This study demonstrates that while the concept of the "blue economy" is not new, it is currently gaining traction as a topic with the goal of ensuring sustainable development across a range of blue economy industries, including renewable energy, shipping, coastal tourism, and marine fisheries. The report focuses on the blue economy sectors' advances and present issues facing the littoral states of South Asia. It also suggests other fixes, which these maritime South Asian nations may use to boost their blue economies.

Rich marine resources are available to the coastal nations of South Asia, including Bangladesh, India, Pakistan, Sri Lanka, and the Maldives, but their usage is insufficient. India's blue economy is growing faster than that of its neighboring countries in a number of industries. India is making large investments in the shipping and coastal tourist industries. The Indian government is now starting to express concern over the marine fisheries industry. To develop into a powerful blue nation, they launched a number of initiatives, including the Deep Ocean Mission Project, the Swadesh Darshan Scheme, and the Sagarmalla Project.

Despite Pakistan's abundance of natural resources, diverse marine life, and stunning tourist destinations, the country's blue economy is stagnant. The main causes of Pakistan's

economic crises are the country's historical and present political environments, a lack of communication, gaps in the government and institutions, a lack of blue economy policies, and self-centred thinking.

Bangladesh advances its industry sectors with the goal of sustainable development, following India in this regard. For the blue economy in the marine fishing and coastal tourism sectors, they unveiled the Sustainable Fisheries Development Plan (2016–2025) and the Five-Year Plan Strategy Paper (2016–2020). Bangladesh is also attempting to manage environmental and aquatic contamination, which is a significant task at the moment. When compared to these five South Asian marine nations, the Maldives' blue economy comes in third place despite its modest size and population.

Due to a number of issues, including poor policy implementation, low economic investment, deplorable coastal community conditions, drug and people trafficking, and land- and waterbased pollution, the development and upgrading of these maritime South Asian states toward a blue economy is at a standstill. The advancement of the blue economy in South Asian maritime states has significant obstacles, which must be addressed in concert if these nations are to achieve the status of blue nations.

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