India's Coastline Can Become an Engine of Growth: An Economic Overview

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ABSTRACT

The broader concept of the Blue Economy is associated with all economic activities which are directly or indirectly related to the coastal zone and ocean. The term Ocean Economy is inseparable and has been used in different ways, it is understood here as comprising the range of economic sectors and related policies that together determine, whether the use of oceanic resources is sustainable and linked ecosystem services. The sustainability and aspect of prosperity of any nation's economy based on crucial industries associated with blue economy. Blue Economy includes the Fisheries, Aquaculture sector, Water Resources synchronized with the Shipping Transport, Marine Energy Minerals, Tourism, Genetic Resources, Biotechnology, sectors have been analyzed. This is the descriptive type of research and data is retrospected from the secondary data collection method. This research paper mainly relies on the utilization and management of the oceans, seas, lakes, and river's resources in a sustainable way. This paper analyzes the ever-changing and indistinct definition of blue economy and sustainable development of it. It is as a result of reviewing the approaches and the contextual perspectives known to be adopted in the process of defining this complexity of the concept. It has been concluding that Blue economy can become a crucial source of economic development.

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1. Introduction to Blue Economy

Coastal Economy was defined by U.S. Geological Survey as it is the sum of all economic activity occurring in countries defined by their states as part of their coastal zone management program or part of a coastal watershed. Other definitions of the Blue Economy or Blue Growth have been established by the World Oceans Council, the Australian Government, the United Nations, the World Wildlife Fund. the Partnership for the Environmental Management of the Seas of East Asia (PEMSEA), the European Union and The Economist magazine, amongst others (East Asian Seas Congress, 2012; Mohanty et al., 2015; National Marine Science Committee, 2015; The Economist. 2015: United Nations. 2014: Whisnant & Reyes, 2015; WWF Baltic Ecoregion Programe, 2015). There are many commonalities across these definitions, with most incorporating economic, social and environmental objectives, and most highlighting a central role for innovation and integrated management in fulfilling these objectives (Keen et al., 2017). Despite these commonalities, it is clear that the concept of the Blue Economy is fluid, and opaque (Choi, 2017; Silver et al., 2015; Winder & Le Heron, 2017).

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Oceans can affect human life in all the ways, as it causes the ecological, geographical, and environmental balance on the planet. Blue Economy is responsible for specific form procedures enrooted for encompassing the classification of oceanic possessions – to own up the primary, benefits that are life-supporting, and that of the services that are provided by marine

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along with the ecosystems based on coastal areas.

The ecosystem is the physical environment of living organisms. The ecosystem is the physical environment of living organisms. All the abovementioned types of these ecosystem services are as associated that too, in an indivisible way. It is with those forms of attaining sustainability and prosperity in terms of the key industries that are placed surrounded by the Blue Economy.

Aquaculture along with the Fisheries, the Water Resources, the Shipping and that of the Transport system, the Tourism Industry, the Energy industry based on Marine and the Minerals. Besides it also takes into account the Genetic Resources along with those of Biotechnology, and also addresses the need for applying technologies in Controlling the Pollution. It is therefore, the approach as undertaken to be Blue Economy is need of the hour to deal with all the critical issues that are affecting the marine ecosystem services and benefits sustainability effectively. It ongoing further tend to include the practices of overfishing, the aspect of climatic change, the issue of ocean acidification, loss of habitats and that of the biodiversity, comprising of invasive species, the resulting waste, and pollution.

The possibility of a "blue" economy (or blue growth) has created over the earlier decade and is showing up as a certain critical new lane for the global economy. The blue economy insinuates a marine-based economic model that makes sure about the ocean by using sustainable advancement and infrastructure to guarantee the safety of the ocean resources. The Blue Economy is a "traditional" offshore activity program based on the model to improve the environment. Or instance, the developments of oil and gas industry, maritime industries, for instance, ports, water transportation business. Similarly act as a tool by

the use of which the emerging industries based on aquaculture, carbon sequestration (or blue carbon) along with the production of renewable energy, like wind, tidal and wave energy can be encouraged. Besides it also encourages the creation of renewable energy for instance, from sunlight, air, and tidal power, it is a process that describes how the environmental-pleasing and economic headway are joined with dynamic trade-offs. These tradeoffs are not made clear in the paper. All these decisions and Social points of view are also seen as the best approach to environmentally sustainable progression, yet these social perspectives are oftentimes ignored in the blue economy literature.

The exploration of Blue Economy by the renowned author Gunter Pauli, The Blue Economy: 10 years, 100 innovations, 100 million jobs (2010), A Blue Economy business model, will promote a civilization from shortage of the resources to profusion of the resources which is locally accessible by handling issues that subject environmental troubles in new ways, subjects on nature and imparts industries and entrepreneurs to impersonator nature in context to the process and the formation of their products.

The Blue Economy tends to respond toward the basic form of a need as associated with all those they own, introduce the aspect of innovations as inspired in context to nature. It is carried out by the generation of multiple types' benefit that includes jobs along with social and capital, a form of an offering that is more with less.¹

The blue economy is competent enough to contribute up to an amount of USD \$1.5 trillion in context to the globally-based economy by implementing aspects of efficient management. This, in turn, will help in the sustainable exploitation of oceans, seas, lakes, and river' resources. In relation to the Organization for Economic Cooperation and Development, it is also known as the intergovernmental organization that comprises of only 36 countries.²

The importance of the blue economy in terms of strategy formulation in terms of the trade can be evident in noting the fact that, International

2159

https://www.theblueeconomy.org/principles.html)

https://www.un.org/africarenewal/magazine/december-2018-march-2019/blue-economy-can-belifeline-africa

Maritime Organization, in the form of a specialized UN agency, is held responsible for regulating the moves of the shipping. As for an instance, it is up to 90% of the total global tradeoffs in terms of volume facilitation by and by seventy percent of the total value is carried out by means of the sea.

Kenya is this week the host of the first global, 'Sustainable Blue Economy Conference (SBEC). Canada and Japan are co-hosts of the conference. Initiatives and applications associated with the Blue Economy are emerging all around the world as in the form of proving it as in the form of a diverse, at the same time dynamic and wideranging.

2. Objectives

- 1. To study the economic overview of Blue Economy over the globe
- 2 To study the Global conceptual framework of Blue Economy.
- 3. To study and explore the concept of Blue economy and sustainable development.
- 4. To study India's Blue economy and sustainable development

3. Research Design

The study is based on exploratory research and approached the phenomenon that aims determine the already explored facts. In addition to it acts to enlighten the events related to the sustainable development of the blue economy. Exploratory research will enable the study in both a descriptive and exploratory manner. In the context of this study, secondary data were collected from relevant resources. Like those of the research article that comprises of the specialist in the field. Besides the ones mentioned above aspect of their impression was based on the knowledge as gained from different books, and the reports of UNEP, report of World Bank on Potential of Blue Economy, and from the description of IORA.

4. Review of Literature

National Ocean Economics Program (NOEP) is instrumental in defining the context of the coastal economy as in the form of a sum as associated with all economic activity. All these economic activities are occurring in context to the countries that are as represented in context to the states as a part of their own coastal zone management program. On the other hand, it represents a part of a coastal watershed that is as defined by the contextual U.S. Geological Survey.

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Keynote: Blue economy in context to the environment along with the behavioral aspects that are meant towards the maintenance of a sustainable form of coastal development. Nicholas Kathijotes (2013), was instrumental in expressing his views on management decisions and the contextual business investments that peculiarly focus on the well-being of the oceans that are essential if they continue to avail profit on or after this precious natural resource. Unsustainable use results in the depletion of many natural resources present in the marine environment, which endangers their ecosystem, the security of food and risk in terms of climate. Applying the concept of a "blue" economy would be a big pace in the right direction. "Innovation" is the vital word on which to work in accordance with UNEP, changes in the blue economy will undo the possibilities of the maritime economy while plummeting sea levels and poverty alleviation.

A Blue Economy for Aotearoa New Zealand? Maria Bargh (2013) there are few cultural considerations in setting up a blue economy structure in Aotearoa, New Zealand. The concept of the blue economy emerged in response to global economic and social factors and is the subject of a case study for entrepreneurs and businessmen. Paoli seeks to apply sustainability to the market, interpreting it as a way for companies to gain competitiveness and efficiency. In the context as mentioned above, it can be said that places that focus on the individual entrepreneurs along with the innovations that slightly collectives than that of a communally-owned form of operations per se.

Determinants of Ocean Tourism: A Case Study of Florida Beach Counties, Yehuda L.Klein, and Jeffrey Osleeb (2010) are instrumental in dictating a fact that, "From the history of US, the coastal

zone has been the epicenter associated with a number of economic activity."

The context of the article mainly concentrates on the aspect of determining coastal tourism alongside the projects that are associated with those of the Florida beach nourishment. It is considered further as in the form of an exploratory form of data analysis that is instrumental in showing a higher impact on the considerable earnings in context to the tourism sector. Not only this, but the article also highlights and also plays a vital role in suggesting the importance of beach quality as associated with tourism.

5. Determinants of Ocean Economy

51 Fisheries - Sustainable fisheries can be a fundamental part of a prosperous blue economy, with marine fisheries contributing more than US\$270 billion every year to worldwide GDP (World Bank 2012b). A key wellspring of monetary and nourishment security, marine fisheries give vocations to the 300 million individuals associated with the area and help meet the healthful needs of the 3 billion individuals who depend on fish as a basic wellspring of creature protein, fundamental micronutrients, and omega-3 unsaturated fats (FAO 2016).

52 Aquaculture – Due to the continuous increase in the world's population in addition to the expectation of rising toward 9.6 billion by the year 2050, there will be increased in considerable demand for food and sources of protein. Fish is the comprehensive source of protein, and fish and fish products supply a significant portion of the daily intake of animal protein in many developing countries additionally, it becomes a great source of food supply for the human being. According to (FAO 2016) aquaculture can supply 58 percent of fish to global markets.

53 Coastal and Maritime Tourism - The travel industry is turning into the most huge worldwide business, utilizes 1 out of each 11 people internationally. As per the World Travel and Tourism Council, travel and the travel industry's commitment to world GDP developed for the 6th successive year in 2015, ascending to a sum of 9.8 percent (US\$7.2 trillion) (WTTC 2016). The

World Tourism Organization determined that 2016 was the seventh back to the back year of supported development in universal appearances, which developed by 46 million over the earlier year to arrive at 1,235 million. The number of remote sightseers visiting SIDS goals expanded from 28 million out of 2000 to 41 million in every 2013. In a similar period, sends out from the travel industry developed from US\$26 billion to US\$53 billion (UNWTO 2014).

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Beach and sea-related the travel industry comes in numerous structures and incorporates jump the travel industry, oceanic archaic exploration, surfing, travels, ecotourism, and recreational angling tasks. Supportable the travel industry can be a piece of the blue economy, advance protection and practical utilization of marine situations and species, produce a pay for neighborhood networks (in this manner mitigating destitution), and keep up and regard nearby societies, customs, and legacy.

54 Marine Biotechnology and Bio-prospecting

The outstanding biological diversity of the seas assessed to run from 700,000 to 1 million eukaryotic species (Appeltans et al. 2012) and millions progressively prokaryotic (Curtis, Sloan, and Scannell 2002) and viral taxa (Suttle 2013) is a basic wellspring of novel qualities and characteristic items. with applications in medication, nourishment, materials, and vitality and over a wide cluster of bio-based ventures. Sealife natural prospecting incorporates the disclosure from the sea condition of novel qualities and natural aggravates that can prompt the business advancement of pharmaceuticals, catalysts, beauty care products, and different items. On account of the low amounts of crude material that must, for the most part, be taken as an example, bio-prospecting can, for the most part, be considered as having increasingly restricted ecological effects (Hunt and Vincent 2005) and hence be a potential option in contrast to progressively concentrated extractive exercises. There is developing business enthusiasm for marine hereditary assets, with the pace of patent applications identified with marine hereditary

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material quickly expanding at costs surpassing 12 percent a year and with more than 5,000 qualities licensed by 2010 that were gotten from marine living beings. A lion's share of these licenses has been documented by a couple of profoundly created nations, featuring the expanding biotechnology limit hole between countries (Arnaud Haond, Arrieta, and Duarte 2011).

55 Extractive Industries: all these are associated with the Non-Living Resources Offshore oil in addition to the process of gas exploration and that of the exploitation. The mentioned ones already go off the underway toward the coasts as associated with many states that are scattered all around the world. It is furthermore in context to the learned form of a need in order to manage the activity risks that might incur. Alongside it, new steps can be taken to reduce them. What is less clear, however, is that unlike other uses, these activities must balance density which is often not consistent. Lastly, the trade-off between coastal states should account for the amount of failure between these potential productive activities and resources, including other uses of marine sustainable exploitation of living marine resources.

6. Challenges before to achievement of a genuinely sustainable, Blue Economy

- Sustainable usage in context to biodiversity- connected to food and provisions of livelihood
- Food security- subjecting on the growth in context to sustainable fisheries or use of fish stocks that are wild and efficient aquaculture industries
- Carbon budgets and Climate change- This
 part is held responsible for the facilitating
 of the transition process in regards to a low
 form of carbon-based economy. It is
 furthermore considered as in the way of a
 renewable "blue" energy. Its generation is
 associated with the aspect of addressing
 the context of acidification as associated
 with those of oceans. The contextual
 decrease in the pH or (CO2 cycle) levels;

- and enhance the blue carbon cycle or carbon sequestration cycle associated with the loss of coastal habitats such as mangroves, seagrass beds, or saline wetlands.
- Tourism in context to marine and coastal terms- which shows signs of growth despite the global crisis. Treating greenhouse gas emissions, water demand, drainage systems, waste production, coastal habitat and erosion reduction, biodiversity as well as ecosystem services.
- Pollution and marine debris- It is as described as in the form of a growing way of a human population. It is considered as the process of intensification of the agriculture that takes into account the aspect of urbanization. All these were related to those of the coastal areas. These areas are as situated at the land of origin in terms of the marine pollution that keeps on increasing. At the same time, shipping and maritime resource exploitation (hydrocarbon or mining) are sea-based pollution sources.

The current situation of the marine and coastal ecosystem shows that more efforts are needed in the management of human activities. Various activities like those of the Integrated Coastal Zone Management (ICZM) include the spatial form of planning, conservations in an integrated way, sustainable in addition to a number of efficient resources that were put into use. It was used to point out those tools and mechanisms that are useful for the achievement of a sustainable form of development. The ecosystem that has come has been proposed as an integrated approach to the challenge and, on the one hand, ensures ecosystem management of the human activity, allowing for biodiversity and conservation of natural resources; And, on the other hand, source extraction. In this sense, the use of capital is the efficiency and optimization of resources to ensure a continuous supply of products and services necessary for the health and marine environment and the well-being and sustainable development of human beings.

7. Blue economy essential for India's economic development

Seventy-two percent of the total surface is covered by ocean. It is context to our blue planet, that is, the earth tends to provide a large portion of the world population. It is either performed directly or at times indirectly, this form of direction totally depends on the aspects of food and that of livelihood. Marine and coastal environments constitute a crucial resource that is used to enhance more than eighty percent of the global trade based on and for economic development. Because of the strategic location of the Indian Ocean region, Indian Ocean Rim Association (IORA) has emphasized growing the Blue Economy in a sustainable, inclusive, and at the same time, considered to be a very peoplecentered manner. India is having a strategic location, which turns into India's strategic advantages in the oceanic region; the blue economy is crucial for countries' economic development. The main objective is associated with the Blue Economy is considered to be promoting a smart, at the same time sustainable, and that of inclusive growth besides creating employment opportunities that too within the Indian Ocean region are in context to the activities of the maritime economy.

Under the improvement in Blue Economy and defining the way to attain sustainable development in context to the ocean resources, a number of programs are initiated. Such a type of work presented in the form of research and that of the development, in context to the development of the relevant sectors as associated oceanography. It takes into account the aspect of assessing the stocks of marine resources. It is also instrumental in introducing marine aquaculture, along with the initiation of deep-sea longline fishing and that of biotechnology in the way of human resource development. In context to the 14th year of IORA Ministerial meeting that was held at Perth, based in Australia and dated on the 9th of October in the year 2014. Mainly the focus was based on the Blue Economy and the ways of its sustainable development. IORA members stats

that because of the increasing global interest alongside the presence of potential meant for the generation of employment, ensuring food security. This type of poverty alleviation, along with those of the sustainable development in context to the business taking in additional economic models. These models on going further were as recognized as in the form of a critical highly prioritized event as associated with the blue economy. This, in turn, causes the captured the attention of all in the Indian Ocean economy. The Blue Economy Considering all range of valuable resources that are wide and at the same time is gaining highinterest rates in context to the Members of IORA States. All these are committed in regards to the common vision establishment that would, in turn, be making this sector in the form of a driving force toward the balancing of the economic development. All are based and associated with the Indian Ocean Rim region. ³

8. Economic and Trade Potential

There has been an increase in context to the production of Fish in the Indian Ocean significantly from around 861,000 tons in the year 1950 to that of 11.5 million tons as recorded in the year of 2010. Indian Ocean resources have more potential to the continuous increase in the fish production while other types of ocean resources based on the world are instrumental in nearing the limits of their respective fisheries in specified areas according to the report of United Nations and Agriculture Organizations.

Sustainable commercial interest for developers in context to the polymetallic nodules along with those of the polymetallic massive sulfides that are also are considered to be the two mineral resources as associated with the Indian Ocean. This has been found that under the depth of four to five km in terms of the depth in water bodies there are sources of polymetallic nodules which are in the form of like from golf to those of a

https://www.iora.int/en/priorities-focus-areas/blue-economy

of again United States in 1.2 trillion dollars in the year 2012.⁴

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tennis ball-sized nodule that contains hazardous particle nickel, along with cobalt, iron, including the manganese. All three are formed due to the sedimentation of the seafloor over millions of years. India was influential in receiving the exclusive rights for the polymetallic nodules exploration process in the year of 1987. Al the above-mentioned ones are in context to the Central Indian Ocean Basin. In view of the fact that from that time of the first exploration there have been four million square miles along with the establishment of the two mining sites. An impetus found to be strong in context to the Research & Development along with Innovation of the areas of Oceans, three crucial sectors such Energy, Marine Biology, and that of Biotechnology can prove their worth in providing more market shares for the nation. The strategical advantage of the Geographical position as associated with India can provide a mammoth perspective to the Blue Economy that is based on the ocean, and it will boost the nation's economy into a gigantic trajectory of growth.

The term 'SAGAR clearly articulates India's national vision on the subject of the contextual sector that is in context to: "The Security and Growth for All in the Region" as coined by the present Prime Minister Mr. Narendra Modi. The identification of the Sagarmala Program has led to more than 600 projects that are seen entailing as in the form of investment. This investment is of around more than Rs 8 lakh crore (120 billion US dollars) by the year 2020. Approximately, USD 6 billion per annum will save India's costs in terms of logistics, alongside the creation of new jobs accounting to 10 million. Besides, it helped in the boosting of the port's capacity of an overall 3,500 MMTPA more from 800 million metric tonnes/annum (MMTPA).

With the progress in context to the Blue Economy be capable of serving as in the form of a growth catalyst that is instrumental in realizing the relevant organizational vision. The vision is of becoming a 10 trillion dollar economy by the year 2032. In addition to it, the Indian Ocean Region is considered to be of some strategic importance in context to India's economy as it contributes highly toward the growth. It is as observed that the country's most of the oil and gas reserves are the way through the imported all Additionally, this type of dependency by the year of 2025 is exponentially expected to rise. An incredible trade potential is presented by the Indian Ocean Region for the country. The countries in the significant form of dynamism increase are exhibited in the trade region during the past few years by Indian Ocean Rim Association (IORA) was over 4 times from the United States in 302 billion dollars in 2003 to that

The government of India initiated a program called a Sagarmala Program to enrich and make improved the performance of the logistics sector of India around the world through the Ocean way. The project Sagarmala will have great potential for optimum use of waterways and coastline. The use of waterways can minimize infrastructural investment to achieve economic and sustainable development of the Indian economy through the coast. Sagarmala Program is related to the expansion in context to the fourteen numbers of Coastal Employment Zones or in shorter form known as CEZ. It also takes into account the Coastal Employment Units that are used to enhance the road connectivity, logistics parks, multi-modal pipelines, waterways and railways. It is considered as the most important aspect to increasing the living standard of the people considering the coastal community. Indian Government entails almost more than eight and a half trillion rupees (US dollar worth of 120 billion or that of €100 billion) in terms of investment in order to make a new form of an upgrade in form

⁴http://www.niti.gov.in/writereaddata/files/docum ent..._publication/Indian%20Ocean%20Region_v 6(1).pdf

of developing mega ports, alongside the modernization of India's existing ports. This will in turn results ultimately into a solid form of a considerable amount of improvement in context to the merchandised exports. This is the further amount to 110 billion, US dollar and will be instrumental in generating employment in the form of a direct and that of an indirect job amounting to approximately 10,000,000.

India is having an extensive coastline of 7,500 km long and 14,500 km of possible navigable the essential waterways. These are strategically crucial locations of international marine trade routes-Ministry of Shipping. Flagship program projected as a Sagarmala Program based on the modernization of India's ports and development of the people residing along the coast side can contribute to the growth of India. The mission of the Saramala program is based on the concept of transforming the existing form of Ports that are based in India. It mainly plays a contemporary role and is further considered to be Hi-tech Ports that are also instrumental in causing an integrated form of development. It is made up of the industrial clusters, alongside the vicinity, the efficient arrangement of evacuation systems employing the road, rail, hinterland, and those of the coastal waterways. This, in turn, results in ports, that can become the leading front foot of all forms of economic activity that are present alongside coastal areas.

9. Coastal Economic Zones developed under Sagarmala Project

As part of the National Perspective Plan under the Sagarmala Program For the promotion of port-led industrialization, all the 14 different Coastal Economic Zones (CEZs) that we're covering all the Maritime States along with the Union Territories were identified. All the significant State Governments along with the Central Minister's were consulted for the development of Perspective Plans in context to all 14 CEZ's. The proposed development of CEZ under the Sagarmala Program is providing an impetus to the initiative of "Make in India" as formulated by the

Government of India. These types of Port-led industrialization are made through, in order to create and develop job opportunities in India. Based on the recommendations of the Inter-Ministerial Committee the aspect of finalizing institutional framework along with the corresponding action plan creates a roadmap for the development of CEZ. It has been as taken up in the form of background toward the development in context to Indian Economy⁵ the following table shows the list of Coastal Economic Zone.

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http://pib.nic.in/newsite/PrintRelease.aspx?relid=176381

CEZ State Sr.No Linkage Port Kachh 1 Gujrat Deen Dayal, Mundra 2 Saurashtra Gujrat Pipavav Sikka 3 Gujrat Suryapur Dahej, Hajira 4 North Konkan Maharashtra JNPT Mumbai Maharashtra. South Konkan 5 Dighi, Jaigarh, Mormugao Goa Karnataka 6 Dakshin Kanara New Manglore Kerala Malabar Kochin 7 Tamil Nadu Mannar VOCP (Tuticorin) 8 9 Poompuhar Tamil Nadu Cuddalore VCIC South 10 Tamil Nadu Chennai, Kamarajar, Katupalli VCIC Central Andhra Pradesh Krishnapatanam 11 VCIC North Andhra Pradesh 12 Vizag, Kakinada

Odhisha

West Bengal

Table No. 01 List of Coastal Economic Zone of India

The Vision of Sagarmala program is to minimize the logistics cost and time for the transportation and movement of cargo and also for the development of proximate port future of the industries to increase their capacities near the coast. In this direction, more than thirty-five potential port linked that was linked with the industrial clusters all across the three sectors as identified, were found to be the Material, the Energy, and that of the Discrete Manufacturing sectors. All these, ongoing further tend to include 12 groups in the form of a bulk meant to serve the purpose of primary input industries that includes the likes of Power, Refineries along those of the Petrochemicals. It does not leave out the Steel as well as the cement industry from getting impacted and refers to the 23 discrete manufacturing clusters that are present in the labor-intensive sectors as associated with those of the Electronics, Apparel, Leather Products, Furniture, and that of Food-Processing, etc.

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Kalinga

Gaud

10. Conclusion

India has a large coastline and can become a center of economic activity. Coastal states of India

potentially important changes underway become outpacing in the national economy. this paper mainly concentrates on the exploration of the concept of blue economy and its economic overview.it also introduces the challenges before the blue economy and the overall determinants of the blue economy. The current situation of the marine and coastal ecosystem shows that more efforts are needed in the management of human activities. India's national vision about the sector is clearly formed in the term 'SAGAR: Security and Growth for All in the Region' coined by Prime Minister Narendra Modi. Sagarmala Program is an initiative of the Government of India to enhance the performance of the logistics sector in India. The program envisages unlocking the potential of coastline, minimize waterways and to infrastructural investments required to meet these targets.

Pradip, Dhamara

Kolkata, Haldia

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