

A Review of Blue Economy for Potential Growth of Infrastructure in India

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Abstract: -- Geographically, India is blessed with great peninsular region well connected by ports. Presently, all the ports in India account for handling almost 90 percent of its export and import trades. However, its contribution is just 1 percent against by railways & roads, which accounts 9 percent and 6 percent of the total goods transportation in India respectively. It is estimated that India has about 42 percent of the proportional share of goods trade in its GDP growth whereas, other developed countries has about 70 to 75 percent. It reflects that India has great potential in ocean economy. Therefore, keeping the focus on blue economy development, India can integrate its ports development and can have more sustainable business solutions for its overall economic, social, and socio-economic growth. This paper elucidates the status of the contribution of blue economy in India's development and opportunities in various sectors of the blue world in achieving a growth of infrastructure.

Keywords: - Ports, Blue economy, Ocean development, Maritime, Ocean.

I. INTRODUCTION

India, once, was among the largest economy in the world till the early nineteenth century. But, later the downfall started and till late 20th century, India witnessed massive burden of budgetary deficit and international debt. In the year 1991, India once again opted globalization, liberalization and opened up its economy for the foreign trades; and since then India had done appreciably well; even during the world economic recession of 1997 & 2008. India's economy gone-up and the main attribute were given to the service sector and very less to the manufacturing and other sector. In all these attempts to boost the economy and develop the nation, one sector was neglected and that was maritime development.

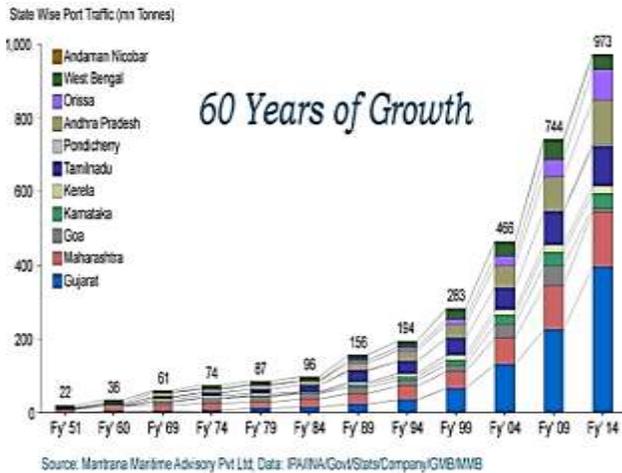
India shares the coastal border with six countries, enabling ample opportunity to harness marine water resources for its economic growth through ocean development, uplifting export-import trade, exploration of natural minerals and energy resources to satisfy the domestic needs and trade as well. India could have done extremely well on socio-economic front as well by creating more jobs, poverty alleviation through the strong and sustaining ocean development policy framework. A good example is Gujarat state [4], which, after developing ports and its infrastructure witnessed double digit growth of GDP against pre-development, which was nearly at 5 percent in 1980s. The

performance of the Indian ports in fiscal year 2015-16 is given below:

Particular	Major	Non-Major
No. of Ports	12	200
Cargo handled (in MTPA)	606	466
Containers ('000TEUs)	8198	4341
Passenger Traffic ('000)	--	--
Employment ('000)	37238	--
Financial Performance (in INR Mn)		
Actual Expenditure –	17477	--
Operating Profit-	42680	--

Source: Table 1 Major Indian Port Performance (2015-16)[10]

Similarly, the growth of Indian Ports in last 60 years is depicted in the graph below:



Source: Mantrana Maritime Advisory Pvt. Ltd

Fig. 1 Growth trend of Indian Port in last 60 years
 Component of Blue Economy

Conceptually, harnessing blue resources and achieving economical benefits is attributed to golden thread between sustainable developments of ecosystem for the benefit of country's growth.

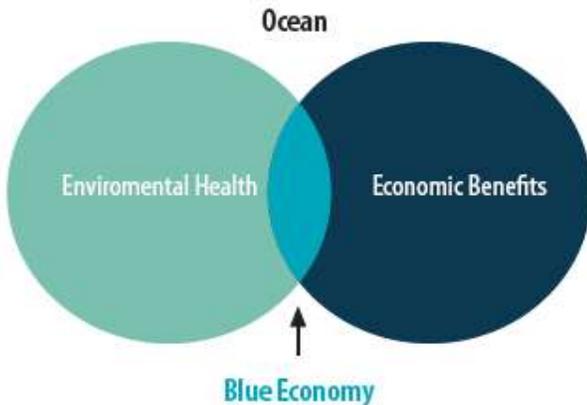


Fig 2 Concept of blue economy [11]

There are ample ways of harnessing blue resources. The best way understand the importance of ocean economy is to analyse the components of it and adopt the strategy. The major components of blue economy are summarised in table no.2 [12].

The strategic should aim at sustainable development of the coastal region with region specific plans. It must envelop the good governance with institutional reforms. The technological inputs should be directed towards the development of infrastructure to get the maximum benefits and social inclusion. Emphasis must be given on education and research.

Sector	Activity
Shipping, Port Infrastructure and Logistic	Ship building and repairing, ship management, services, supplier, safety, training, development of minor ports, construction of infrastructure, etc.
Marine Tourism and Recreation	Beach side development, bird watching , boating, sailing, scuba diving, coastal natural reserve development, infrastructure creation
Marine Construction	Infrastructure construction
Ocean Energy	Offshore energy development through infrastructure.
Trade with neighbouring countries	Coordination and logistic development
Fisheries and Aquaculture	Seafood processing infrastructure, farming and logistic
Oil and Gas exploration	Institutional framework, policy and support of infrastructure
Education and research	Support for research in the sector of blue resources and maritime matters.

Table 2 Component of blue economy [12]

Global Perspective on Blue Economy

It is evident that major surface area of the earth is covered mainly by ocean and large water bodies having great business potential for strengthening economical sectors. Ocean economy consists of wide range of activities, related to blue resources and assets, that is been contributing development of world economy in terms of GDP. However, the contribution has rarely been quantified scientifically or mathematically. Rough computation indicates that the blue economy is contributing about 3-5 percent in global GDP. [11] The details are tabulated as below:

Estimates of Annual contribution (US\$)	Methodology	Source
3-5 trillion global ocean economic activity	Estimates only	FAO 2014c
6-21 trillion economic value of	Estimates only	World Ocean Council (a)

ocean goods and services		
3 trillion economic market value of marine and coastal resources	Estimates only	Global Ocean Commission 2014a
2.5 trillion gross marine product	Average top – down analysis extrapolating the percentage of economic contribution	Hoegh-Guldberg et.al 2015
1.5 trillion value added ocean based industries in 2010 33% offshore oil and gas, 26% ocean and coastal tourism, 13% ports and 11% marine equipment.	Developed database of country supplemented by literature	OCED 2016

Table No. 3 Estimates of contribution of Global Ocean Economy [11]

Besides the above statistical information, some are the facts given below that encourages to undertake the development of coastal region for better outcome of the blue economy.

At present, ocean handles 90% percent of the global trade and expected to increase four times till 2050; thereby foreseeing the increment of 3.3 – 4.0% in next 25 years. [11]

The facilitation and infrastructural requirement is projected to get enhance by 4.7% in coming 3-5 years. Besides these, there are various sectors of coastal region such as waste disposal, carbon sequestration, coastal protection, biodiversity, etc, are available for doing business that can contribute the ocean economy into the global GDP.

Indian Perspective, Constraints and Challenges

Perspective

India shares the coastal boundaries with 6 countries [2] imparting ample opportunities for economical growth and social inclusion in terms of increasing export-import trade,

exploration of minerals and oil, energy security and poverty alleviation. Indian Ocean alone handles half of the world’s containerized trade, one-third of the world’s bulk cargo traffic and two-third of oil shipment [2]. India has 13 major ports and about 176 minor ports situated on 7500 Km of vast coastline. About 90 percent by volume and 70 percent by value of India’s external trade is being handled and facilitated by the infrastructure of the existing ports; thereby contributing significantly to the Indian economy [10]. The port’s business is on up-scale by almost 8.5 percent in last decade.

Major developmental activities in coastal area that India can undertake to harness the potential of blue region are summarized below [12]

i) Shipping, Port infrastructure and logistics

India is doing well in cargo handling through different ports. However, minor ports can be connected with major ports through better infrastructure, which will boost the India’s trade. A private participation is inevitable for development of the infrastructure. This will also create the employment and will help in better per capita income.

ii) Marine Construction

Marine construction is again a boon for the economic activity. The development of logistics, modernization of ports infrastructure can pave the way for better economic growth. This will, indeed, bring the technological innovation through involvement of research organization in planning and design. Sagarmala [3] is such initiative that India has undertaken, which is surely going to boost the blue economy.

iii) Marine Tourism and Recreation

As the coast line of India is vast, the opportunity for developing coastal tourism and recreation facilities is equally vast in India. A good coastal infrastructure can attract foreign tourist for marine tourism in India.

iv) Ocean Energy

Ocean energy is further divided into various forms such as tidal energy, wave energy, ocean thermal energy, offshore solar and wind energy, biomass energy, etc. Offshore solar and wind energy has been explored to a certain extent. However, a lot can be done to harness the potential of the coastal area. India can use the 7500 Km cost line for developing the infrastructure for generating marine energy.

v) Business opportunity with neighboring countries

The neighbor countries like Bangladesh, Myanmar, Sri Lanka, Maldives, Mauritius Kenya, etc, are important for the trade and better coordination through policy framework and logistic support can boost Indian economy. Development of infrastructure in Coastal Economic Zone will attract private players to invest into the business.

vi) Fisheries and Aquaculture

Development of Fisheries and aquaculture sector through better facilitation and support for trade and transportation will lead to uplift the life of fisherman families and will result into socio-economic development of the region. This will also help in poverty alleviation.

vii) Oil and Gas Exploration

India has to largely depend on gulf countries for fulfilling the need of oil and gas. Intensifying the exploration of oil and gas by Indian seas can reduce the burden on economy, which can be invested in other coastal area development.

Constraints and Challenges

The major constraint in developing blue economy sector is the coordination among the neighboring countries. Although, member countries of Indian Ocean Rim Association (IORA) are stepping forward to have better coordination among the members for fruitful business opportunity, still the area needs more sustainable policy framework.

Strengthening MSME for taking up more business assignment in coastal region is again a the constraint for the government. For roping – in Public – Private – Partnership needs a holistic approach for increasing the output from blue resources. Lack of inter-relation between public and private player in the marine sector is yet to achieve milestone.

Anti-social and anti-commerce activities in ocean area, sea-piracy, etc have emerged as great challenges to the development of blue region. Besides these, the natural calamities like cyclones, tsunami, etc also posing a great challenge for the growth of blue economy.

II. CONCLUSION

Blue economy can contribute significantly in the growth of Indian economy if all the blue resources in India are mapped and integrated properly along with strong institutional framework and policy, academia-industry research for the development of marine infrastructure. So there is potential for the growth of infrastructure. This will also generate adequate job and will help in eradicating poverty to a great extent through the social inclusion of the people of the coastal region.

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