

Sagarmala: A Beacon of Development in the Maritime Horizon of India



Cyril C. George, J. Rengamani

Abstract: India being one of the fastest growing economies in the world, the vital transport system is under pressure and challenges which are to be addressed on a long time perspective. The Maritime Sector has a greater role to play for the overall economic development of the country. Though Indian Ports handle about 95% of EXIM Trade volume, the proportion of merchandize trade in GDP is only 42%, when Germany's share is 75% and European Union 70%. With new policy initiatives like Make in India programme, the share of merchandize trade in India's GDP is set to increase considerably. The major role of India's transportation system is movement of bulk commodities. The thermal coal alone constitutes about 60% of the freight volume on Indian Railways and 24% of Sea Port freight mix. Coal, POL, iron ore, fertilizers and container constitute 80% of the total export import freight movement across the country. The study aims to highlight the Sagarmala Project with regard to Maritime Horizon in India.

Index Terms: Sagarmala Project, Maritime Trade, Commodities, Coastal Trade, Port Sector.

I. INTRODUCTION

India has valuable coast line of 7500 KMs and potential navigable waterways of 14500 KMs which have not been fully leveraged for the economic development of the country. The Maritime Sector is the backbone of every developed country. Though approximately 95% of India's Merchandize trade by volume is through sea ports, there is greater potential to be unlocked by improving infrastructural and operational challenges. Efficiency parameters of Indian Ports and cost of handling are below international standards. Last mile connectivity has not been sufficiently provided too many Major Ports. About 94% of Indian freight uses either road or rail for transportation of goods. Though water borne transport is much cheaper and safer, it accounts only 6% of India's modal split. On the other hand, coastal and inland water transport has a share of 47% of China's freight modal mix. Japan and U.S have the share of 34% and 12.5% respectively. 90% of the coal currently moves by railways when the cost of transportation by coastal movement is only 1/6th. Unlike in

other developed countries, the location of Port based industries far away from Ports also contributes to higher logistics cost. Having realized the great potential of Maritime Sector, Govt. of India has formulated an ambitious programme viz. Sagarmala Project [2], with the objective of achieving optimum modal split, enhanced connectivity with main economic centers, expansion of rail, inland water, coastal and road services, enhancing the Port infrastructure and efficiency, simplified procedures and developing new regions called Maritime Clusters and Coastal Economic Zones for various economic activities and development [3-4]. A new National Perspective Plan has been prepared for this purpose.

II. VISION OF SAGARMALA PROJECT

The vision of Sagarmala Project [1] is based on four pillars;

A. Transformation of logistic sector

By increasing competitiveness of the industry and reducing the supply chain cost and time, by increasing the volume of trade via coastal shipping movement inland waterways, creating a national multi modal logistics system based on latest IT technology and providing efficient last mile connectivity

B. Development of Port and Shipping Sector

By developing new Ports, by developing world class transshipment Port, creating additional capacity of existing Ports and by developing Smart Cities.

C. Create Institutional Framework

By setting up National Sagarmala Apex Committee chaired by Minister of Shipping, Sagarmala Co-ordination and Steering Committee chaired by Cabinet Secretary with Secretaries of concerned Ministries, State Sagarmala Committee headed by Chief Minister/Minister in charge of Port and by setting up a Sagarmala Development Company under Companies Act, 2013.

D. Coastal Community Development

By creating one million jobs in the Maritime Sector and initiating various skill development programmes for coastal communities. The Institutional Framework has been designed based on the principle of Cooperative Federalism involving Central and State Government.

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III. TRANSFORMATION OF LOGISTIC SECTOR

In general, logistics cost is higher in India compared to other growing economies which adversely affect the competitiveness of EXIM industry. The important initiative taken in this direction is to move as much cargo as possible by coastal shipping and inland waterways. There is great scope for adopting IT enabled multi modal logistics system like RFID, ERP etc., for ensuring quick transaction and movement of cargo. It is a global practice that infrastructure development in the logistics sector is done after a systematic Origin Destination study of dominant cargo mix. About 80% of the cargo of Indian Ports is contributed by five cargoes viz. POL, Coal, Containers for achieving the objectives.

A. Petroleum, Oil & Lubricants (POL):

At present the domestic demand for POL products is around 158 MMTPA. The future demand depends upon the recovery and growth of the economy. It is estimated that if the GDP growth is about 7%, the demand for POL products will grow around 5% annually and hence the demand will be around 280 MMTPA by 2025. At present, there are 16 petroleum refineries in the country with an output of 220 MMTPA. Keeping in view of various expansion projects taken up by the Refineries, the output may go up to 280 MMTPA by 2025. At present, about 80% of products from refineries are evacuated through pipeline for supply to the hinterland and the balance volume by rail/road. Some products are supplied to southern part of the country by coastal movements also. At present, consumption of crude oil is around 227 MMTPA of which 190 MMTPA is sourced through imports and only 37 MMTPA by domestic production. The imported crude products are handled through mainly 7 Major Ports viz. Kendal, Paradip, New Mangalore, Chennai, Mumbai, Cochin and Vizag. Under Sagarmala programme, it is envisaged to move more products by coastal movement with a view to reduce logistics cost of POL. In order to encourage coastal movement of POL products, the important initiatives required are participation of private investment in coastal shipping, dedicated coastal berths at different Major Ports, sufficient bunkering and storage capacities, availability of sufficient coastal shipping fleet, required ship servicing and repair activities etc.

B. Thermal coal:

Based on the assessment from Thermal Power Plants, steel, cement and fertilizer plants in the country, the expected demand of coal is about 1.2 Billion tonnes by 2020; Out of which, Coal India Limited is expected to produce 1 Billion. Approximately 350 MMTPA of coal moves in the country by different modes, which includes domestic production and imports. Out of the total volume, except 60 MMTPA of cooking coal, the rest is thermal coal. As Thermal Power Plants are located at different parts of the country, transportation is the major challenge. Most of the coal is moved by rail though coastal movement is cheaper by 1/6th of rail freight. As coal is the essential requirement, more than 30% of the power generation is cost of the coal. The Railways is running in full capacity for movement of coal whereas there is untapped potential in coastal movement through different Ports in the country. The coastal movement at present takes care of only 4% of the share of total domestic movement which is very minimal compared to countries like China

where about 600 MMTPA is moved through coastal shipping. . Therefore, all segments of logistics sector like rail, road and water have to be geared up to meet these challenges. Under Sagarmala programme there are ambitious plans for moving additional 100 MMTPA of coal by 2020 in addition to coastal movement of about 70 MMTPA, in addition to providing efficient connectivity and handling facilities at Major Ports.

C. Steel Industry:

India is now 3rd largest producer of crude steel with more than 100 MMTPA; In respect of sponge iron, India is the largest producer. Unlike the global trend, steel industry in India has an upward trend with a projection of 115 MMTPA by 2020. Logistics cost constitutes 15% of total cost which is mainly due to movement of cargo by road/rail. Hence, there is great potential for moving raw material and products by sea or inland water as at present it is only 1% as compared to 24% in China. This modal shift will make steel industry more competitive and viable. Hence, Sagarmala programme envisages coastal shipping of steel from production centres to demand centres, development of coastal steel clusters/manufacturing units and optimum utilization of available hinterland waterways especially in the north eastern region.

D. Cement Industry:

Cement industry in India is the second largest in the world. The prospects of cement industry are directly linked to GDP of the country. During the last 5 years, the industry has grown about 75% and the demand is growing about 7% year on year. Considering more than 7% GDP growth, the projected growth of the industry is to the tune of 700 to 800 MTs by 2025. As this cargo is high volume, low value in nature, transportation cost is very important. Logistics cost constitute 25% of the cost of the cargo. At present, about 200 MMTPA of cement is transported by road/rail and hence the industry has to explore the possibilities of transporting more volume by sea. Hence, Sagarmala programme envisages movement of 5-6 MMTPA cement through coastal route in addition to developing coastal cement clusters which will help the industry to reduce the cost and improve the competitiveness and viability.

E. Fertilizer Movement:

India being primarily an agrarian economy, agricultural products are the backbone of the country's economy. Therefore, logistics cost of fertilizer is a critical factor for the agricultural sector as fertilizer constitutes 2% of the total cargo handled by the Ports. Hence, there is tremendous potential for reducing the cost of fertilizer by resorting to larger volume by coastal movement. At present, the local production of fertilizer is not sufficient to meet with the requirement of the sector and hence, about 28 MMT of finished fertilizers and raw materials are imported through different Major Ports. Railways are highly depended for internal movements of imported fertilizer and raw material from different maritime clusters. Due to policy initiatives of the Government to promote agricultural sector, the consumption of fertilizer is expected to grow at a faster rate, 4% from 2.5% at present and by 2020 the consumption is expected to be 70 MMTPA.

As many fertilizer plants are located at coastal locations especially in Andhra Pradesh and Gujarat, there is increased potential of coastal route for the movement of fertilizer and raw materials. Under Sagarmala programme, it is envisaged to modernize Port operations especially in respect of handling of cargo like fertilizer by way of automated unloading and bagging facilities. Port Sector also needs to be geared up to meet the challenges which includes promotion of private players in the coastal movement, special concession for coastal movement of raw material and fertilizer products, development of dedicated coastal berths, bunkering and storage facilities, etc.

F. Containers:

Movement of cargo by containers is the trend in the International shipping and more and more containerized cargo is transported every year. When the dimension of the container ships is increasing year by year, containerization of cargo is also getting a boost. Though the global economic recession has depressed shipping sector, container traffic in Indian Ports has grown at an average of 8% per decade. The non major ports have performed better compared to Public Sector Ports in respect of container handling. Hence, the Sagarmala programme gives emphasis on creating better container handling facilities at Indian Ports especially the Public Sector Ports which also aims to achieve reduced transit time and help a modal shift of cargo movement from road to rail which will translate into substantial reduction in the cost of handling of containers. The container traffic at Major Ports during the year 2016-17 is as under:

Table-1: Container Traffic at Major Ports of India (TEUs in 000's)

Ports	2016-2017
	7
Kolkata	636
Haldia	136
Paradip	2
Visakhapatnam	367
Kamarajar (Ennore)	-
Chennai	1495
V.O.Chidambaranar	642
Cochin	491
New Mangalore	95
Mormugao	30
Mumbai	42
Jawaharlal Nehru	4500
Kandla	10
Total	8446

Out of total EXIM container movement, about 11 MTUEs constitute the empty containers and 10 MTUEs constitutes the laden container volume. China and US accounted for about 14% & 10% of EXIM containers to and from India. Even today, large container volume, say about 75% of EXIM containers are transhipped at Ports like Colombo, Singapore and Port Klang. Railways need to have a relook in the policy of freight charges in respect of distance less than 1000 KMs which are disproportionately higher than the longer

transportation freight. The faraway locations of EXIM industries and hinterland from Ports contribute to more cost and time and is expected that the initiative of setting up Maritime Clusters nearer to Seaports will give relief to this issue. The promotion of coastal movement of containers from feeder port to gateway port has also helped to reduce the logistic cost of containers. All these initiatives are expected to result in reduction of average inland transit time of seven days to four days.

IV. DEVELOPMENT OF PORT AND SHIPPING SECTOR

In the coastline of 7500 KMs, there are 12 Major Ports and about 200 Non-Major Ports in the Maritime Sector. Major Ports handle about 55% of the total cargo of Indian Ports and Non-Major Ports' growth has been faster and share of about 45% of total cargo [5]. Cargo handled by 12 Major Ports during the year 2016-17 is as under:

Table-2: Cargo handled by 12 Major Ports of India (In '000 Tonnes)

Ports	2016-2017
Kolkata	16810
Haldia	34141
Paradip	88955
Visakhapatnam	61020
Kamaajar (Ennore)	30020
Chennai	50214
V.O.Chidambaranar	38463
Cochin	25007
New Mangalore	39945
Mormugao	33181
Mumbai	63049
Jawaharlal Nehru	62151
Kandla	105442
Total	648398

Out of 200 Non-Major Ports, 7 Ports viz. Sikka, Mundra, Krishnapatnam, Gangavaram, Dhamra, Kakinada and Pipavav are quite active and the cargo handled by these ports during the year 2016-17 are given below:

Table-3: Cargo handled by 7 Non-Major Ports of India (In million tons)

Ports	2016-2017
Sikka	12.7
Mundra	104.5
Krishnapatnam	36.1
Gangavaram	18.1
Dhamra	21.4
Kakinada	12.5
Pipavav	8.4
Total	213.7

Compared to leading International Ports, the performance indicators of Indian Ports are far below. 7 of top 10 Ports are in China while no Indian Ports figured in first top 30 World Ports [7-8].

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Due to non-availability of draft of 18+ meters in Indian Ports, most of EXIM containers are transhipped at nearby transshipment Ports in other countries. Average turn-around time at Indian Ports is 4.5 days as compared to 1 day in China. The main reasons for less efficiency of Indian Ports are lack of mechanization of Port handling facilities, insufficient draft, lack of sufficient capacity, lack of sufficient infrastructure in the hinterland including connectivity, etc.

A. Capacity Addition:

A table showing the percentage capacity utilization of Major Ports is given below:

Table-4: Capacity Utilization of Major Ports of India (in %)

Ports	2016-2017
Kolkata	72
Haldia	62
Paradip	59
Visakhapatnam	60
Kamarajar (Ennore)	81
Chennai	61
V.O.Chidambaranar	72
Cochin	43
New Mangalore	47
Mormugao	33
Mumbai	137
Jawaharlal Nehru	80
Kandla	76

It can be seen that most of the Ports are having more than 60% capacity utilization which is considered as a benchmark for taking action for capacity addition [6]. Though the global recession has depressed the shipping sector to certain extent, the Indian economy and EXIM trade has shown its resilience and there will be more demand for POL products and coal movement, due to increased demand by organized power projects, enhanced coastal movement due to increase in the production and consumption of domestic products and growth in the container volume due to robust manufacturing sector and increase in the EXIM trade. As throughput growth in most of the Indian Major Ports is consistent, it is required to take up projects for capacity addition.

B. New Ports:

As it is proven that the maritime strength of the country can be leveraged for its economic development which is not fully unlocked in the case of India, Sagarmala programmed envisages to start the following New Ports.

1. **Sagar**- As Calcutta has its perennial problems for its further expansion and as North Eastern hinterland has potential to generate more cargo, there is potential for establishing a Port at Sagar.
2. **Paradip South Satellite Port** - This satellite Port is required to meet with the handling requirement of enhanced volume of thermal coal.
3. **Belekeri**- As there is no major port between Mormugao and New Mangalore on the Western Coast, it is justified to develop a port at Belekeri to meet with the logistics requirement on the region especially the thermal power and steel plants.

4. **Port at Central Andhra Pradesh** – Thermal power plants at Central Andhra Pradesh and limestone availability in the region justify setting up of Port in this area.
5. **Central Tamil Nadu** – As there is potential for thermal power plants at Neyveli and to meet with other regional cargo, a Port is justified in this region.
6. **Vadhvan**– As JNPT is expected to be saturated in the near future and to facilitate additional volume of containers and other bulk cargo, Vadhvan will be ideal location for the Port.
7. **Ennayam**– As 75% of Indian EXIM cargo is transhipped at nearby countries, there is potential for development a transshipment port closer to International Trade route and Ennayam also can have a deep draft of more than 20 meters.

V. INSTITUTIONAL FRAMEWORK

As Govt. of India is giving utmost importance to Sagarmala programme as it has got potential to gainfully utilize the long coastal region and water frontage for economic development of the country, an efficient and high powered Institutional Frame work has been provided for implementation of the programme based on the principle of ‘Cooperative Federalism’. At the National Level in order to formulate overall policy guidelines, high level coordination and approval of national perspective plan, periodical review of plans and periodical review and guidance of implementation of various major projects, a **National Sagarmala Apex Committee** has been constituted, which will be chaired by Minister of Shipping, with the Cabinet Ministers from Stakeholders Ministries and Chief Ministers/Minister in charge of Ports as Members. In order to effectively evaluate the progress and implementation of National Perspective Plan, Master Plan and Project proposals, coordinate various efforts among Ministries at the national level and State departments and other agencies, take decisions regarding funding of various projects, a **High Powered Sagarmala Coordination and Steering Committee** has been constituted with Cabinet Secretary as Chairperson and Secretaries of relevant Ministries and Departments as Members in addition to Chief Secretaries of the State where projects are implemented. As projects under Sagarmala within the States are to be effectively coordinated and implemented among different Ministries and Departments, **State Level Sagarmala Committees** have been set up with Chief Minister or Minister in charge of Ports as Chairman with the representation of Ministries/Departments and other concerned agencies.

VI. COMMUNITY DEVELOPMENT

The concept of Maritime Clusters is a proven one in different countries especially in South Korea. It is envisaged to set up two Marine Clusters i.e. one in Gujarat and another in Tamil Nadu. The Maritime Cluster envisages to start industries in the field of Ship Building and Ship Repair, Tourism, Marine Products etc. The important feature of maritime cluster is development of ship building industry which is boosted by increasing orders from Defence Sector.



Various industrial promotion programmes of the Government like Make in India, Ease of Doing Business etc. has opened up opportunities for sectors like Electronics, Furniture, Automotive, Apparel, Leather and Food Processing industries. Coastal Economic Zone will consist of different industrial clusters like Energy Industry, Material Industry and Discreet Industries. Coastal Economic Zones are planned with a special emphasis for the development of coastal regions with the active participation of respective Ports. It is envisaged that Coastal Economic Zones are put up within the radius of 100 KMs from the Port with multiple industries having easy access to Ports for import and export activities. 14 Coastal Economic Zones have been identified along the entire coast in the country. These developments pave way for industrial development and employment generation especially in the coastal region.

VII. CONCLUSION

Overall economic development of the country especially industrialization through Port based projects and development of coastal region is the overall motto of Sagarmala Programme. Maritime Clusters and Coastal Economic Zones are envisaged to be set up under the programme. As shipping and EXIM trade are having international ramifications, it is essential to address the cost and time involved in the movement of EXIM containers. In this context, the movement of containers within the country is required to be addressed. Movement between gateway Ports and hinterland is mainly by road and the modal shift from road to rail has to be geared up as done in the countries like China. Rail sector is also facing lot of challenges due to congestion and priority to passenger trains, higher freight to compensate passenger charges, lack of availability of rakes at ICDs etc. Roads are also congested causing congestion in the approach roads of many Ports which highlights the need for providing proper last mile connectivity. Delays are also taking place in customs clearance formalities and delivery formalities and the initiatives taken under 'Ease of Doing Business' has a long way to go to translate into substantial reduction of cost and time in the movement of EXIM containers. The overall picture emerging is the tremendous unlocked potential in the coast line of the country for development which is being leveraged through a well prepared Sagarmala Programme, which will prove to be a beacon of development in the economic horizon of the country.

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Cyril. C George is leading ad Deputy Chairman, Chennai Port Trust; Chennai, India. Currently, He is pursuing his PhD from AMET Business School, AMET University, Chennai, Tamilnadu, India. He is a highly qualified professional in the field of Human Resource Management with experience of about 30 years. He holds senior management positions like Head of department HR in Major Ports, Deputy Chairman, and Chairman in Mormugao Port and Chennai Port. He is also a scholar, practitioner, and trainer in the field of spiritual science for more than a decade. He is frequently conducting training programmers for different levels of people including professionals on various subjects with the help of Mind Engineering techniques and principles. He has developed a unique and advanced Mind Engineering Meditation, which is being benefitted by many people. He is also rendering voluntary counseling services to the cross section people specially professionals.



Prof. (Dr.) J. Rengamani working as a Professor in AMET Business School, Academy of Maritime Education and Training (AMET) Deemed to be University. He has more than 24 years of teaching and research experience in the field of management studies. He has published more than 75 research articles in Scopus indexed journals, UGC approved journals and other high impact factor journals. He has authored 5 books and guiding 7 Ph.D scholars. He has presented articles in many conferences and seminars. He has received 4 awards. He was nominated as the member of Board of Management of AMET University. Presently, he is working as the Professor and Director of AMET Business School.