

# ***SAGARMALA-Overview, Vision and Benefits***

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*Abstract*----SAGARMALA is a central government programme launched by Ministry of Shipping in Karnataka for port modernization and developing its infrastructure. By transforming existing ports into world class ports which reduces the cost and time for transporting goods by using waterways, which is beneficial for industrial growth and EXIM trade and boost in GDP is expected in next twenty years. NSAC (National Sagarmala Apex Committee) not only deals with industrialization but also creates employment for many coastal communities. This 120 billion USD project is expected to develop India logistically by increasing volume of inland water ways and coastal shipping. This programme also helps in reduction in fuel consumption and cost reduction compared to transport on wheels.

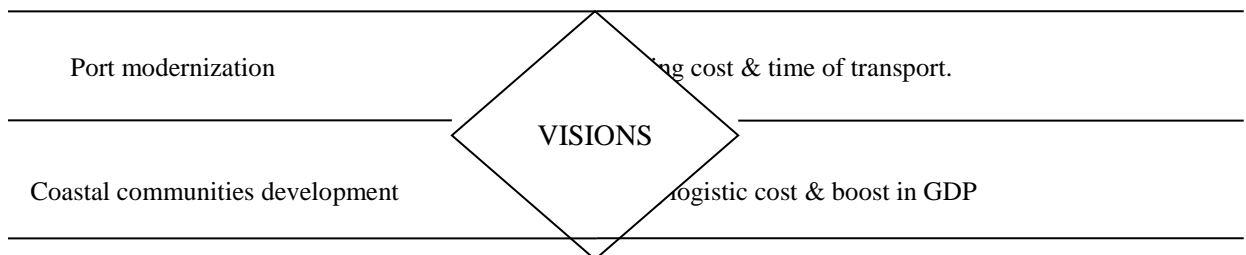
***Keywords: Port Modernization, EXIM trade, NSAC, Inland water ways, Fuel Consumption.***

*Need for port development in India:*

India having a vast 7,516.4km coastline covering 9 states including 2 union territories and having a 14,500km of navigable and potentially navigable waterways but lags in logistics as compared with other developed nations. Maritime logistics is always been an important aspect for logistical development for a country. In case of Indian economy which account of 90 percent of EXIM trade by volume and 72 percent by value.

EXIM containers in India travel a distance around 700 to 1000km between production centers and ports which is three times more than that of china where the containers travel only 150 to 300 km which makes it one of the top nations in maritime logistic sector. Container exports travel 8 to 18 days from hinterland to vessel in India, where as it takes around 5 days in china. Hence for transforming the existing ports into modern world class ports which can meet the need for logistic demand at present, Indian central government has introduced SAGARMALA.

*Vision of SAGARMALA:*



Vision of SAGARMALA project is to minimize logistic cost and time for movement of domestic cargo and EXIM trade. It includes development of port-proximate industrial capacities near the coast. This gave birth

to concept of coastal economic zones (CEZs), coastal economic units (CEUs) and port-linked industrial clusters.



- Coastal Economic Zones (CEZs): These are spatial economic regions comprising of a group of

SOURCE: IPA

coastal districts or districts with strong linkage to the ports in that region.

- Coastal Economic Units (CEUs): These are specific industrial estate projects with a democratic boundary similar to the DMIC nodes. They houses industrial clusters/projects proposed within the CEZ.

#### Port modernization:

About 95% of India's trade by volume is via the sea route, hence there is continuous need for port development. There are 13 major (12 govt. operated) and 200 non-major ports administrated by both state and central government. Present cargo handling capacity of Indian ports is 1052.5 MMTPA (2014-2015). As per research under SAGARMALA project this cargo handling capacity is expected to cross 3000 MMTPA by 2025 growing at a rate of 4.5% per annum. This includes port operational efficiency improvement, capacity expansion of existing ports and development of new ports. Due to this initiative the turnaround time has improved to 2.08 days at present against 2.32 days in 2013-2014. Similarly the ship berthday output has increased from 12468 in 2013-2014 to 14505 at present. Indian ports are generally small due to the lack of required daft to handle large vessels. The average six container vessels calling at Indian ports are 5000TEUs while in china it is around 12,000 TEUs. *Prominent ports in India:*

Cargo traffic at the ports is expected to be 1650MTPA in 2020 and reach 2500MTPA by 2025. To cater this

PORT	2016-17	2015-16	% GROWTH(+/-)
Kolkata	50.31	50.28	0.05
Paradip	88.95	76.39	16.45
Vishakhapatnam	61.02	57.03	6.99
Kamarajar	30.02	32.20	-6.79
Chennai	50.21	50.05	0.31
V.O.Chidambaranar	38.46	36.84	4.38
Cochin	25.00	22.09	13.16
New Mangalore	39.94	35.59	12.26
Mormugao	33.18	20.78	59.70
Mumbai	63.05	61.11	3.17
JNPT	62.02	64.02	-3.13
Kandla	105.44	100.05	5.39
OVERALL	647.63	606.47	6.79

demand the ports need to create additional requirements such as:

- Unlocking 100MTPA capacity at existing terminals of major ports through improved efficiency.
- Increasing capacity at existing major and non-major ports through mechanization and building new terminals.
- Building 6-8 new Greenfield ports.

The proposed new ports are:

1. Sagar island ( West Bengal)
2. Vadhavan (Maharashtra)
3. Paradip outer harbor (Odisha)
4. Cuddalore/sirkazha (Tamilnadu)
5. Enayam (Tamilnadu)
6. Belikeri (Karnataka)

*Port traffic 2016-17 vs. 2015-16:*

*Reducing cost and time of transport:*

The cost per tonne kilometer of moving cargo by sea route or inland water ways can be reduced by 60-80% compared to transporting by road or rail. Coastal shipping can play an important role in lowering the delivered cost of domestic thermal coal. Water ways currently contribute around 6% to India's transportation modal mix which is significantly less than that of developing economies.

By SAGARMALA project it is estimated that the coastal shipping traffic of about 180-200MMTPA can be achieved from current and planned capacities for various goods by 2025. This will make a saving of 10,000 to 15,000 cr INR annually. Inland waterways are the most effective as well as environmentally friendly means of transporting freight. The cost of transporting goods via coastal shipping is one-sixth of cost of transporting it by railways. Coastal shipping not only reduces logistic cost but also cuts down on emissions,

reduces energy and fuel consumption. It is estimated that reduction of 12.5MT in total CO2 emissions (i.e. 2.5% of current emission through transport sector) and 1million KL in liquid fuel consumption (i.e. 1.5% of current liquid fuel consumption by transport sector).

*Ferry service between Dahej and Gogha:*

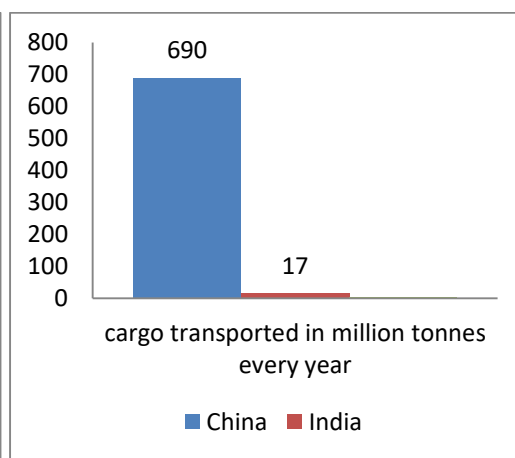
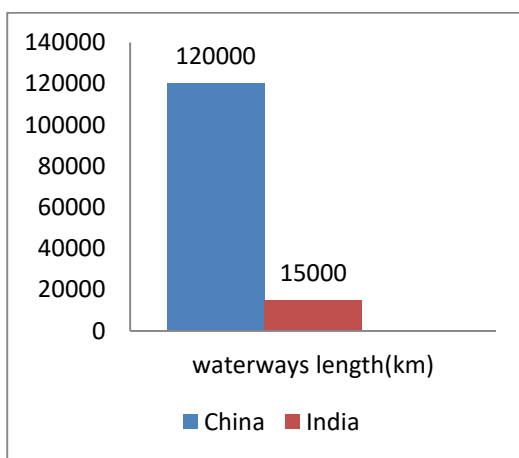
The project is first of its kind in India and it will be executed in the worlds second highest tidal range. The project will open up new avenues in coastal shipping and tourism and helping socio economic development of proximate areas and also utilization of inland waterways through Narmada River. This project would result in reduction in motorable distance of 340km between gogha and dahej to 30km and reduce the time travel from 7 hours to 1hour only by crossing the gulf in cambay in 17nautical miles.



*Comparison between China and India:*

<b>Railways</b>	<b>total:</b> 124,000km <b>standard gauge:</b> 124,000km 1.435-m gauge (80,000 km electrified); 102,000 traditional, 22,000 high-speed (2017)	<b>total:</b> 68,525km <b>broad gauge:</b> 58,404 km 1.676-m gauge (23,654 electrified) <b>narrow gauge:</b> 9,499 km 1.000-m gauge; 622 km 0.762-m gauge (2014)
<b>Roadways</b>	<b>total:</b> 4,577,300km <b>paved:</b> 4,046,300km (includes 123,500km of expressways) <b>unpaved:</b> 531,000 km (2015)	<b>total:</b> 4,699,024 km <b>note:</b> includes 96,214 km of national highways and expressways, 147,800 km of state highways, and 4,455,010 km of other roads (2015)
<b>Waterways</b>	110,000 km (navigable waterways) (2011)	14,500 km (5,200 km on major rivers and 485 km on canals suitable for mechanized vessels) (2012)
	<b>major seaport(s):</b> Dalian,	<b>Major sea port(s):</b> Chennai,

<b>Ports and terminals</b>	Ningbo, Qingdao, Qinhuangdao, Shanghai, Shenzhen, Tianjin <b>river port(s):</b> Guangzhou (Pearl) <b>container port(s)</b> <b>(TEUs):</b> Dalian (9,591,000), Guangzhou (17,097,000), Ningbo (20,636,000), Qingdao (17,323,000), Shanghai (36,516,000), Shenzhen (24,142,000), Tianjin (13,881,000)(2015) <b>LNG terminal(s)</b> <b>(import):</b> Fujian, Guangdong, Jiangsu, Shandong, Shanghai, Tangshan, Zhejiang	Jawaharlal Nehru Port, Kandla, Kolkata (Calcutta), Mumbai (Bombay), Sikka, Vishakhapatnam <b>container port(s)</b> <b>(TEUs):</b> Chennai (1,558,343), Jawaharlal Nehru Port (4,307,622) <b>LNGterminal(s)</b> <b>(import):</b> Dabhol, Dahej, Hazira
	<b>CHINA</b>	<b>INDIA</b>



China has 1,20,000 km of navigable waterways while India has 15,000 km. 690million tonnes of cargo is transported through waterways in china while only 17 million tonnes cargo is carried in India.

Hence as per tonne carried per kilometer ratio, china carries 4 times more cargo than India which makes China to stand 2<sup>nd</sup> in overall GDP.

*Coastal communities development:*

With 72 coastal districts hosting 80% population of India are the important stake holders for the socio-economic development of country. This development includes

- Skilling of coastal communities.
- Livelihood enhancement
- Employment creation opportunities.

Fishing industry is getting a push through creation of fishing harbors, fish processing centers and deep sea fishing vessels. A ‘Community Development Fund’ (CDF) provides funds for the projects and activities related to coastal community development under SAGARMALA. It funds projects related to value edition in fisheries, aqua culture, skill development, local tourism etc. which are beneficial to livelihood of coastal communities.

There is a need for up-skilling/re-skilling the existing labour force in order to minimize the supply-demand gap. So considering the above factors there are 3 areas to focus skill development in coastal areas.

1. To promote skill training programs for jobs related to ports and maritime sector.

2. To promote skill training and livelihood generation in coastal districts to support development of human capital for the proposed industrial clusters.
3. To provide access to the training facilities of major ports for skill training programs in coastal districts, therefore reducing the need to develop training infrastructure in coastal areas.

There are around 150 projects identified under SAGARMALA project which deals with port modernization, new port development, poor connectivity port-led industrialization and coastal community development. These are capable of creating approximately 1 crore new jobs including 40lakh direct jobs by 2025 in these industrial clusters.

<b>S.NO</b>	<b>Industrial clusters</b>	<b>Direct job creation potential(in lakh)</b>
1.	9 Energy clusters	0.6
2.	4 Material clusters	2.6
3.	2 Marine clusters	2.5
4.	14 Discrete manufacturing clusters	33
<b>TOTAL</b>		<b>38.7</b>

*Types of energy clusters:*

<b>S.NO</b>	<b>Proposal</b>	<b>Potential industrial investment(INR Cr)</b>	<b>Employment potential (lakh)</b>	<b>Incremental GDP (INR Cr)</b>
1.	2 refinery and petrochemical clusters	45000	0.1	20000
2.	4 gas based petrochemical clusters	16000	0.3	5500
3.	3coastal power cluster	75000	0.2	15000

*Marine and material clusters:*

1.	2steel clusters	135000	2.5	80000
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2.	2cement clusters	50000	0.1	9000
3.	2marine clusters	40000	2.5	10000

*Manufacturing clusters:*

1.	2 Food processing clusters	50000	3	9000
2.	2 science & technology clusters	140000	7	60000
3.	1 automotive cluster	55000	2.5	25000
4.	3 leather and foot wear clusters	25000	6	13000
5.	3 furniture clusters	60000	4.5	20000
6.	3 apparel clusters	50000	10	20000
	<b>TOTAL</b>	7,00,000-8,00,000	40	3,00,000

*Lowering logistical cost and boost in GDP:*

This project by the shipping ministry will help in reduction of logistic cost for both domestic cargo and EXIM trade and increases the GDP by 2%. An overall cost savings of 35,000-40,000 cr annually is estimated. India whose logistic cost is 19 percent of GDP which is amongst the highest in the world will be reduced under this SAGARMALA programme. The reduction in logistical cost can be achieved by four strategic levers.

1. Optimising multi-modal transport for cost reduction of domestic cargo.
2. Reducing time and cost of export-import cargo logistics.
3. Minimizing cost for bulk industries by installing them nearer to the coast.
4. Improving export competitiveness by spotting discrete manufacturing industries near port.

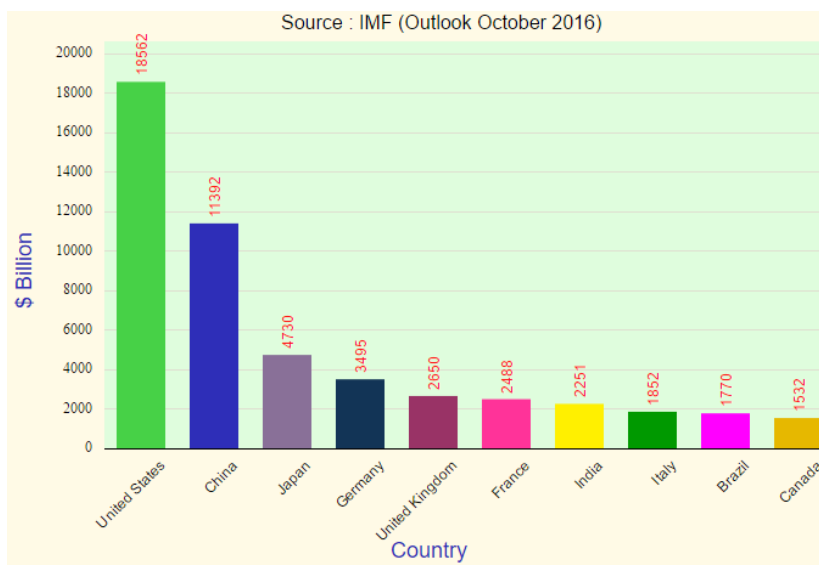
There will be a considerable decrease of 60-80% in cost of raw materials and finished products using coastal shipping and inland waterways. Comparing with china and European countries, logistic cost of India is very high ( i.e. 19% of GDP). It is around 6-8% for china and 12% for European countries. The main reason for India's high logistic cost is the transport cost through rail and roadways. Where as in china and European countries the usage of inland waterways and transporting cargo through water which in return reduces the transport cost, fuel consumption and reduces the overall logistical cost.

Since logistics contribute 30-35% of the cost of power generation, coastal movement of coal can cut power cost by 50p/unit for power plants which can save Rs 17,000 cr annually. By using correct infrastructure,

India can coastally move 200MTPA of coal saving 17000cr INR per annum by 2025. In 2013-2014 nearly about 740MTPA of coal moved through the country by rail and only 23MTPA moved through coastal shipping which had cost one-sixth that of rail cost at about 20 paisa per tonne against about Rs 1.2 per tonne. This coastal movement of coal could save 1 lakh rail-rake days that can be used for other commodities.

India's GDP is 2.264 trillion USD by 2016, which makes it to stand in top 6<sup>th</sup> nation in the world where United States tops the table with 18.57 trillion USD.

This SAGARMALA project boosts India GDP by 2% annually which is 45.82 billion USD. So this will increase GDP from 2.264trillion USD to 2.309 trillion USD only through this project.



benefits

Overview and of SAGARMALA:

1. Improving

- the coastal economy by developing coastal economic zones and coastal economic units.
2. Implementing projects regarding to the coastal integrating corridors.
3. Developing port based smart cities, green fields and other urban infrastructure to improve standard of living.
4. Implementation of skill development, livelihood generation projects for coastal communities.
5. Developing coastal tourism projects that includes light houses and main land islands and also fishery sector.
6. Modernization and capacity expansion of existing ports.
7. Introducing green field ports to reduce bottle neck for future growth.
8. Development of port evacuation (road, railway and inland waterways).
9. Reduction of overall logistical cost and hence boosting GDP by building coastal corridor.
10. Giving employment opportunity by introducing new ports.
11. Development of maritime sectors like ship building and repair cluster leading to new economic activity in the region.
12. Reducing cargo transport time and cost by using inland waterways hence reducing fuel consumption and emissions.
13. Increasing cargo holding capacity of the ports.

#### References

1. SAGARMALA "Building Gateways of Growth" National Perspective Plan April 2016.
2. Ministry of Shipping: Yearend Review Setting the Stage for Growth.
3. Sagarmala: Concept and implementation towards Blue Revolution.
4. [currentaffairs.gktoday.in/tags/sagarmala-project](http://currentaffairs.gktoday.in/tags/sagarmala-project).
5. The Indian Ocean Policy of the Modi Government, RR Chaturvedy - MODI AND THE WORLD

6. "Concept Note on Sagarmala Project: Working Paper". Ministry of Shipping, Government of India. Retrieved 4 July 2015.
7. <http://economictimes.indiatimes.com/news/economy/policy/nod-to-sagarmala-development-company-with-rs-1000-crore-authorized-share-capital/articleshow/53308267.cms>