

## Green Port the Way forward for Indian Ports

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### Abstract

Ports in India have been used from the prehistoric times. Evidences have been found about trading between the Indus Valley civilisations and the Egyptians suggesting use of water routes to harness trade. Even in modern times, trade flourishes in the country via the water ways and hence ports and their maintenance becomes a major concern for the country. This paper deals with green port development that has been implemented by the Indian government. It relooks into the concept of green ports as a step towards environmental stewardship.

**KEYWORDS:** Green Ports, Sustainable practices, environmental stewardship.

### Introduction

Ports in India have been the backbone of trade and development. India has a coastline of over 7500 kms and many of our ports have natural harbours. Manmade ports have too sprung up to handle the commodity traffic of the country and to enable a geographical distribution of the ports in the Arabian Sea and Bay of Bengal. During 2014-15, the total overseas cargo handled at Indian ports was placed at 879.56 million tonnes<sup>1</sup>. Indian Overseas trade registered a growth of 8.4% in 2014-15 over 2013-14. The total cargo handled at Indian Ports (major and non-major) increased to 1052.23 2 million tonnes in 2014-15 from 972.46 million tonnes in 2013-14 reflecting an increase of 8.2% during 2014-15. India's major ports handled more than 55% of the cargo handled at Indian ports. The ports handle several commodities such as iron ore, petroleum crude, coal, fertiliser etc. Given below is a table 1, showing the Commodity-wise Traffic Handled by All Ports (Million Tonnes)<sup>3</sup> for the year 2014-15. Petroleum & its products continue to be the single largest commodity handled by the ports, constituting 33.1% of the total seaborne traffic in Indian ports.

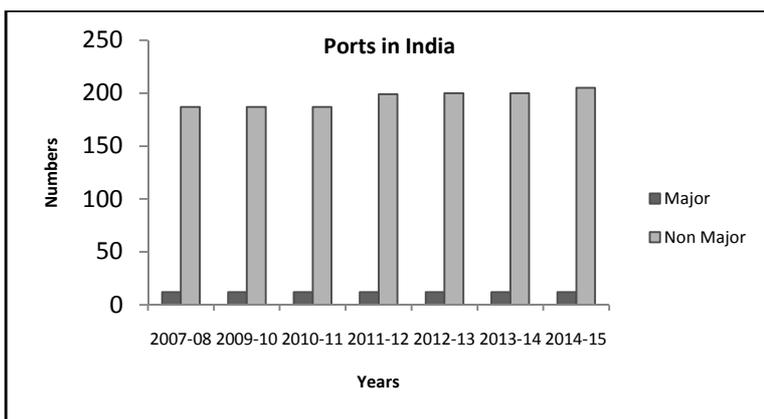
Table 1	In Million Tonnes						
Year	Petroleum	Iron Ore	Building Material	Coal	Fertiliser	Others	Total
2014-15	348.30	44.80	14.22	276.21	30.24	338.46	1052.23

Historically, the ancient ports have enabled the trading of commodities from the Indus Valley civilisation times to the British times. Lothal, Calicut, Kolkata, Mumbai, Chennai, Goa, Tuticorin have traded textiles, spices, coal, silk, muslin, artifacts, fish and pearls. Over the years, cargo handling capacity of major ports has steadily increased to cater to the growing volume of internal and external trade. The capacity of the ports which was 172.59 million tonnes at the end of 1993-94 increased to a level of 871.52 million tonnes at the end of 2014-15 which is almost a five times increase.

<sup>1</sup> Ministry of Shipping

<sup>2</sup> Ministry of Road and Highways

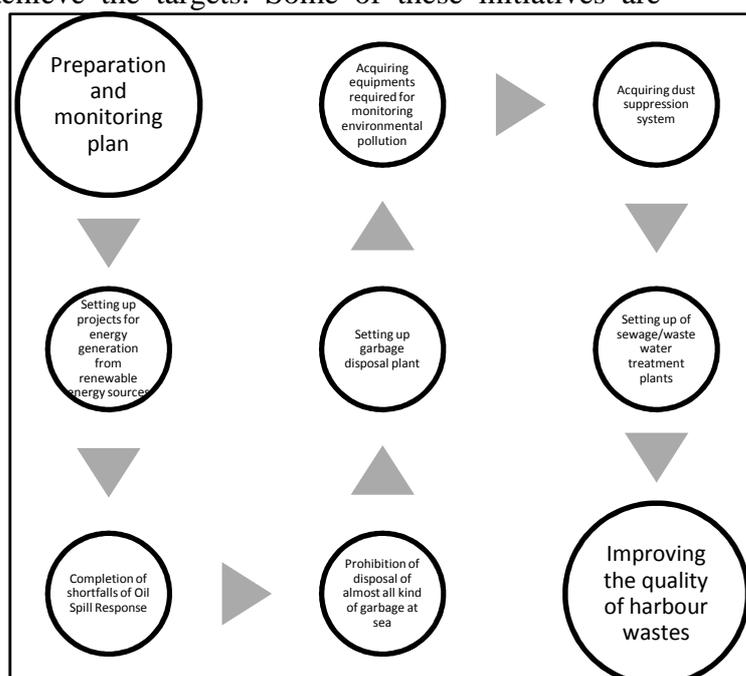
<sup>3</sup> *Opcit*, pXI.



### Green Ports in India; Genesis

According to the Ministry of Shipping, Government of India, ports in India have been increasing becoming green. With the introduction of ‘Project Green Ports’ attempts have been made at the governmental levels to make the major ports across India cleaner and greener. ‘Project Green Ports’ is to be in two verticals - one is ‘Green Ports Initiatives’ related to environmental issues and second is ‘Swachh Bharat Abhiyaan’.

The Green Port Initiatives include twelve initiatives which would be implemented in a defined time frame in order to achieve the targets. Some of these initiatives are preparation and monitoring plan , acquiring equipments required for monitoring environmental pollution, acquiring dust suppression system, setting up of sewage/waste water treatment plants/ garbage disposal plant, setting up projects for energy generation from renewable energy sources, completion of shortfalls of Oil Spill Response (OSR) facilities (Tier-1), prohibition of disposal of almost all kind of garbage at sea, improving the quality of harbour wastes etc.



Under Swachh Bharat Abhiyaan, the Ministry has identified 20 activities with certain time-line to promote cleanliness at the port premises. Some of the activities include cleaning the wharf, cleaning and repairing of sheds, cleaning and repairing of port roads, painting road signs, zebra crossing, pavement edges, modernizing and cleanliness of all the toilet complexes in the operational area, placement of dustbins at regular intervals, beautification and cleaning of parks, boards indicating cleanliness messages, cleaning and repairing of all drainages and storm water systems and tree plantation.<sup>4</sup>

<sup>4</sup> Ministry of Shipping, Press Release.

In order to achieve these objectives, regular training would be extended to the staff to generate awareness and inculcate a positive attitude towards keeping the environment clean and green. All the Major Ports have already initiated action on the above mentioned activities and are making good progress. (Government of India Ministry of Shipping). There are 12 major ports, Kandla, Mumbai, JNPT, Marmugao, New Mangalore, Cochin, Chennai, Ennore, V O Chidambarnar, Visakhapatnam, Paradip and Kolkata (including Haldia), which handle about 61 per cent of the country's total cargo traffic.

The different activities under the reorientation of the ports include:-

- Spatial planning port and surrounding area
- Transport modalities
- Information infrastructure
- Environmental quality (water, soil, air, dredged material, noise etc.)
- Climate change (mitigation and adaptation)
- Nature, biodiversity, landscape and quality of life

Ports play a significant role in the overall economic development of a place, ensuring the development along the water routes and trade. There are some environmental impacts of port activity as has been discussed by the OECD Report, namely, impacts caused by port activities, impacts caused by shipping activities and emissions of intermodal transport due to movement of freight and traffic.

### **Status of the Green Ports Today**

Launched in 2015 by the Ministry of Shipping, some of the outcomes of the program as claimed by the Ministry are:-

- a. 'Swachhta Pakhwada' - sanitation and cleanliness campaign launched on the 16th of March 2017 for the twelve major ports.
  - The campaign emphasized cleanliness and sanitation for the long term development of ports
  - Implementation of Environmental Management and Monitoring Plan to be benchmarked to international standards, conventions and parameters
  - Quality Council of India (QCI) was tasked to assess the Swachhata activities undertaken by all the Ports.
  - Better organizational and employee discipline to promote a drive against spitting and spilling of plastics & wastes was observed during the campaign.
  - All 193 lighthouses across India have been solarized. The lighthouses can generate 1.4 MW/hr of clean energy.
  - Besides this an ambitious target of generating 100 MW of solar energy has been set up for the twelve major ports against which 23 MW was achieved by March 31, 2017.

- Special awareness campaigns for cleaning of work place, tidying up of the office and port premises, tree plantation and beautification drives were undertaken at all Ports and other Organizations.
- As per the Ministry's website, 538 toilets and 265 office rooms were renovated; a total of 195.8 KM roads were repaired across Major Ports and others Organisations. 63696.32 tonnes of trash was disposed. Under the program of greening of Ports and office spaces, 65,498 new trees were planted.

**b. Assessing the Green Initiatives of the Major Ports**

	Major Ports	Green Ports Initiatives
1	Kandla	Yes
2	Mumbai	Yes
3	JNPT	Yes
4	Marmugao	Yes
5	New Mangalore	Yes
6	Cochin	--
7	Chennai	Yes
8	Ennore	--
9	V O Chidambarnar	Yes
10	Visakhapatnam	Yes
11	Paradip	--
12	Kolkata ( Haldia)	Yes

Kandla has been leading with several initiatives taken towards green ports. It has been also suggested by the Ministry of Shipping to convert the Kandla port with its land bank in the vicinity into a smart green city. The initiatives taken by Kandla port include,

- 6MW wind power project
- Solar roof top project
- Disposal of Scrap
- LED light installation in the entire port area.

Haldia became the first green port in the country with the using of biodiesel to run its railways, engines, trucks. The Ministry of Shipping has directed the use of renewable sources of energy and is in the process of installing solar and wind based power systems at all the major Ports across the country. The target is to set up 90.64 MW of solar energy capacity at twelve Major Ports and 70 MW of wind energy capacity at four Major Ports, by 2017. The total financial implications of the solar projects will be Rs. 407.7 crore<sup>5</sup>. A total of 6.94 MW of solar projects has already been commissioned with Vishakhapatnam Port leading the way with 6.25 MW, the other ports in which solar projects have been commissioned are Kolkata, New Mangalore, V.O. Chidambaranar and Mumbai.

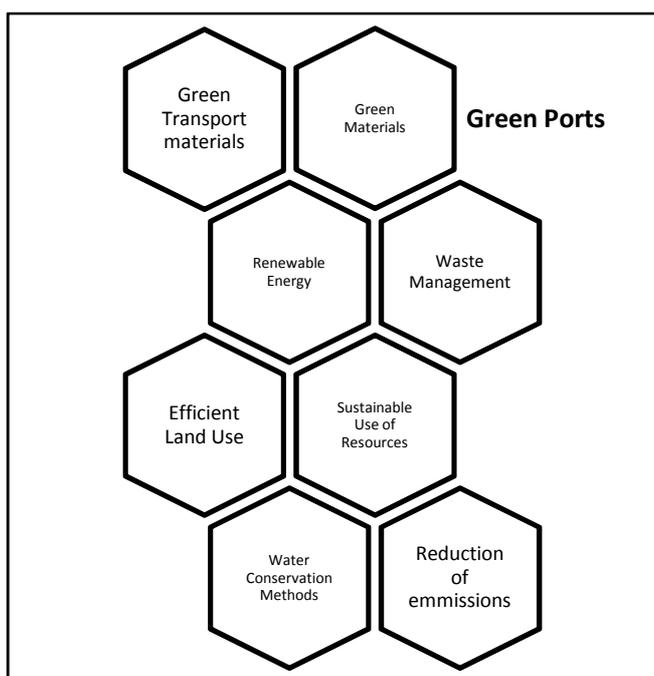
<sup>5</sup> Ministry of Shipping, Press Information Bureau, Government of India

## Concluding Remarks

Ports importance in India is reiterated by the fact that, about 90% of India trade volume and 70% by value move by sea. All of India's ports are administered by the government of India, under the Major ports Trust Act, 1963, except the Ennore port. Green ports as introduced to the Indian major ports have an inbuilt nature of environmental stewardship which may be a manner in which the government is attempting to make the ports more efficient and sustainable. It is believed that employment of a holistic approach and adaptive management built around a sustainability framework can promote innovative environmental practices, initiate green collaborations and transparent regulatory mandates. Though sustainability elements can increase initial costs, they can yield substantial life cycle savings resulting from lower energy and water consumption and wastewater and emissions production, lower environmental costs in the long run.

Port development can create a wide range of impacts on the environment through dredging, construction work, landfills, discharges from ships and waterfront industries, cargo operations, and other port related activities. There are some effects of port development include water pollution, contamination of bottom sediments, loss of bottom habitat, damage to marine ecology and fisheries, beach erosion, current

pattern changes, waste disposal, oil leakage and spillage, hazardous material emissions, air pollution, noise.



Green ports have been encouraged in India by the new regulations passed by the Government of India. Though the initiatives have been commendable it is too much in the nascent stages to see the effectiveness of the green initiatives.

Infrastructure construction needs time and the impact studies will hold true only after some years in operation. There is an absence of a holistic sustainable port development in the green port

concept highlighted in India. A sustainable Green port needs to focus on the following :

- Using green transport materials like biofuels, solar vehicles to reduce the carbon footprint
- Renewable energy resources for using in the port handling and berthing facilities.
- Management of waste in the port area to enable a clean environment, including segregation, reduction and composting facilities. Facilities for biomethanisation plants can also be encouraged.

- d. Ports have water utilisation; hence conservation of water through waste water treatment plants and reusing of the recycled water can help reducing wastages.
- e. Reduction of carbon emission from the port premises can help in reducing the carbon footprint.
- f. Sustainable use of resources would enable the systematic use of the existing resources of energy, water, land and human resources.

The green ports a necessity of the modern ports need to be highlighted and worked with more emphasis on sustainable port facilities. There needs to be seeping down of these initiatives to the remaining 200 minor ports and private ports in the subsequent years. This will enable the country to be efficient in the trade and port management. Consequently, green ports will allow the carbon footprint to reduce and the country will emerge as a major destination of sustainable green practices in the ports.

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