

## Green Port Initiatives in India

**Sachin. S. Pendse**

Phd Tolani College of Commerce, Andheri East, Mumbai 93.

---

### Abstract

Ports are a vital link between the sea and land as well as in the entire chain of logistics. India has set on a path of economic development. This obviously will have an impact on the international trade and sea-borne trade in particular. 95% of the country's trade by volume and 70% by value moves through maritime transport, highlights the importance of ports and their contribution in sustaining the growth and development of the Indian economy. With 12 major ports and 187 minor ports, India ranks 16th among maritime countries and has one of the largest merchant shipping fleets in the world. Ministry of Shipping has stated that the volume, cargo traffic at Indian ports increased to from 850 million tons in 2009-10 to 883 million in 2010-11 883 million tons in 2010-11. With the ministry of shipping setting up ambitious targets for the days to come, it is apparent that the port infrastructure has withered to be revamped or new facilities need to be developed.

With the ministry of Shipping focusing to develop new ports and revamping the older ones, there was also a need to make them as environmentally friendly as possible. It is for this the two major initiatives i.e Green Port and Swachha Bharat, are aimed to make the ports as much environmentally friendly as much clean. This paper looks into the green port initiative of India.

**KEYWORDS:** Ports, traffic, Green Ports.

---

**Introduction:** The changing frontiers of global economic has shown a shift in the manufacturing functions being relocated in the low-cost countries. One off the most important impacts will in terms of increase in logistics support. The fact that approximately 95% of the country's trade by volume and 70% by value moves through maritime transport highlights the importance of ports and their contribution in sustaining the growth and development of the Indian economy. With 12 major ports and 187 minor ports, India ranks 16th among maritime countries and has one of the largest merchant shipping fleets in the world. Ministry of Shipping has stated that the volume, cargo traffic at Indian ports increased to from 850 million tons in 2009-10 to 883 million in 2010-11 883 million tons in 2010-11.



Source: <https://www.ibef.org>

The planning commission has estimated that in the 12<sup>th</sup> five year plan (2012-2017) the port sector may have investment to tune of about 1.8 million rupees<sup>i</sup>. As a matter of fact The ports sector received foreign direct investment (FDI) worth USD 1,635.08 million between April 2000 and July 2011, which was 1.13% of the total FDI inflows into India, according to the Department of Industrial Policy and Promotion (DIPP), which is a part of the Ministry of Commerce and Industry and which formulates FDI policy in India.<sup>ii</sup> The Ministry of Shipping, the nodal agency for ports, encompasses the shipping and port sectors, including shipbuilding and ship repair, major ports and inland water transport. As per government policy, 100% FDI is allowed in port development projects.

A major promotional initiative of the ministry is the National Maritime Development Programme (NMDP), an initiative to develop the maritime sector, with an outlay of USD 11.8 billion. The policy lists measures for enhancing private investment, improving service quality and promoting competitiveness to meet medium- and long-term objectives. Besides the NMDP, the government has initiated two more notable regulatory and policy initiatives to ensure the holistic development of the Indian port sector — the National Maritime Agenda 2010–20 which outlines the framework for the development of the port sector with a target capacity of over 3 billion tons by 2020 and the Draft Port Regulatory Authority Bill, 2011, provides for the establishment of a regulatory authority to regulate rates for facilities and services provided at the ports and to monitor the performance standards of port facilities and services.

The Indian government plans to develop 10 coastal economic regions as part of plans to revive the country’s Sagarmala (string of ports) project. The zones would be converted into manufacturing hubs, supported by port modernization projects, and could span 300–500 km of the coastline.

Port development is one of the fundamental support services crucial for economic development, but it does come with a price and the price is in terms of environmental

impacts. Developing ports involves a variety of externalities like air pollution, noise, accidents, vibration, land acquisition, and visual intrusion. The impacts are diverse, in terms of the range of externalities and the distances over which there, impact extends. The environmental effects of can be divided into first-order and second-order impacts. The first-order environmental impacts are those directly associated with freight transport, warehousing and materials handling operations. Second order impacts result indirectly from these logistics operations and take various forms. For instance, advances in logistics have facilitated the process of globalization so that goods are now sourced from previously little-developed parts of the world. Partly to accommodate the consequent growth in freight traffic in such areas, governments have expanded transport infrastructure and this has often encroached on sensitive environments. The increase in freight traffic resulting from global sourcing is a first-order effect, whereas the increase in infrastructure, such as road building in sensitive areas, is a second-order effect.

Climate change is considered to be the one of the most serious environmental challenge; and transport sector has been one of the largest contributors to the greenhouse gas (GHG) emissions. There is an increased demand for cleaner and greener transport operations and it is for this there is also an increasing call for cleaner and greener ports, both by public and the governments. India being one of the first signatories at the Rio Summit on climate change is committed to look into the aspect of environmental implications of such large-scale port development projects. Cost of development of ports must not only consider the economic costs but also wider environmental and social costs. It is these aspects that were traditionally rarely considered in past.

The Maritime Agenda for 2010-2020, the government has emphasised on the need for the development of Indian port capacity in a more environmentally friendly way. The government has also suggested some of the following measures for moving towards 'green ports'.

**Economic measures include:**

- the use of cleaner fuels such as low sulphur diesels, biodiesel in all port equipments;
- well-enforced idling time restrictions of the vehicles in the port area;
- measures such as terminal gate improvements, simplifying trade procedures, and designing a logistic chain which produces less traffic and lower air emissions;
- controlling the temperature of bunkers during storage or using scavenging agents to reduce emissions during bunkering operations;
- speed reduction, and the use of specially designed paints to reduce drag and vessel assignment planning for harbour craft;
- the formulation of green tariffs for vessels which reduce their speed and use distillate fuel within port limits; and
- water curtains for the coal storage area to prevent coal dust flying from the storage yard and spreading through the port.

### **Capital intensive measures include:**

- replacing or retrofitting cleaner engines for cargo-handling equipment, vehicles and harbour craft;
- repowering of the old, highly polluting locomotives and tugboats with several new low emission engine options, including natural gas and hybrid battery-electric engines
- cold ironing for ships and port tugboats;
- the building of infrastructure such as separate corridors for cargo, widening of roads and flyovers, and improving intersections for better traffic;
- the use of volatile organic compounds for oil installations, gas filling stations and bunkering barges in the port area;
- the use of renewable energy such as wind, solar power, biogas or alternative fuel such as natural gas or propane for the port's energy needs; and
- green curtains through tree plantation, mainly to mitigate the effect of carbon dioxide emission.

**Green Port Initiative:** Weighing in the environmental perspective for sustained growth, the Ministry of Shipping has started 'Project Green Ports' which will help in making the Major Ports across India cleaner and greener<sup>iii</sup>. The Green Port initiative will have two verticals - one is '*Green Ports Initiatives*' related to environmental issues and second is '*Swachh Bharat Abhiyaan*'.

The Green Port Initiatives will include preparation and monitoring of a plan to acquire has twelve initiatives to be implemented in a time bound fashion. 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<sup>iv</sup>.

**Initiatives under Swachh Bharat Abhiyan:** A 'Swachhta Pakhwada' launched by the Hon'ble Minister of Shipping, Sh. Nitin Gadakari on the 16<sup>th</sup> of March 2017 at the Shipping House in Mumbai, was a major sanitation and cleanliness campaign and observed by all the twelve major ports, five PSEs and seven attached offices/organizations of the Ministry of Shipping.

The 'Swachhta Pakhwada' emphasized cleanliness and sanitation but brought the focus on the setting up of 'Green Ports' for sustainable, environment friendly, long term development of ports. A common agenda was planned and implemented by all organizations to provide impetus to the program. This included renovations of rooms and toilets, cleaning of wharfs and sheds, repair of sheds, auction and disposal of all unserviceable items and unclaimed goods, painting with uniform colour code (unique to a Port) of all signages and boards, beautification and cleaning of parks, covering tiles,

modernizing all toilet complexes , placing dust bins at regular intervals, boards – indicating cleanliness messages – dos & don'ts, painting, whitewashing all office buildings and residences with proper colour, proper keeping of files, records, dak pads and other important papers in the office/work places, cleaning and painting of statues, cleaning & repairing of all drainages and storm water system, plantation in open area, avenues and corners.

Special emphasis was laid on use of technology to maintain cleanliness and hygiene at ports and the organisations under the Ministry of Shipping. Use of solid and liquid waste management, modernisation of toilets in all complexes under the Ministry, acquisition of Dust Suppression System, equipments for monitoring environmental pollution at ports , usage of bio-diesel are some of the highlights.

Another emphasis towards green port was use of state-of-the art planning and implementation of an Environmental Management and Monitoring Plan or the 'Green Plan' in all Ports. This will be benchmarked to international standards, conventions, and parameters.

Approximately 42,000 employees of all organizations under the ministry participated in this cleanliness drive to make this a success. Better organizational and employee discipline to promote a drive against spitting and spilling of plastics & wastes was observed during the campaign.

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.

To ensure that the objectives area attained the initiative will also provide training on a regular basis with the intention of generating awareness and inculcate a positive attitude towards keeping the environment clean and green.

**Green Ports:** The All-weather port Haldia in West Bengal is set to become the country's first green port soon. Inaugurating the bio-diesel dispensing unit at Haldia Dock Complex on Wednesday, Union minister of road transport, highways and shipping Nitin Gadkari said that the government is working on the standards for bio-diesel usage. "In a couple of months, new standards will be in place," he said. With this plant, Haldia Port becomes the first green port in the country which will use bio-diesel to run its railway engines, trucks and other vehicles. The eight oil refineries that import palm oil from Malaysia and it has been using its residue to manufacture 3 lakh litres of bio-diesel. "Emami Group has started manufacturing 3 lakh litres per day of biodiesel at Haldia which is being used in trucks and railway engines. It is the first green port in India where only biodiesel is being used<sup>v</sup>,

**Green Energy:** As a part of 'Green Port Initiative' the Ministry of Shipping aims to generate solar and wind power so that all of the dockyards in the 12 major ports of India will be able to switch to energy generated from these renewable energy sources. The government aims to install 200 megawatt solar and wind plants at the ports by 2019.

Of the total energy demand around 75 % will be generated via solar panels, with the remainder from on and off-shore wind farms. If this plan succeeds than the generation capacity is envisaged to be expanded to generate of 500 megawatts of power. The project will begin to set up solar power generation capabilities of 91.50 MW at total cost of 412 Cr and 45 MW of wind power generation at cost of 292.5 Cr in ports of Kandla and V.O Chidambarnar.

Once operational to their fullest capacities it will reduce CO2 emissions by 136.5 MT every year and reduce power bills by about 75 Cr in addition to silent benefit of making the port environment eco-friendly. This is a huge savings just by two ports.

Already ports a few ports have taken the lead to install solar power generation to tune of 15.20 MW. These include Visakhapatnam port leads by generating 9 MW followed by Kolkata port with 0.06 MW, New Mangalore port with 4.35 MW, V.O. Chidambaranar port with 0.5 MW, Mumbai port with 0.12 MW, Chennai port with 0.1 MW, Mormugao with 0.24 MW and Jawaharlal Nehru Port Trust (JNPT) with 0.82 MW.

Sr. No	Project Name	Project Cost in USD, Million	Project Proponent
1	Development of 14.5 MW Wind Farm ,Chennai Port (ChPT)	14.6	ChPT
2	Setting up of 25 MW Solar power plant at Jawaharlal Nehru Port Trust (JNPT)	23.07	JNPT
3	Setting up of 14 MW solar power plant at Kandla Port Trust (KPT)	12.9	KPT
4	Setting up of 15 MW renewable power plant at V. O. Chidambaranar Port Trust (VoCPT)	13.84	VoCPT
	<b>Total</b>	<b>64.41</b>	

ABB India has commissioned a state-of-the-art solution for shore-to-ship power supply for ships (cold ironing port system) at the V.O.Chidambaranar Port, formerly the Tuticorin Port. This solution expands the scope of the green agenda beyond renewable power to technology, which will enable ships docking at a port to plug for power instead of running on polluting diesel generators and using expensive power. ABB Shore-to-Ship technology supplies ships that are docked with electricity from shore, so they can turn off the diesel engines that provide electricity for systems like heating, lighting and refrigeration of the vessel, and reduce greenhouse gas and noise emissions in port. The technology also helps reduce low-frequency noise and vibrations, and allows the crew to maintain diesel engines while the ship is berthed.

All 193 lighthouses across India are now using solar power. Clean and green energy is now used by the lighthouses, which generate 1.4 MW/hr of clean energy.

Such ambitious projects won't be cheap, with early estimates reaching 500 crore, the very concept and design of the project to reduce carbon emissions and offset the cost of purchasing power from the national grid, boosting the government's pledge to increase the share of renewable sources in its overall energy strategy in itself be the larger benefit.

**Conclusions:** Ports form a vital link in the process of economic development. India has embarked on a mission to develop its port infrastructure, but at the same time committing to its pledge towards a greener earth. The green port initiative with its two verticals of Project Green Port and Swachh Bharat Abhiyan are steps forward, which will definitely be a feather in the cap for our commitment towards environmental protection.

**References:**

- 
- <sup>i</sup> <http://www.investindia.gov.in/ports-sector/>
  - <sup>ii</sup> <http://www.investindia.gov.in/ports-sector/>
  - <sup>iii</sup> <http://pib.nic.in/newsite/PrintRelease.aspx?relid=134595>
  - <sup>iv</sup> <http://pib.nic.in/newsite/PrintRelease.aspx?relid=134595>
  - <sup>v</sup> Free Press Journal, April 16 2015