

PROMOTION OF PRIVATE SECTOR PARTICIPATION (PSP) IN INDIAN PORTS

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ABSTRACT

Purpose: This paper discusses the importance of Indian ports and the need for the development of the existing port facilities by way of Public Private Partnerships (PPPs).

Methodology: Secondary sources of data were collected, for example, articles, journals, reports, books, etc., for the research paper. The collected data were compiled to bring out the various investment strategies for private sector participation and risks involved.

Findings/originality: Based on the data and available strategies and investment levels, a matrix was designed to make the right mix and choice for investment in the port sector.

Keywords: Ports; Private sector participation (PSP); Private Public Partnership (PPP); Government of India

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INTRODUCTION

Indian Economy

The Indian economy is currently one of the fastest growing economies in the world. It encompasses an agriculture sector that sustains much of the rural populations, a modern and varied industrial sector, and sizable service sector. Since liberalisation in 1991, the economy has been growing at an average annual rate of around 6.67%, as compared to 5.4% in the 1980s and 3.5% prior to that. There is lot of work to be done in order to lead to a dynamic double-digit growth rate. A variety of new schemes to improve conditions in infrastructure are required, including ports, roads, highways, etc., if India is to sustain rapid growth. Economic growth has been unevenly spread across states and territories in India, prompting the Government of India to devise ways of creating more balanced regional development. One means of achieving this outcome is to create an environment that encourages foreign firms to invest.

The introduction of a port privatisation programme was flagged of in India in 1997; private management in the port domain has represented a strong trend in the developing countries over the last few years. This principally concerns the handling and storage of freight transiting via ports, and funding and operation of the infrastructures and equipment required for these activities. This trend has involved the setting up of complex, multi-dimensional partnerships between the public port authorities and the terminal operators.

Ports in India

India has a coastline of 7,517Km, with around 12 major ports and 185 minor ports. The 12 major ports are Kolkata (including the Dock Complex at Haldia), Paradip, Visakhapatnam, Chennai, Ennore, and Tuticorin on the east coast, and Cochin, new Mangalore, Mormugao, Jawaharlal Nehru at Nhava Sheva, Mumbai and Kandla on the west coast. The port sector in India handles 90% in volume and 30% in terms of value of India's Export and Import (EXIM) trade. The 12 major ports handled a record 647.43 million tonnes (MT) of traffic in 2016–17, registering an annual growth rate of 6.79%, compared with 4.32% in 2015–16.

Major ports have been benchmarked to international standards, and 116 initiatives were identified to bring them up to this standard. Of these, 70 initiatives have been implemented and the remainder will be implemented by 2019. This has resulted in unlocking 80 million tonnes per annum (MTPA) capacity. Implementation of these initiatives would further improve the efficiency and productivity of the major ports.

Significant investments have been made on a Build-Operate-Transfer Mode (BOT) by foreign players such as Maersk (Jawaharlal Nehru Port Trust (JNPT), Mumbai), P&O Ports (Jawaharlal Nehru Port Trust, Mumbai and Chennai), Dubai Ports International

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(Cochin and Vishakapattinam), and PSA Singapore (Tuticorin). The New Captive Policy guidelines were issued in July 2016 to ensure uniformity and transparency in the procedure for awarding captive facilities in the ports. This will allow concessionaires to handle non-captive cargo up to 30% of the designed capacity of the berth. The New Berthing Policy came into effect from August 2016. This policy provides a standardised framework for the calculation of norms specific to the commodity handled and infrastructure available on the berth. This will improve the efficiency at ports and productivity norms across ports. The New Stevedoring Policy has been implemented since July 2016. This will improve productivity, efficiency and safety in the ports. The existing Model Concession Agreement of 2008 is under process of revision, and will address the concerns of PPP projects and prevent them from getting stressed. The Major Port Authorities Bill was introduced in the Lok Sabha in December 2016; this will modernise the institutional structure of the ports to usher in professional governance in the ports.

The involvement of private companies in port management has led to the introduction of a complex, multi-dimensional partnership with the port authority. A port facility is connected to different entities on which the business chain flows (see Figure 1).

In order to make transportation more viable, a port authority needs to be well equipped to accommodate all complex processes that may come in the business chain. Over the years, the Government of India has strived to take bold steps in order to compete in the world port market.

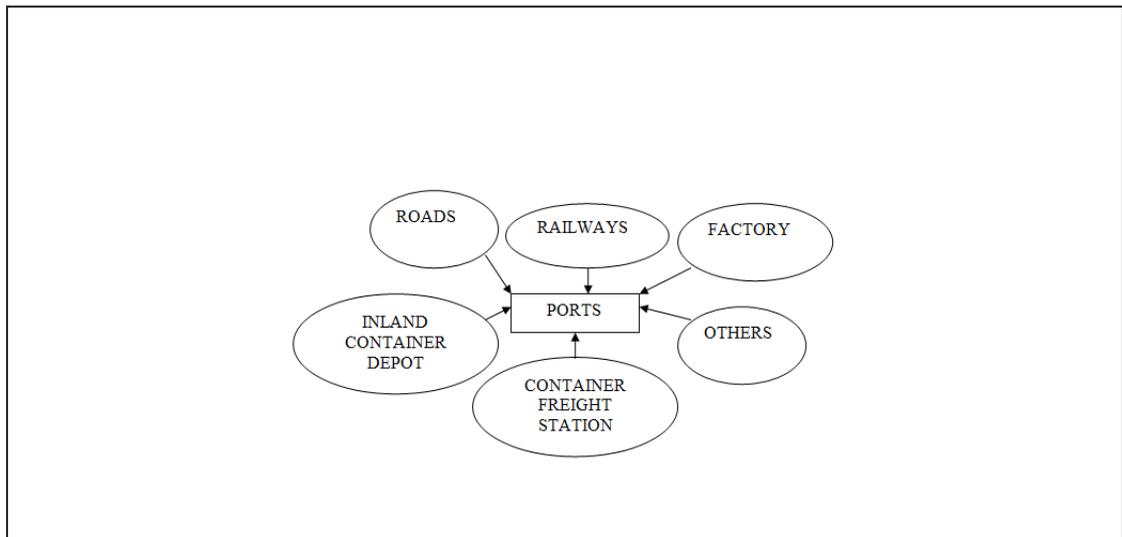


Figure 1 Port Connectivity

Source: Devised by author

Ports are complex combinations of interlocking elements, including natural features, infrastructure and superstructure, linked through transport connections to other ports and to distribution centres in the hinterland. The management of natural resources, infrastructure and superstructure may all be in different hands, as well as serving independent logistics businesses that use port facilities.

The participation of public sector authorities is normally necessary, because of the need for environmental protection in the development of natural harbours and subsequent operations, and the need for security at national boundaries. In addition, infrastructure is more easily managed in the public sector when extensive planning powers are needed. However, cargo-handling operations and inland transportation links, as well as the shipping companies who use them and the clients of those companies, are in the main carried out by commercial private sector companies. Buildings, plant and equipment, and services tend also to be more efficiently provided by private commercial organisations.

Some other services, such as customs and public security are, once again, natural functions of the state. This is because of the lack of sufficient incentives for private sector organisations to take action in the wider public interest. At maritime ports, effectively located at national boundaries, a range of public security services is needed, placing limits on private sector services.

Trade through Indian Ports

Major ports in India have recorded a growth of 3.24%, and together handled 326.4MT of cargo during the period April to September 2017; this is compared with 316.1MT handled during the corresponding period of the previous year. Seven ports, Kolkata, Paradip, Chennai, Cochin, New Mangalore, Mumbai and JNPT, registered positive growth in traffic during the period April to September 2017.

The following is a discussion of the cargo traffic handled at major ports in India:

- the highest growth was registered by Cochin Port (19.62%), followed by Kolkata [including Haldia], New Mangalore, Paradip with growth of about 12%;
- the growth in Cochin Port was mainly due to an increase in traffic at the Port of Loading (POL) (27.8%) and containers (10.3%);
- in Kolkata Port, overall growth was positive, i.e. 11.95%. Kolkata Dock System (KDS) registered traffic growth of 0.72%. Haldia Dock Complex (HDC) registered positive growth of 17.74%;
- during the period April to September 2017, Kandla Port handled the highest volume of traffic, i.e. 53.29MT (16.33% share), followed by Paradip with 47.61MT (14.59% share), JNPT with 32.69MT (10.02% share), Mumbai with 31.23MT (9.57% share),

and Visakhapatnam with 30.15MT (9.24% share). Together, these five ports handled around 60% of major port traffic;

- commodity-wise, the percentage share of POL was the highest, i.e. 34.01%, followed by containers (20.22%), thermal and steam coal (12.66%), other miscellaneous cargo (12.17%), coking and other coal (7.6%), iron ore and pellets (6.65%), other liquids (4.35%), finished fertiliser (1.24%), and fertiliser raw material (FRM) (1.11%).

“Growing ports are becoming catalysts for shaping the vision of a ‘New India’. The Government is committed towards inclusive development to generate continuous growth and prosperity. Timely delivery of projects will help give the much needed boost to economy” (Public Investment Board, 11 October 2017). These include the dry port at Wardha and infra projects in Andaman and Nicobar Islands, under the Sagarmala Programme that aims to save logistics costs and pave the way for port-led development.

THE NEED FOR INVESTMENT IN INDIAN PORTS

Increase in Trade/traffic at Indian Ports

Cargo traffic at the major ports is estimated to rise to 943.1MT for the financial year 2017. The Foreign Trade Policy envisages the doubling of India’s share in global exports in the next five years. A large portion of the foreign trade will be through the maritime route: 95% by volume and 70% by value.

The growth in merchandise exports projected at over 13% p.a. underlines the need for large investments in port infrastructure. Investment of 287,000 crores is needed in the major and minor ports under the National Maritime agenda 2010–2020 to boost the infrastructure. Under the maritime agenda, port capacity of around 3,200MT needs to be created to handle the expected growth in trade traffic. Public-private partnerships are seen by the Government as the key to improve major and minor ports. Of the proposed investment in major ports, it is envisaged that 64% will come from private players. The plan proposes an additional port handling capacity in major ports through:

- a. projects related to port development (construction of jetties, berths, etc.);
- b. procurement, replacement and/or upgrading of port equipment;
- c. deepening of channels to improve draught;
- d. projects related to port connectivity.

*International Scenario***Table 1 World's Top Ten Ports 2015**

<i>Rank</i>	<i>Name of the Port</i>	<i>Volume in Million TEUs as at 2015</i>
1	Shanghai, China	36.54
2	Singapore	30.92
3	Shenzhen, China	24.20
4	Ningbo Zhoushan, China	20.63
5	Hong Kong, China	20.07
6	Busan, South Korea	19.45
7	Qingdao, China	17.47
8	Guangzhou Harbor, China	17.22
9	Jebel Ali, Dubai UAE	15.60
10	Tianjin, China	14.11
34	Jawaharlal Nehru Port Trust, India	4.49

Source: The Journal of Commerce annual top 50 World Container Ports; Lloyd's List annual Top 100 Ports; AAPA World Port Rankings; Drewry World Container Traffic Port Handling; individual port websites

The above Table 1 shows that China (a developing economy) has beaten major developed countries in terms of cargo traffic handled at ports; India's position was 34th. The report says that Mumbai handles almost 56% of the country's containerised traffic and is constantly faced with congestion issues. Serious attention needs to be given to maximising port capacity as maximum trade moves from India. Efforts should be made to make India a hub port for the cargo moves from India to Sri Lanka, South Africa, Australia, Japan, China, USA, Europe, etc.

The Failures of Public Ports

Although some of the largest, most efficient ports in the world are public ports, relatively few are operated by the private sector. The enthusiasm for increasing private sector participation (PSP) in port operations derives from the failure of public port operations to meet the following objectives:

- to provide services that are efficient and cost-effective from the port user point of view;
- to respond to changes in cargo-handling technologies;
- to respond to the changing requirements of the port users;
- to provide choices of services and foster competition;

- to make timely capital investment to improve efficiency and expand capacity;
- to generate the funds needed to finance investments;
- to enforce labour discipline in the face of strong trade unions.

GOVERNMENT INITIATIVE

The Role of Private Sector Participation (PSP)

Looking at the increasing cargo traffic at Indian ports, the focus has to be on capacity enhancement of major ports through modernisation, the provision of cost-effective services, and the enhancement of service quality rather than creating new capacity. There is also a need to commercialise port operations. In such a scenario, the private sector has great potential to play an important role; in the last five years, PSP in the development of ports has been very encouraging. The projects will create additional capacity and facilities to accommodate the growing demand.

Modes for PSP

Private sector participation in the development of ports in India is encouraged through two models. Under the first model, the private sector can exclusively build and operate the facility; after completion of the concession period, the port is transferred to the relevant port authority. The second model envisages the involvement of the private sector through joint venture projects.

However, the private sector cannot participate in all types of port development projects. The areas allowed for PSP are listed below:

- a. leasing out existing port assets;
- b. construction/creation of additional assets, such as:
 - i. construction and operation of container terminals;
 - ii. construction and operation of bulk, break-bulk, multi-purpose and specialised cargo berths;
 - iii. warehousing, container freight stations, and storage facilities;
 - iv. cranes/handling equipment;
 - v. setting up of captive power plants;
 - vi. dry docking and ship repair facilities.
- c. leasing of equipment for port handling and leasing of floating crafts from the private sector;
- d. pilotage;
- e. captive facilities for port-based industries.

All ports can identify projects for implementation through PSP. The relevant port authority prepares a feasibility report for the project, and invites tenders from

investors based on the feasibility report. The evaluation of the bids is made on the basis of maximum realisation to the port using the net present value analysis method. The BOT model is generally preferred. The assets revert to the port authority at the end of the concession period. The port authority decides the concession period for each case, not exceeding the allowable maximum of 30 years.

Process of Private Sector Participation (PSP)

To facilitate the process of private participation, the Government has prepared a model bid document, the salient features of which are as follows:

- a. introduction of the concept of revenue sharing in place of minimum guaranteed throughput;
- b. compensation for default;
- c. permission of giving charge on assets in favour of lenders by the licensee for seeking financial closure.

As a part of the investment policy for ports, a number of incentives are given to the private sector. These are:

- a. foreign equity up to 100% is now permissible in the construction and maintenance of ports and harbours, and in projects providing support services to water transport, such as the operation and maintenance of piers, loading and discharging of vehicles;
- b. 10 years of tax holiday can be availed of during the initial 20 years of concession;
- c. concessional customs duty at 10% on specified ports equipment.

The following depicts the need for capacity expansion of major and non-major ports.

Sagarmala Policy

The Sagarmala Project is a strategic and customer-oriented ₹8,000,000 million (US\$120 billion or €110 billion) investment initiative of the Government of India. It entails the setting up of more than 6 mega ports, modernisation of several dozen more ports, development of more than 14 coastal economic zones and at least 29 coastal economic units, development of mines, industrial corridors, rail, road and airport linkages with these water ports. This will result in export revenue growth of US\$110 billion, the generation of 150,000 direct jobs and several times more indirect jobs. It aims to modernise India's Ports so that port-led development can be augmented and coastlines can be developed to contribute in India's growth. It also aims to "transforming the existing Ports into modern world class Ports and integrate the development of the Ports, the Industrial clusters and hinterland and efficient evacuation systems through

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road, rail, inland and coastal waterways resulting in Ports becoming the drivers of economic activity in coastal areas” (Government of India, 2015).

Under the Sagarmala programme, 415 projects, at an estimated investment of approximately ₹7.98500 lakh crore (US\$120 billion), have been identified across port modernisation and new port development, port connectivity enhancement, port-linked coastal economic zone industrialisation and coastal community development for phase wise implementation over the period 2015 to 2035. As per the approved implementation plan of the Sagarmala scheme, these projects are to be taken up by the relevant Central Ministries/Agencies and State Governments, preferably through private/PPP mode. The details are shown in Table 2 below.

Table 2 Details of Sagarmala Programme

S. No.	Project Theme	No. of Projects	Project Cost (Rs. Cr)
1.	Port Modernisation	189	₹1,428,280 million (US\$22 billion or €19 billion)
2.	Connectivity Enhancement	170	₹2,305,760 million (US\$36 billion or €30 billion)
3.	Port-Linked Industrialisation	33	₹4,208,810 million (US\$66 billion or €56 billion)
4.	Coastal Community Development	23	₹42,160 million (US\$660 million or €560 million)
	Total	415	₹7,985,000 million (US\$120 billion or €110 billion)

Source: Taken from Sagarmala Project

Risk Management

Any investment is attached to risk; the degree of risk may vary from project to project. With the robust plans under various policies and other initiatives suggested, risks are bound to arise. It is therefore important that such risks are identified and mitigation plans should be made in order to manage such risks. The following factors are identified as risks for port operators:

1. monetary risk: mainly exchange rate and currency risks;
2. economic risk: financial management risks for ports;
3. force majeure: natural catastrophes;
4. interference risk/political risk: state or public body interference in PPP-led projects were noted to create delays and often involved lengthy political negotiations;
5. country risk: this may be where foreign-based operators have a greater controlling

interest and these can have implications for local port operators. Risks of social imbalance such as unemployment, strikes, natural environment disturbance, interference of political parties, social groups, etc. can also arise;

6. legal risk: risks of non-compliance;
7. security risk: inadvertently dealing with goods classified as security risks. Developing facilities at the port side, which acts as a security system, is of major importance in any PPP-led project.

RECOMMENDATIONS

Reformation

Reformation involves the transfer of the port’s core businesses to the private sector without transferring ownership of the port’s major capital assets. The most common arrangement is the leasing of the port’s cargo-handling facilities together with the licensing of the right to provide services to private parties. The port transfers the responsibility for maintenance of the facility and for collection of cargo-handling charges. In exchange, the private sector pays set fees to the port. Under this agreement, the port no longer interacts directly with the port users but retains some regulatory authority over the quality and pricing of services. By transferring responsibility for operations and maintenance, the port can reform its organisation to focus on administration and planning (see Figure 2).

Alternatively, the port can form wholly owned subsidiaries with private participation that operate as commercial enterprises. This approach is less common because most countries require that subsidiaries of public ports also operate as public service entities.

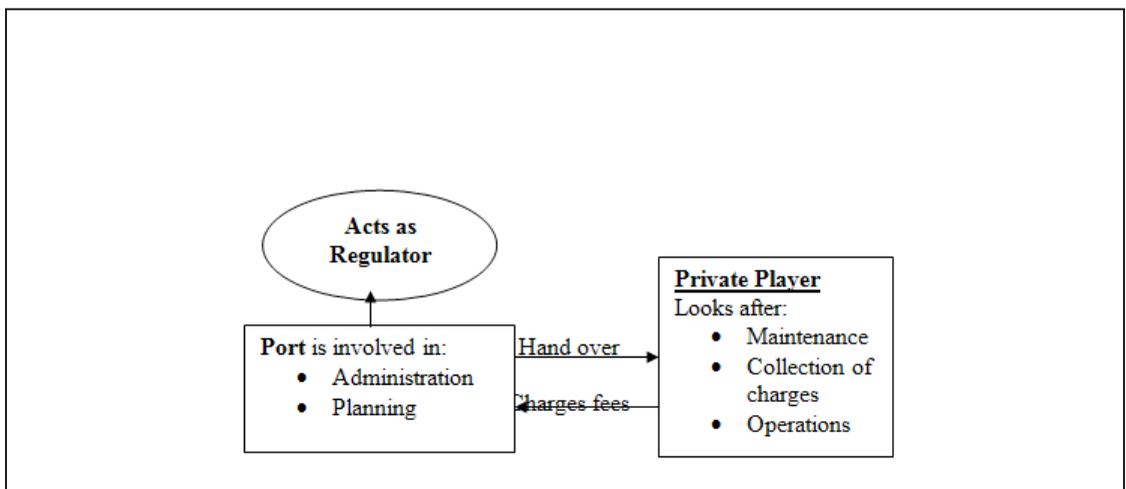


Figure 2 Structure of Reformation

Source: Devised by author

A number of ports have created subsidiaries to provide professional services to other ports. Less common are subsidiaries that provide cargo-handling services. Some of the container terminal operating companies in Korean and Chinese ports are effectively independent subsidiaries.

Converting from Service Ports to Landlord Ports

With the growing move towards privatisation of seaports all over the world subsequent to reforms, private sector participation in operations and infrastructure activities of seaports has been increased substantially over the last few years. This has resulted in a fundamental change in the organisational model of ports, converting from a service port model to a landlord port model. This is where the port authority retains the port infrastructure and fulfils its regulatory functions, while port services are provided by private operators that own the assets conforming to port superstructure and equipment required for service provision.

Landlord Ports - The Concept

In this model, the port authority constitutes a landlord, which manages the basic port assets by letting the land and infrastructure to port operators in an efficient manner. The landlord port in this model would be involved in planning, lease negotiation, safety, navigation and overall coordinating functions. Cargo services, marine service, ancillary services, berths, etc., are privatised on a captive/BOT basis to the primary port users. Port operators and other undertakings that need to be located in the port, lease the land, infrastructure and associated services and provide them to the secondary users - cargo owners, ship owners and cargo ship owners. With intense competition, the role of Indian ports is changing from a service port model to a landlord port model. This concept is already in place with the best examples being Ennore port and to some extent JNPT port. Similar practices can be adopted for other major ports.

Outsourcing

Outsourcing involves the transfer of specific port activities from the public sector to the private sector while permitting the port to function as an operating port. The port reduces operating costs and increases efficiency by utilising private companies to supply labour and equipment and to perform specific services. A wide range of port services and activities can be outsourced.

Four types of agreements can be used to implement this strategy:

1. *subcontracting*: the port contracts the private sector to perform the services that the port offers to its users;
2. *franchising*: the private sector provides port services directly to the port users but under terms and conditions specified by the port;

3. *management contracts*: this allows the port to have a contract with the private sector to manage specific services utilising the port's equipment and labour;
4. *equipment leases*: transfers responsibility for the maintenance and operation of cargo-handling equipment to the private sector. The port utilises this equipment to provide services to its users.

Free Ports Status to Minor Ports

In order to grow coastal trade and encourage minor ports, some of the minor ports can be declared as "free ports". Under a free ports arrangement, the port authority can authorise private players to handle complete port operations on a "line arrangement", where charges from the private operator will be paid from the fees charged to shipping lines.

This initiative is to spur growth of minor ports; therefore the shipping line should not be burdened with heavy charges. Public sector lines should be exempt from any such charges but custom cargo clearance must be made compulsory. Free ports certainly raise the question of security: here the role of the customs authority comes to mind, hence it is suggested that private players should coordinate with customs to scrutinise the approach to free ports. Therefore, private player participation for enabling IT infrastructure, specialised security systems, management of speedier cargo transport, etc., comes into play.

Dredging Operation

Major ports require a great deal of maintenance in order to have smooth operations. Foreign participation can be sought in the area of maintenance dredging and capital dredging.

Maintenance dredging: maintenance dredging is necessary to maintain safe operational water depths for navigation, and to facilitate continued access to many of the berths, docks, wharves and jetties. With the percentage of private participation, better facilities can be provided.

Capital dredging: capital dredging involves the creation of new or improved facilities such as a harbour basin, a deeper navigation channel, a lake, or an area of reclaimed land for industrial or residential purposes. Such projects are generally characterised by the following features:

- relocation of large quantities of material;
- compact soil;
- undisturbed soil layers;
- low contaminant content (if any);
- significant layer thickness.

A joint venture with private players can be made and the above projects can be made on a larger scale.

Cruise Terminal

The passenger cruise industry is the fastest growing leisure industry in India. In order to tap into this market, private participation should be invited and special cruise terminals can be set-up with international facilities. These terminals should allow for faster customs clearance for foreign passengers. Here, the public sector can have a controlling interest and services can be let out to private partners.

Roll On-Roll Off (Ro-Ro) Facility

The exports of cars and other vehicles are increasing and huge exports are done from the west coast of India. To cater to increasing vehicle exports, it is important that an efficient and effective Ro-Ro jetty is available with state-of-art facilities. Private participation can be sought in this area. A public-private investment (49:51 ratio) in this area would be valuable.

Ports in the Special Economic Zone (SEZ) or Giving SEZ Status to Ports

Stress is recently been given to SEZ, which will mainly provide for foreign investment or private participation in development of infrastructure facilities. The benefits of ports under SEZ are:

- reduced cost of infrastructure;
- reduced cost of utilities;
- reduced cost of raw materials;
- reduced cost of capital;
- reduced cost of manpower;
- operational ease.

SEZ status to either major ports, or to a larger extent to minor ports, will help to reduce the captive expenditure, which may burden the Government of India. This will lead to a single window approach, reducing the operational complications.

Single Buoy Mooring (SBM) Points

The SBM facility proposed by Kochi refineries at Cochin, IOC at Mundra, etc., is an example of participation in public facilities by private players. Such initiatives should be encouraged on a larger scale.

Downsizing

The objective of downsizing includes reducing the size of the government bureaucracy and the range of activities for which the government is responsible. For operating ports, this requires that both port employees and services be transferred to the private sector. If there is an excessively large labour force, the port must apply a strategy of voluntary and mandatory retirements. If the private sector is to assume responsibility for paying off the excess labour, it must have a sufficiently long-term contract to allow it to amortise these costs. If the port retains the labour, then it must retain some tariffs to pay for the excess labour. The reduction in port labour remains one of the most contentious components of plans to increase PSP. Much of the effort in reaching agreement with private sector involvement has focused on labour redundancy. This has been especially difficult in Latin America and South Asia where there are strong unions. Buenos Aires and Port Kelang were both successful in combining private sector hiring and generous retirement benefits. Nhava Sheva and Laem Chaebang benefited from starting out with relatively small workforces, which they could retain after concessioning some of their facilities.

Suggested Framework

Based on the options suggested above, the following suggestion matrix (Table 3) can be utilised by major and non-major ports, depending on their existing budget and governmental support. In addition, this framework can also be referred to by government to identify or classify ports based on the existing capacity and volume of traffic handled into the “preferential port”.

Table 3 Suggested Framework

<i>Recommendations</i>	<i>JNPT Port</i>	<i>Kandla Port</i>	<i>Paradip Port</i>	<i>Kolkata Port</i>	<i>Mumbai Port</i>	<i>Vizag Port</i>	<i>Ennore Port</i>	<i>Cochin Port</i>	<i>Non major Ports</i>
Reformation									
Service ports to Land lord ports									
Outsourcing									
Free port status to minor ports									
Dredging operations									
Cruise Terminal									
Ro-Ro facility									

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Ports in SEZ or giving SEZ status to ports									
Single Buoy Mooring									
Downsizing									
Port storage facility									
Ship repair facility									

Source: Devised by author

CONCLUSIONS

For India to be on the world's infrastructure map and conquer leading investment destination position, it also needs to give its public utilities an international set up in order to match international standards. To enable such a competitive edge, the port infrastructure needs to demonstrate both growth and effective risk management, together with effective incentives to attract private investment.

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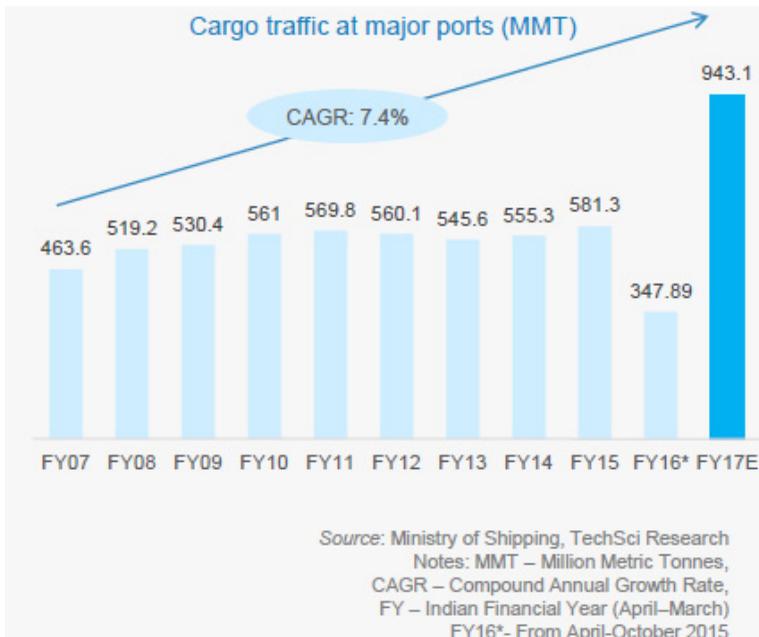
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ANNEX

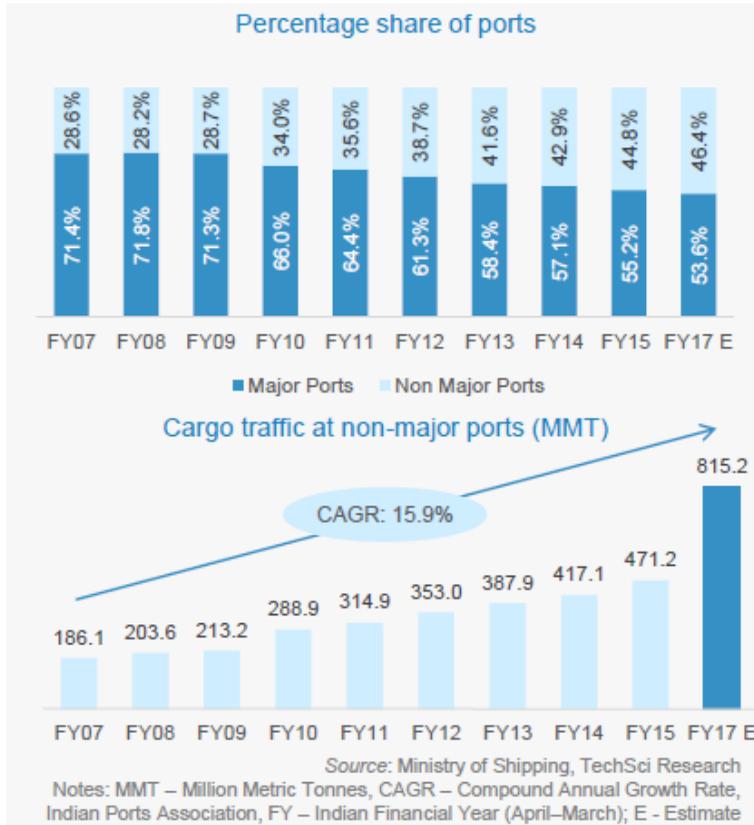
TRAFFIC HANDLED AT MAJOR PORTS 2016-17 vis-a-vis 2015-16

PORT	(in Million Tonnes)		
	2016-17	2015-16	% Growth (+/-)
KOLKATA	50.31	50.28	0.05
PARADIP	88.95	76.39	16.45
VISAKHAPATNAM	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
J.N.P.T.	62.02	64.02	-3.13
KANDLA	105.44	100.05	5.39
OVERALL:	647.63	606.47	6.79

Source: Indian Port Association



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STRONG PSP

Terminals in major ports with private sector involvement	Port agency	Estimated cost (USD million)
Container terminal, Ennore	Ennore	293.1
LNG terminal, Cochin	Cochin Port Trust	729.1
Container terminal, NSICT	JNPT	156.3
Oil jetty related facilities (Vadinar)	Kandla Port Trust	156.3
Third container terminal (Mumbai)	JNPT	187.5
Crude oil handling facility (Cochin)	Cochin Port Trust	146.5
ICTT at Vallarpadam (Cochin)	Cochin Port Trust	262.9
Construction of SPM captive berth (Paradip)	Paradip Port Trust	104.2
Development of second container terminal (Chennai)	Chennai Port Trust	103.1

Key private sector companies	Ports they developed
Maersk	JNPT (Mumbai)
P&O Ports	JNPT, (Mumbai and Chennai)
Dubai Ports International	(Cochin and Vishakhapatnam)
PSA Singapore	Tuticorin
Adani	Mundra
Maersk	Pipavav
Navyuga Engineering Company Ltd	Krishnapatnam
DVS Raju group	Gangavaram
JSW	Jaigarh
Marg	Karaikal

As on 2015

Source: Indian Ports Association, TechSci Research
 Notes: NSICT – Nhava Sheva International Container Terminal, Mumbai, ICTT – International Container Transshipment Terminal, SPM – Single Point Mooring

Terminals in major ports with private sector involvement (FY15)	Port agency	Capacity (Million tonnes)	Estimated cost (USD million)
Development & Operation of International Container Transshipment Terminal (ICTT) at Vallar-padam	Cochin Port	12.5 to 40 MMT in Phases	353
Setting up of LNG Port & ReGasification Terminal at Puthuvypeen by Cochin / Cochin Port Trust	Cochin Port	5 MMPTA	691.1
Multi-User Liquid Terminal (MULT) at Puthuvypeen SEZ (International Bunkering Terminal at Cochin)	Cochin Port	4.10 MMPTA	38.4
Conversion of berth No. 8 as container terminal on	Tuticorin	7.2 MTPA	52.03
Development of North Cargo Berth – II on DBFOT basis.	Tuticorin	7.0 MTPA	55.36
Enhancement of Cargo Handling capacity by installing rapid in motion wagon loading facility by SWPL	Mormugao Port Trust	2.50 MTPA	7.5
Development of Container Terminal on DBFOT basis	Kamarajar Port Ltd	16.8MT	210.68
Development of Multi Cargo Terminal on DBFOT basis	Kamarajar Port Ltd	2.00	25.05

As on FY15

Source: Indian Ports Association, TechSci Research

Notes: NSICT – Nhava Sheva International Container Terminal, Mumbai, ICTT – International Container Transshipment Terminal, SPM – Single Point Mooring